



Event # 427-5

Name: Las Olas Garage Lighting Facade

Description: The City of Fort Lauderdale, Florida (City) is seeking qualified, experienced and licensed firm(s), hereinafter referred to as Contractor, Bidder or Proposer, to provide a turnkey, dynamic Façade Lighting System (DFLS) at the Las Olas Parking Garage for the City, in accordance with the terms, conditions, and specifications contained in this Request for Proposals (RFP).

Buyer: MCDONALD, KIRK

Status: Pending Award

Event Type: RFP

Currency: USD

Sealed Bid: Yes

Respond To All Lines: Yes

Q & A Allowed: Yes

Number Of Amendments: 5

Display Bid Tabulation: Display When Event Closed For Bidding Or Canceled

Event Dates

Preview:

Q & A Open: 03/12/2025 02:30:00 PM

Open: 03/12/2025 02:00:00 PM

Q & A Close: 04/08/2025 02:00:00 PM

Close: 04/29/2025 02:00:00 PM

Dispute Close:

Questions

Question	Response Type	Attachment
Did you fill out and attach the Required Forms?	Yes No Text	_Required Forms Packet - Forms 1-10.pdf
Did you sign and attach Addendum No. 1?	Yes No	

Meetings

Meeting	Description	Location	Date	Required
Pre-Proposal Site Visit	We will meet at the electrical panel location of the building	Las Olas parking Garage	04/16/2025 10:00:00 AM	No
Pre-Proposal Site Visit and Conference	Pre-Proposal Site Visit and Conference	Las Olas Parking Garage	03/20/2025 02:00:00 PM	No

Event # 427-5: Las Olas Garage Lighting Facade

Attachments

Name	Attachment
General Conditions	1. General Conditions - Rev 08-2023.pdf
Specifications	Event 427 Turnkey Dynamic Façade Lighting System.pdf
Exhibits	Event 427 Exhibits.pdf
Electrical As-Builts	Electrical As-Builts.pdf
Addendum No. 1	Addendum No_1.pdf

Contacts

Name	Email Address
KIRK MCDONALD	kmcdonald@fortlauderdale.gov

Commodity Codes

Commodity Code	Description
285-54	Lighting Fixtures, Indoor: All Kinds and Parts (Including La
285-56	Lighting Fixtures, Outdoor: Floodlights, Spotlights, Yard Li
557-50	Lamps/Lighting, Lens, and Signals, Interior and Exterior
906-58	Lighting (Interior, Exterior) - Architectural Services
918-84	Parking Consultant
931-53	Lighting Fixtures Maintenance and Repair
936-53	Parking Equipment Maintenance and Repair (See 936-37 for Par
988-54	Lighting Services for Parks, Athletic Fields, Parking Lots,

Line Details

Event # 427-5: Las Olas Garage Lighting Facade

Line 1: Las Olas Garage Lighting Facade

Description: Furnish and install custom, programmable, LED (or approved equal) lighting system that is integrated into the architectural "fins" of the Las Olas Parking Garage

Item: LAS OLAS GARAGE LIGHTING FACADE Las Olas Garage Lighting Facade

Commodity Code: 285-56 Lighting Fixtures, Outdoor: Floodlights, Spotlights, Yard Li

Manufacturer Code: MFC

Division: DIV

Manufacturer Number: LAS OLAS GARAGE LIGHTING FACADE

Quantity: 1.0000

Unit of Measure: LS

Require Response: Yes

Price Breaks Allowed: No

Allow Alternate Responses: No

Add On Charges Allowed: No

Line 2: Monthly Maintenance Façade Lighting System

Description: Monthly Maintenance Façade Lighting System

Item: MONTHLY MAINTENANCE FAÇADE LIGHT Monthly Maintenance Façade Lighting System

Commodity Code: 285-56 Lighting Fixtures, Outdoor: Floodlights, Spotlights, Yard Li

Manufacturer Code: MFC

Division: DIV

Manufacturer Number: MONTHLY MAINTENANCE FAÇADE LIGHTING SYSTEM

Quantity: 12.0000

Unit of Measure: MO

Require Response: Yes

Price Breaks Allowed: No

Allow Alternate Responses: No

Add On Charges Allowed: No

SECTION I – INTRODUCTION AND INFORMATION

1.1 Purpose

The City of Fort Lauderdale, Florida (City) is seeking qualified, experienced and licensed firm(s), hereinafter referred to as Contractor, Bidder or Proposer, to provide a turnkey, dynamic Façade Lighting System (DFLS) at the Las Olas Parking Garage for the City, in accordance with the terms, conditions, and specifications contained in this Request for Proposals (RFP).

1.2 Point of Contact

For information concerning procedures for responding to this solicitation, contact Procurement Specialist Kirk McDonald at (954) 828-5073 or email at kmcdonald@fortlauderdale.gov. Such contact shall be for clarification purposes only.

For information concerning technical specifications, please utilize the question / answer feature provided by the [City's on-line strategic sourcing platform](#). Questions of a material nature must be received prior to the cut-off date specified in the RFP Schedule. Material changes, if any, to the scope of services or bidding procedures will only be transmitted by written addendum. Contractors please note: Proposals shall be submitted as stated in PART IV – Submittal Requirements. No part of your proposal can be submitted via FAX. No variation in price or conditions shall be permitted based upon a claim of ignorance. Submission of a proposal will be considered evidence that the Contractor has familiarized themselves with the nature and extent of the work, and the equipment, materials, and labor required. The entire proposal must be submitted in accordance with all specifications contained in this solicitation. The questions and answers submitted in the [City's on-line strategic sourcing platform](#) shall become part of any contract that is created from this RFP.

1.3 Pre-proposal Conference and Site Visit

There will be a pre-proposal conference and site visit scheduled for this Request for Proposal. It is strongly suggested that all Contractors attend the pre-proposal conference and/or site visit.

While attendance is not mandatory, tours at other times might not be available. It is the sole responsibility of the Contractor to become familiar with the scope of the City's requirements and systems prior to submitting a proposal. No variation in price or conditions shall be permitted based upon a claim of ignorance. It is strongly suggested that all Contractors attend the pre-proposal meeting and/or site visit.

It will be the sole responsibility of the Contractor to attend the pre-proposal/site visit to inspect the City's location(s) facilities systems prior to submitting a proposal. No variation in price or conditions shall be permitted based upon a claim of ignorance. Submission of a proposal will be considered evidence that the Proposer has familiarized themselves with the nature and extent of the work, equipment, materials, and labor required.

If a person decides to appeal any decision made by the board, agency, or commission with respect to any matter considered at such meeting or hearing, he or she will need a record of the proceedings, and that, for such purpose, he or she may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based.

Please refer to the "Meetings" tab in INFOR for information on meeting date, time and location.

1.4 CITY'S ON-LINE STRATEGIC SOURCING PLATFORM

The City of Fort Lauderdale uses the City's on-line strategic sourcing platform to administer the competitive solicitation process, including but not limited to soliciting proposals, issuing addenda, posting results and issuing notification of an intended decision. There is no charge to register and download the RFP from the City's on-line strategic sourcing platform. Proposers are strongly encouraged to read the supplier tutorials available in the [City's on-line strategic sourcing platform](#) well in advance of their intention of submitting a proposal to ensure familiarity with the use of the City's on-line strategic sourcing platform. The City shall not be responsible for a Proposers inability to submit a Proposal by the end date and time for any reason, including issues arising from the use of the City's on-line strategic sourcing platform.

It is the sole responsibility of the Proposer to ensure that their proposal is submitted electronically through the City's on-line strategic sourcing platform no later than the time and date specified in this solicitation. PAPER PROPOSAL SUBMITTALS WILL NOT BE ACCEPTED. PROPOSALS MUST BE SUBMITTED ELECTRONICALLY VIA the [City's on-line strategic sourcing platform](#).

1.5 Electronic Bid Openings/Proposal Closings

Please be advised that effective immediately, and until further notice, all Invitation to Bids, Request for Proposals, Request for Qualifications, and other solicitations led by the City of Fort Lauderdale will be opened electronically via the [City's on-line strategic sourcing platform](#) at the date and time indicated on the solicitation. All openings will be held on the City's on-line strategic sourcing platform.

Anyone requesting assistance or having further inquiry in this matter must contact the Procurement Specialist indicated on the solicitation, via the Question-and-Answer forum on the City's on-line strategic sourcing platform before the Last Day for Questions indicated in the Solicitation.

END OF SECTION

SECTION II - SPECIAL TERMS AND CONDITIONS

2.1 General Conditions

RFP General Conditions (Form G-107, Rev. 02/22) are included and made a part of this RFP.

2.2 Addenda, Changes, and Interpretations

It is the sole responsibility of each firm to notify the Buyer utilizing the question / answer feature provided by the [City's on-line strategic sourcing platform](#) and request modification or clarification of any ambiguity, conflict, discrepancy, omission, or other error discovered in this competitive solicitation. Requests for clarification, modification, interpretation, or changes must be received prior to the Question and Answer (Q & A) Deadline. Requests received after this date may not be addressed. Questions and requests for information that would not materially affect the scope of services to be performed or the solicitation process will be answered within the question / answer feature provided by the City's on-line strategic sourcing platform and shall be for clarification purposes only. Material changes, if any, to the scope of services or the solicitation process will only be transmitted by official written addendum issued by the City and uploaded to the City's on-line strategic sourcing platform as a separate addendum to the RFP. Under no circumstances shall an oral explanation given by any City official, officer, staff, or agent be binding upon the City and should be disregarded. All addenda are a part of the competitive solicitation documents, and each firm will be bound by such addenda. It is the responsibility of each to read and comprehend all addenda issued.

2.3 Changes and Alterations

Proposer may change or withdraw a Proposal at any time prior to Proposal submission deadline; however, no oral modifications will be allowed. Modifications shall not be allowed following the Proposal deadline.

2.4 Proposer's Costs

The City shall not be liable for any costs incurred by Proposers in responding to this RFP.

2.5 Pricing/Delivery

Contractor shall quote a firm, fixed price for all services stated in the RFP. All costs including travel shall be included in your proposal. The City shall not accept any additional costs including any travel associated with coming to the City of Fort Lauderdale.

All pricing must include delivery and installation and be quoted FOB: Destination.

2.6 Price Validity

Prices provided in this Request for Proposals (RFP) shall be valid for at least One Hundred and Twenty (120) days from time of RFP opening unless otherwise extended and agreed upon by the City and Bidder/Proposer. The City shall award contract within this time period or shall request to the recommended awarded vendor an extension to hold pricing, until products/services have been awarded.

2.7 Invoices/Payment

The City will accept invoices no more frequently than once per month. Each invoice shall fully detail the related costs and shall specify the status of the particular task or project as of the date of the invoice with regard to the accepted schedule for that task or project. Payment will be made within forty-five (45) days after receipt of an invoice acceptable to the City, in accordance with the Florida Local Government Prompt Payment Act. If, at any time during the contract, the City shall not approve or accept the Contractor's work product, and agreement cannot be reached between

the City and the Contractor to resolve the problem to the City's satisfaction, the City shall negotiate with the Contractor on a payment for the work completed and usable to the City.

A payment schedule based upon agreed upon deliverables may be developed with the awarded Contractor.

2.8 Related Expenses/Travel Expenses

All costs including travel are to be included in your bid. The City will not accept any additional costs.

2.9 Payment Method

The City of Fort Lauderdale has implemented a Procurement Card (P-Card) program which changes how payments are remitted to its vendors. The City has transitioned from traditional paper checks to payment by credit card via MasterCard or Visa. This allows you as a vendor of the City of Fort Lauderdale to receive your payment fast and safely. No more waiting for checks to be printed and mailed. Payments will be made utilizing the City's P-Card (MasterCard or Visa). Accordingly, firms must presently have the ability to accept credit card payment or take whatever steps necessary to implement acceptance of a credit card before the commencement of a contract. See Contract Payment Method form attached.

2.10 Mistakes

The proposer shall examine this RFP carefully. The submission of a Proposal shall be prima facie evidence that the consultant has full knowledge of the scope, nature, and quality of the work to be performed; the detailed requirements of the specifications; and the conditions under which the work is to be performed. Ignorance of the requirements will not relieve the consultant from liability and obligations under the Contract.

2.11 Acceptance of Proposals / Minor Irregularities

2.11.1 The City reserves the right to accept or reject any or all proposals, part of proposals, and to waive minor irregularities or variances to specifications contained in proposals which do not make the proposal conditional in nature and minor irregularities in the solicitation process. A minor irregularity shall be a variation from the solicitation that does not affect the price of the contract or does not give a respondent an advantage or benefit not enjoyed by other respondents, does not adversely impact the interests of other firms, or does not affect the fundamental fairness of the solicitation process. The City also reserves the right to reissue a Request for Proposal.

2.11.2 The City reserves the right to disqualify Proposer during any phase of the competitive solicitation process and terminate for cause any resulting contract upon evidence of collusion with intent to defraud or other illegal practices on the part of the Proposer.

2.12 Modification of Services

2.12.1 While this contract is for services provided to the department referenced in this RFP, the City may require similar work for other City departments. Successful Proposer agrees to take on such work unless such work would not be considered reasonable or become an undue burden to the Successful Proposer.

2.12.2 The City reserves the right to delete any portion of the work at any time without cause, and if such right is exercised by the City, the total fee shall be reduced in the same ratio as the estimated cost of the work deleted bears to the estimated cost of the work originally planned. If work has already been accomplished and approved by the City on any portion of a contract resulting from this RFP, the Successful Proposer shall be paid for the work

completed on the basis of the estimated percentage of completion of such portion to the total project cost.

2.12.3 The City may require additional items or services of a similar nature, but not specifically listed in the contract. The Successful Proposer agrees to provide such items or services and shall provide the City prices on such additional items or services. If the price(s) offered are not acceptable to the City, and the situation cannot be resolved to the satisfaction of the City, the City reserves the right to procure those items or services from other vendors, or to cancel the contract upon giving the Successful Proposer thirty (30) days written notice.

2.12.4 If the Successful Proposer and the City agree on modifications or revisions to the task elements, after the City has approved work to begin on a particular task or project, and a budget has been established for that task or project, the Successful Proposer will submit a revised budget to the City for approval prior to proceeding with the work.

2.13 Non-Exclusive Contract

Proposer agrees and understands that the contract shall not be construed as an exclusive arrangement and further agrees that the City may, at any time, secure similar or identical services from another vendor at the City's sole option.

2.14 Sample Contract Agreement

A [sample of the formal agreement template](#), which may be required to be executed by the awarded vendor can be found at our website.

2.15 Responsiveness

In order to be considered responsive to the solicitation, the firm's proposal shall fully conform in all material respects to the solicitation and all its requirements, including all form and substance.

2.16 Responsibility

In order to be considered as a responsible firm, firm shall be fully capable to meet all of the requirements of the solicitation and subsequent contract, must possess the full capability, including financial and technical, to perform as contractually required, and must be able to fully document the ability to provide good faith performance.

2.17 Minimum Qualifications

Proposers shall be in the business of Installation and Maintenance of Lighting Systems and must possess sufficient financial support, equipment, and organization to ensure that it can satisfactorily perform the services if awarded a Contract. Proposers must demonstrate that they, or the key staff assigned to the project, have successfully provided services with similar magnitude to those specified in the scope of services to at least one entity similar in size and complexity to the City of Fort Lauderdale or can demonstrate they have the experience with large scale private sector clients and the managerial and financial ability to successfully perform the work.

Proposers shall satisfy each of the following requirements cited below. Failure to do so may result in the proposal being deemed non-responsive.

2.17.1 Proposer or principals shall have relevant experience in Installation and Maintenance of Lighting Systems. Project manager assigned to the work must have experience in

Installation and Maintenance of Lighting Systems and have served as project manager on similar projects.

2.17.2 Before awarding a contract, the City reserves the right to require that a Proposer submit such evidence of qualifications as the City may deem necessary. Further, the City may consider any evidence of the financial, technical, and other qualifications and abilities of a firm or principals, including previous experiences of same with the City and performance evaluation for services, in making the award in the best interest of the City.

2.17.3 Firm or principals shall have no record of judgments, pending lawsuits against the City or criminal activities involving moral turpitude and not have any conflicts of interest that have not been waived by the City Commission.

2.17.4 Neither firm nor any principal, officer, or stockholder shall be in arrears or in default of any debt or contract involving the City, (as a party to a contract, or otherwise); nor have failed to perform faithfully on any previous contract with the City.

2.18 Lobbying Activities

ALL CONTRACTORS PLEASE NOTE: Any contractor submitting a response to this solicitation must comply, if applicable, with [City of Fort Lauderdale Ordinance No. C-11-42](#), and [Resolution No. 07-101, Lobbying Activities](#). Copies of Ordinance No. C-11-42 and Resolution No. 07-101 may be obtained from the City Clerk's Office, located at 1 East Broward Boulevard, Suite 444, Fort Lauderdale, Florida 33301.

2.19 Local Business Preference

2.19.1 Section 2-186, Code of Ordinances of the City of Fort Lauderdale, provides for a local business preference. In order to be considered for a local business preference, a Proposer must include the Local Business Preference Certification Statement of this RFP, as applicable to the local business preference class claimed at the time of Proposal submittal:

2.19.2 Upon formal request of the City, based on the application of a Local Business Preference the Proposer shall within ten (10) calendar days submit the following documentation to the Local Business Preference Class claimed:

- a. Copy of City of Fort Lauderdale current year business tax receipt, or Broward County current year business tax receipt, and
- b. List of the names of all employees of the Proposer and evidence of employees' residence within the geographic bounds of the City of Fort Lauderdale or Broward County, as the case may be, such as current Florida driver license, residential utility bill (water, electric, telephone, cable television), or other type of similar documentation acceptable to the City.

2.19.3 Failure to comply at time of Proposal submittal shall result in the Proposer being found ineligible for the local business preference.

2.19.4 The complete local business preference ordinance may be found on the City's web site: [Click Here](#)

2.19.5 Definitions

- a. The term "Class A business" shall mean any business that has established and agrees to maintain a permanent place of business located in a non-residential zone, staffed with full-time employees within the limits of the city, and shall maintain a staffing level for the proposed work of at least fifty percent (50%) who are residents of the City of Fort Lauderdale.
- b. The term "Class B business" shall mean any business that has established and agrees to maintain a permanent place of business located in a non-residential zone, staffed with full-time employees within the limits of the city, or shall maintain a staffing level for the proposed work of at least fifty percent (50%) who are residents of the City of Fort Lauderdale.
- c. The term "Class C business" shall mean any business that has established and agrees to maintain a permanent place of business located in a non-residential zone, staffed with full-time employees within the limits of Broward County.
- d. The term "Class D business" shall mean any business that does not qualify as a Class A, Class B, or Class C business.

2.20 Disadvantaged Business Enterprise Preference

2.20.1 Section 2-185, Code of Ordinances of the City of Fort Lauderdale, provides for a disadvantaged business preference. In order to be considered for a disadvantaged business preference, a Proposer must include a certification from a government agency, as applicable to the disadvantaged business preference class claimed at the time of Bid/Proposal submittal:

2.20.2 Upon formal request of the City, based on the application of a Disadvantaged Business Preference the Proposer shall within ten (10) calendar days submit the following documentation to the Disadvantaged Business Enterprise Preference Class claimed:

- a. Copy of City of Fort Lauderdale current year business tax receipt, or the Tri-County (Broward, Dade, West Palm Beach) current year business tax receipt, or proof of active Sunbiz status and
- b. List of the names of all employees of the Proposer and evidence of employees' residence within the geographic bounds of the City of Fort Lauderdale or the Tri-County, as the case may be, such as current Florida driver license, residential utility bill (water, electric, telephone, cable television), or other type of similar documentation acceptable to the City.

2.20.3 Failure to comply at time of Proposal submittal shall result in the Proposer being found ineligible for the Disadvantaged Business Enterprise Preference business preference.

2.20.4 The complete disadvantaged business preference ordinance may be found on the City's web site: [Click Here](#)

2.20.5 Definitions

- a. The term "Disadvantaged Class 1 Enterprise" shall mean any disadvantaged business enterprise that has established and agrees to maintain a permanent place of business located in a non-residential zone, staffed with full-time employees within the limits of the city, and provides supporting documentation of its City of Fort

Lauderdale business tax and disadvantaged certification as established in the city's Procurement Manual.

- b. The term "Disadvantaged Class 2 Enterprise" shall mean any disadvantaged business enterprise that has established and agrees to maintain a permanent place of business within the limits of the city with full-time employees and provides supporting documentation of its City of Fort Lauderdale business tax and disadvantaged certification as established in the city's Procurement Manual.
- c. The term "Disadvantaged Class 3 Enterprise" shall mean any disadvantaged business enterprise that has established and agrees to maintain a permanent place of business located in a non-residential zone, staffed with full-time employees within the limits of the Tri-County area and provides supporting documentation of its City of Fort Lauderdale business tax and disadvantaged certification as established in the City's Procurement Manual.
- d. The term "Disadvantaged Class 4 Enterprise" shall mean any disadvantaged business enterprise that does not qualify as a Class 1, Class 2, or Class 3 business, but is located in the State of Florida and provides supporting documentation of its disadvantaged certification as established in the City's Procurement Manual.

2.21 Protest Procedure

2.21.1 Any Proposer who is not recommended for award of a contract and who alleges a failure by the city to follow the city's procurement ordinance or any applicable law, may follow the protest procedure as found in the city's procurement ordinance within five (5) days after a notice of intent to award is posted on the city's web site at the following link: [Click Here](#)

2.21.2 The complete protest ordinance may be found on the city's web site at the following link: [Click Here](#)

2.22 Public Entity Crimes

Contractor represents that the execution of this Agreement will not violate the Public Entity Crime Act, Section 287.133, Florida Statutes (2023), as may be amended or revised, which essentially provides that a person or affiliate who is a contractor, consultant, or other provider and who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to City, may not submit a bid on a contract with City for the construction or repair of a public building or public work, may not submit bids on leases of real property to City, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under an Agreement with City, and may not transact any business with City in excess of the threshold amount provided in Section 287.017, Florida Statutes (2023), as may be amended or revised, for category two purchases for a period of 36 months from the date of being placed on the convicted vendor list. Violation of this Section shall result in termination of this Agreement and recovery of all monies paid by City pursuant to this Agreement and may result in debarment from City's competitive procurement activities.

2.23 Subcontractors

2.23.1 If the Contractor proposes to use subcontractors in the course of providing these services to the City, this information shall be a part of the bid/proposal response. Such information shall be subject to review, acceptance, and approval of the City, prior to any contract award. The City reserves the right to approve or disapprove of any subcontractor candidate in its best interest and to require Contractor to replace subcontractor with one that meets City approval.

2.23.2 Contractor shall ensure that all of Contractor's subcontractors perform in accordance with the terms and conditions of this Contract. Contractor shall be fully responsible for all of Contractor's subcontractors' performance, and liable for any of Contractor's subcontractors' non-performance and all of Contractor's subcontractors' acts and omissions. Contractor shall defend, at Contractor's expense, counsel being subject to the City's approval or disapproval, and indemnify and hold harmless the City and the City's officers, employees, and agents from and against any claim, lawsuit, third-party action, or judgment, including any award of attorney fees and any award of costs, by or in favor of any Contractor's subcontractors for payment for work performed for the City.

2.23.3 Contractor shall require all its subcontractors to provide the required insurance coverage as well as any other coverage that the contractor may consider necessary, and any deficiency in the coverage or policy limits of said subcontractors will be the sole responsibility of the contractor.

2.24 Proposal Security – N/A

2.25 Payment and Performance Bond – N/A

2.26 Insurance Requirements

2.26.1 As a condition precedent to the effectiveness of this Agreement, during the term of this Agreement and during any renewal or extension term of this Agreement, the Contractor, at its sole expense, shall provide insurance of such types and with such terms and limits as noted below. Providing proof of and maintaining adequate insurance coverage are material obligations of the Contractor. The Contractor shall provide the City a certificate of insurance evidencing such coverage. The Contractor's insurance coverage shall be primary insurance for all applicable policies. The limits of coverage under each policy maintained by the Contractor shall not be interpreted as limiting the Contractor's liability and obligations under this Agreement. All insurance policies shall be through insurers authorized or eligible to write policies in the State of Florida and possess an A.M. Best rating of A-, VII or better, subject to approval by the City's Risk Manager.

2.26.2 The coverages, limits, and endorsements required herein protect the interests of the City, and these coverages, limits, and/or endorsements shall in no way be relied upon by the Contractor for assessing the extent or determining appropriate types and limits of coverage to protect the Contractor against any loss exposures, whether as a result of this Agreement or otherwise. The requirements contained herein, as well as the City's review or acknowledgement, are not intended to and shall not in any manner limit or qualify the liabilities and obligations assumed by the Contractor under this Agreement.

2.26.3 The following insurance policies and coverages are required:

Commercial General Liability

Coverage must be afforded under a Commercial General Liability policy with limits not less than:

- \$1,000,000 each occurrence and \$2,000,000 aggregate for Bodily Injury, Property Damage, and Personal and Advertising Injury
- \$1,000,000 each occurrence and \$2,000,000 aggregate for Products and Completed Operations

Policy must include coverage for contractual liability and independent contractors.

The City, a Florida municipal corporation, its officials, employees, and volunteers are to be covered as an additional insured with a CG 20 26 04 13 Additional Insured – Designated Person or Organization Endorsement or similar endorsement providing equal or broader Additional Insured Coverage with respect to liability arising out of activities performed by or on behalf of the Contractor. The coverage shall contain no special limitation on the scope of protection afforded to the City, its officials, employees, and volunteers.

Professional Liability

Coverage must be afforded for Wrongful Acts in an amount not less than \$1,000,000 each claim and \$2,000,000 aggregate.

Contractor must keep the professional liability insurance in force until the third anniversary of expiration or early termination of this Agreement or the third anniversary of acceptance of work by the City, whichever is longer, which obligation shall survive expiration or early termination of this Agreement.

Business Automobile Liability

Coverage must be afforded for all Owned, Hired, Scheduled, and Non-Owned vehicles for Bodily Injury and Property Damage in an amount not less than \$1,000,000 combined single limit each accident.

If the Contractor does not own vehicles, the Contractor shall maintain coverage for Hired and Non-Owned Auto Liability, which may be satisfied by way of endorsement to the Commercial General Liability policy or separate Business Auto Liability policy.

Workers' Compensation and Employer's Liability

Coverage must be afforded per Chapter 440, Florida Statutes (2023). Any person or entity performing work for or on behalf of the City must provide Workers' Compensation insurance. Exceptions and exemptions will be allowed by the City's Risk Manager, if they are in accordance with Florida Statute.

Contractor waives, and Contractor shall ensure that Contractor's insurance carrier waives, all subrogation rights against the City, its officials, employees, and volunteers for all losses or damages. The City requires the policy to be endorsed with WC 00 03 13 Waiver of our Right to Recover from Others or equivalent.

Contractor must be in compliance with all applicable State and Federal workers' compensation laws, including the U.S. Longshore and Harbor Workers' Compensation Act and the Jones Act, if applicable.

2.26.4 Insurance Certificate Requirements

- a. The Contractor shall provide the City with valid Certificates of Insurance (binders are unacceptable) no later than ten (10) days prior to the start of work contemplated in this Agreement.
- b. The Contractor shall provide to the City a Certificate of Insurance having a thirty (30) day notice of cancellation; ten (10) days' notice if cancellation is for nonpayment of premium.
- c. In the event that the insurer is unable to accommodate the cancellation notice requirement, it shall be the responsibility of the Contractor to provide the proper notice. Such notification will be in writing by registered mail, return receipt requested, and addressed to the certificate holder.
- d. In the event the Agreement term or any surviving obligation of the Contractor following expiration or early termination of the Agreement goes beyond the expiration date of the insurance policy, the Contractor shall provide the City with an updated Certificate

of Insurance no later than ten (10) days prior to the expiration of the insurance currently in effect. The City reserves the right to suspend the Agreement until this requirement is met.

- e. The Certificate of Insurance shall indicate whether coverage is provided under a claims-made or occurrence form. If any coverage is provided on a claims-made form, the Certificate of Insurance must show a retroactive date, which shall be the effective date of the initial contract or prior.
- f. The City shall be named as an Additional Insured on all liability policies, with the exception of Workers' Compensation.
- g. The City shall be granted a Waiver of Subrogation on the Contractor's Workers' Compensation insurance policy.
- h. The title of the Agreement, Bid/Proposal/Contract number, event dates, or other identifying reference must be listed on the Certificate of Insurance.

The Certificate Holder should read as follows:

City of Fort Lauderdale
401 SE 21st Street
Fort Lauderdale, FL 33316

- 2.26.5** The Contractor has the sole responsibility for all insurance premiums and shall be fully and solely responsible for any costs or expenses as a result of a coverage deductible, co-insurance penalty, or self-insured retention; including any loss not covered because of the operation of such deductible, co-insurance penalty, self-insured retention, or coverage exclusion or limitation. Any costs for adding the City as an Additional Insured shall be at the Contractor's expense.
- 2.26.6** If the Contractor's primary insurance policy/policies do not meet the minimum requirements, as set forth in this Agreement, the Contractor may provide evidence of an Umbrella/Excess insurance policy to comply with this requirement.
- 2.26.7** The Contractor's insurance coverage shall be primary insurance as respects to the City, a Florida municipal corporation, its officials, employees, and volunteers. Any insurance or self-insurance maintained by the City, a Florida municipal corporation, its officials, employees, or volunteers shall be non-contributory.
- 2.26.8** Any exclusion or provision in any insurance policy maintained by the Contractor that excludes coverage required in this Agreement shall be deemed unacceptable and shall be considered breach of contract.
- 2.26.9** All required insurance policies must be maintained until the contract work has been accepted by the City, or until this Agreement is terminated, whichever is later. Any lapse in coverage shall be considered breach of contract. In addition, Contractor must provide to the City confirmation of coverage renewal via an updated certificate should any policies expire prior to the expiration of this Agreement. The City reserves the right to review, at any time, coverage forms and limits of Contractor's insurance policies.
- 2.26.10** The Contractor shall provide notice of any and all claims, accidents, and any other occurrences associated with this Agreement shall be provided to the Contractor's insurance company or companies and the City's Risk Management office as soon as practical.

2.26.11 It is the Contractor's responsibility to ensure that any and all of the Contractor's independent contractors and subcontractors comply with these insurance requirements. All coverages for independent contractors and subcontractors shall be subject to all of the applicable requirements stated herein. Any and all deficiencies are the responsibility of the Contractor.

2.27 Award of Contract

A Contract (the "Agreement") may be awarded by the City Commission. The City reserves the right to execute or not execute, as applicable, a contract with the Proposer(s) that is determined to be in the City's best interests. The City reserves the right to award a contract to more than one Proposer, at the sole and absolute discretion of the City.

2.28 Unauthorized Work

The Successful Proposer(s) shall not begin work until a Contract has been awarded by the City Commission and a notice to proceed has been issued. Proposer(s) agree and understand that the issuance of a Purchase Order and/or Task Order shall be issued and provided to the Successful Proposer(s) following Commission award; however, receipt of a purchase order and/or task order shall not prevent the Successful Proposer(s) from commencing the work once the City Commission has awarded the contract and notice to proceed is issued.

2.29 Damage to Public or Private Property

Extreme care shall be taken to safeguard all existing facilities, site amenities, irrigation systems, vehicles, etc. on or around the job site. Damage to public and/or private property shall be the responsibility of the Contractor and shall be repaired and/or replaced at no additional cost to the City.

2.30 Safety

The Contractor(s) shall adhere to the Florida Department of Transportation's Uniform manual on Traffic Control for construction and maintenance work zones when working on or near a roadway. It will be the sole responsibility of the Contractor to make themselves and their employees fully aware of these provisions, especially those applicable to safety.

2.31 Uncontrollable Circumstances ("Force Majeure")

The City and Contractor will be excused from the performance of their respective obligations under this agreement when and to the extent that their performance is delayed or prevented by any circumstances beyond their control including, fire, flood, explosion, strikes or other labor disputes, act of God or public emergency, war, riot, civil commotion, malicious damage, act or omission of any governmental authority, delay or failure or shortage of any type of transportation, equipment, or service from a public utility needed for their performance, provided that:

2.31.1 The non-performing party gives the other party prompt written notice describing the particulars of the Force Majeure including, but not limited to, the nature of the occurrence and its expected duration, and continues to furnish timely reports with respect thereto during the period of the Force Majeure;

2.31.2 The excuse of performance is of no greater scope and of no longer duration than is required by the Force Majeure;

2.31.3 No obligations of either party that arose before the Force Majeure causing the excuse of performance are excused as a result of the Force Majeure; and

2.31.4 The non-performing party uses its best efforts to remedy its inability to perform. Notwithstanding the above, performance shall not be excused under this Section for a period in excess of two (2) months, provided that in extenuating circumstances, the City may excuse performance for a longer term. Economic hardship of the Contractor will not constitute Force Majeure. The term of the agreement shall be extended by a period equal to that during which either party's performance is suspended under this Section.

2.32 Canadian Companies

In the event Contractor is a corporation organized under the laws of any province of Canada or is a Canadian federal corporation, the City may enforce in the United States of America or in Canada or in both countries a judgment entered against the Contractor. The Contractor waives any and all defenses to the City's enforcement in Canada, of a judgment entered by a court in the United States of America. All monetary amounts set forth in this Contract are in United States dollars.

2.33 News Releases/Publicity

News releases, publicity releases, or advertisements relating to this contract, or the tasks or projects associated with the project shall not be done without prior City approval.

2.34 Manufacturer/Brand/Model Specific Request – N/A

2.35 Contract Period

The initial contract term shall commence upon date of award by the City and shall expire three (3) years from that date. The City reserves the right to extend the contract for two (2) additional one-year terms, providing all terms and conditions and specifications remain the same, both parties agree to the extension, and such extension is approved by the City.

In the event services are scheduled to end because of the expiration of this contract, the Contractor shall continue the service upon the request of the City as authorized by the awarding authority. The extension period shall not extend for more than 270 days beyond the expiration date of the existing contract. The Contractor shall be compensated for the service at the rate in effect when this extension clause is invoked by the City.

2.36 Cost Adjustments – N/A

2.37 Service Test Period

If the Contractor has not previously performed the services to the city, the City reserves the right to require a test period to determine if the Contractor can perform in accordance with the requirements of the contract, and to the City's satisfaction. Such test period can be from thirty to ninety days, and will be conducted under all specifications, terms and conditions contained in the contract. This trial period will then become part of the initial contract period.

A performance evaluation will be conducted prior to the end of the test period and that evaluation will be the basis for the City's decision to continue with the Contractor or to select another Contractor (if applicable).

2.38 Contract Coordinator

The City may designate a Contract Coordinator whose principal duties shall be:

- Liaison with Contractor.
- Coordinate and approve all work under the contract.
- Resolve any disputes.

- Assure consistency and quality of Contractor's performance.
- Schedule and conduct Contractor performance evaluations and document findings.
- Review and approve for payment all invoices for work performed or items delivered.

2.39 Contractor Performance Reviews and Ratings

The City Contract Coordinator may develop a Contractor performance evaluation report. This report shall be used to periodically review and rate the Contractor's performance under the contract with performance rating as follows:

Excellent	Far exceeds requirements.
Good	Exceeds requirements
Fair	Just meets requirements.
Poor	Does not meet all requirements and contractor is subject to penalty provisions under the contract.
Non-compliance	Either continued poor performance after notice or a performance level that does not meet a significant portion of the requirements. This rating makes the Contractor subject to the default or cancellation for cause provisions of the contract.

The report shall also list all discrepancies found during the review period. The Contractor shall be provided with a copy of the report and may respond in writing if he takes exception to the report or wishes to comment on the report. Contractor performance reviews and subsequent reports will be used in determining the suitability of contract extension.

2.40 Substitution of Personnel

In the event the Contractor wishes to substitute trained, qualified, personnel for those listed in the proposal, the City shall receive prior notification and have the right to review, test and approve such substitutions, if deemed necessary. If the City has reasonable evidence to believe that an employee of the Contractor is incompetent, or has performed his or her employment in an objectionable manner, the City shall have the right to require the Contractor to resolve the situation to the City's satisfaction, provided, however, that the Contractor shall not be required to institute or pursue to completion any action if to do so would violate any law, state statute, city ordinance, contract or employment or union agreement.

2.41 Ownership of Work

The City shall have full ownership and the right to copyright, otherwise limit, reproduce, modify, sell, or use all the work or product produced under this contract without payment of any royalties or fees to the Contractor above the agreed hourly rates and related costs.

2.42 Condition of Trade-In Equipment – N/A

2.43 Conditions of Trade-In Shipment and Purchase Payment – N/A

2.44 Verification of Employment Status

Any Contractor/Consultant assigned to perform responsibilities under its contract with a State agency is required to utilize the US Department of Homeland Security's E-Verify system (per Executive Order Number 11-02) to verify the employment eligibility of: (a) all persons employed during the contract term by the Contractor to perform employment duties within Florida; and (b) all persons (including subcontractors) assigned by the Contractor to perform work pursuant to the contract with the State agency.

E-VERIFY Affirmation Statement must be completed and submitted with Proposer's response to this RFP.

2.45 Service Organization Controls – N/A

2.46 Warranties of Usage

Any estimated quantities listed are for information and tabulation purposes only. No warranty or guarantee of quantities needed is given or implied. It is understood that the Contractor will furnish the City's needs as they arise.

2.47 PCI (Payment Card Industry) Compliance

Contractor agrees to comply with all applicable state, federal, and international laws, as well as industry best practices, governing the collection, access, use, disclosure, safeguarding, and destruction of protected information.

- **PCI Attestation of Compliance (AoC):**

- Contractor must provide a current PCI Attestation of Compliance (AoC) signed by a PCI Qualified Security Assessor (QSA) at the time of proposal submission.
- The AoC must be dated no older than one year. If the AoC exceeds this timeframe, a bridge letter signed by a QSA must be provided.
- Failure to submit a valid AoC and, if applicable, a bridge letter, shall result in the bid being deemed non-responsive.
- The City is the sole judge in determining the acceptability of the AoC and any accompanying documentation.

- **Ongoing PCI Compliance:**

- Contractor and/or any subcontractor that handles credit card data must be, and remain, PCI compliant under the current standards.
- Contractors must provide updated PCI compliance documentation, including a new AoC, upon request by the City of Fort Lauderdale.

Failure to maintain PCI compliance or to provide requested documentation may result in termination of the contract.

END OF SECTION

SECTION III - TECHNICAL SPECIFICATIONS/SCOPE OF SERVICES

3.1 Project Definition and Objective

The City of Fort Lauderdale's Transportation and Mobility Department (TAM) provides safe, equitable mobility options by strategically elevating policy, planning, and implementation of projects within the City under one umbrella. TAM is focused on developing a transportation ecosystem that embodies all existing modes of transportation while addressing future transportation needs as a City continues to grow and develop. The department consists of three divisions: Administrative Support, Parking Services, and Transportation. TAM has 87 full-time employees and a budget of \$29 million.

In 2017, the City of Fort Lauderdale approved a 24-month construction project to build Las Olas Parking Garage. The facility was designed with 581 architectural fins along the façade adding depth and dimension. A Dynamic Façade LED Lighting System (selected during design in 2016) was installed within each detailed fin drawing attention to the building aesthetics. Each fin is comprised of either one (1) or two (2) DOT XL3 RGB light strands. Lighting Control Engine 2 (LCE2) serves as a central control unit and orchestrates all fixtures within the project. In 2019 the parking facility was completed and the DFLS became operational. In 2020 several of the nodes in the light strands failed after a limited number of hours used. In 2021 the hard drive within the LCE2 failed and had to be replaced by manufacturer. System is currently non-operational

The City of Fort Lauderdale (City) is seeking a qualified vendor to deliver a turnkey Dynamic Façade Lighting System (DFLS) at the Las Olas Parking Garage. The selected vendor will be responsible for the design, selection, installation, operation, maintenance, and programming of the DFLS during the term of the agreement.

3.1.1 Licensing Requirements: Possession of the following is required for this Project:

State of Florida Certified Electrical Contractor (CEC) or the Registered Electrical Contractor (REC) license or any other State or County License(s), Certification(s) or Registration(s) deemed legally permissible by the City to conduct the nature of the work required in this solicitation. Proposer should submit a copy of license with RFP response. Any sub-contractors employed by the Proposer shall be licensed and insured in accordance with this solicitation. Additionally, it is the Proposer's responsibility to ensure that any sub-contractors' work meets the requirements of this solicitation at all times.

3.2 Scope of Work

This specification describes a custom, programmable, LED (or approved equal) lighting system that is integrated into the architectural "fins" of the Las Olas Parking Garage. This system is herein referred to as the Dynamic Façade Lighting System (DFLS).

3.2.1 Manufacturer Qualifications: The manufacturer shall be engaged for a minimum of (10) years prior to the project's tender date in the manufacturing, installation and sales of LED (or like) lighting fixtures and control equipment. Proposers shall have (5) prior years' experience in the design and manufacturing of building façade lighting equipment. Prior projects shall have been in operation for a minimum of (5) years prior to project tender date.

3.2.2 DFLS shall carry a product warranty period of (5) years.

3.2.3 Attic Shock: Attic Stock (spares) will be stored on-site and required for all system components. The exact number of spares will be dependent upon known and calculated failure rates and upon the nature of the component.

- a. All “attic stock” of fixtures and data distribution equipment shall have “auto addressing” capability, meaning that if a failure does occur at the fixture level, no programming will be needed. The failed equipment shall be swapped out with attic stock and the system shall be operational with a technician’s assistance.
- b. “Attic stock” control components must have the capability to be accessed remotely and integrated into the system when physically replaced by technician; the only exception being a catastrophic failure of the main server, requiring an on-site visit by a technician.

3.2.4 General Requirements For Components Hardware

- a. Product testing standard compliances including Electrical Testing Laboratories/Underwriters Laboratories approvals.
- b. Products shall provide EMC (FCC) compliance documentation.
- c. Products shall withstand prolonged exposure to elevated heat index conditions.
- d. Product shall be designed to resist salt air environments and provides protection against sodium chloride exposure.
- e. LED (or like) shall have a minimum rating of 50,000 hours.
- f. LED (or like) shall be manufactured by an established market leader (as recognized by industry sources) with a manufacturing history of at least 10 years.
- g. Products shall be in compliance with applicable national, state, local and international electrical codes and standards.
- h. Products shall include controls necessary to adjust individual pixel light levels to comply with city, territory or national light pollution levels (if applicable).
- i. The DFLS shall be provided with firmware and software to operate via Central Control.
- j. Software, developed and provided by the same manufacturer as the fixtures, will be provided to allow the various content sources to be properly configured to match the resolution and framing of the DFLS.
- k. Data distribution equipment and cabling will be hidden from normal exterior viewing. As required, an interior vertical chase near the LEDs and curtain wall will be available.
- l. **Power Distribution**
 - aa.** AC/DC converters, cabling, and connectivity will be required to bring the building electrical service to the DFLS and data distribution equipment.
 - bb.** All power distribution equipment and cabling required by the DFLS and data distribution near the curtain wall will be hidden from normal exterior viewing.
 - cc.** Electrical loads associated with the DFLS will be grouped into circuits sized according to local standard fusing.
 - dd.** Electrical power requirements of the DFLS will be coordinated with project electrical engineering to ensure proper service and fusing equipment is allocated by the project.
- m. **Central control:** A location will be provided for control computers, video management equipment, and media-interface, collectively referred to as “Central Control”. Central Control will have the capability to receive content from multiple sources and manage the content output to the LEDs. Central Control will be configured to properly receive the various types of content, will store and manage the content, will include user interfaces, and will accommodate the aspect ratio, display frames, and data transmission speed required to drive the LEDs. Central Control will also be accessible via the internet.

- n. **Systems Management**
 - aa.** The DFLS requires a complete turn-key solution for lighting and management of the DFLS.
 - bb.** Proposer shall manage the DFLS during the duration of the contract and fees should be included in proposal.
 - cc.** The DFLS will be provided with firmware and software to be incorporated that is developed and provided by the same manufacturer as the fixtures to operate the DFLS via Central Control.
 - dd.** In addition to native content development and management, the DFLS requires the ability to receive media from a variety of sources and translate into a suitable format and resolution for the DFLS.
 - ee.** The system needs to be able to accept content from numerous data sources, manipulate and edit content for delivery across the video display system in multiple zones, schedule shows in advance based on calendars, time of day, and events.
- o. **Local and Global Input:** The system shall be able to integrate with, edit and manage data from multiple sources such as:
 - aa.** Internet accessed data
 - bb.** Video sources (analog inputs/outputs)
 - cc.** Multiple file types such as Adobe Creative Suite, QuickTime movies, WMV files, and any other required or provided by the City
 - dd.** Graphics design and editing server solutions
- p. **Content Management System:** The system suggestions are comprehensive with key functionality including:
 - aa.** Gigabit Pixel Data Distribution System
 - bb.** Control solutions suite for control over transitions and effects
 - cc.** Workflow system for scheduling and management
 - dd.** Ethernet and interface control cabinet for interface to the DFLS data
- q. **Illuminance Level**
 - aa.** Provide adequate illuminance levels so that DFLS is viewable from dusk to dawn.
 - bb.** LED Pixels on the tower will have a minimum brightness of 16 lumens per pixel. LED intensity is to be adjustable depending on height from the ground so as not to overwhelm close distance viewers.

3.3 Services to be Provided to The City

The DFLS project services to be provided by the DFLS provider consist of samples and demonstrations for final design approval by the Architect and Lighting Designer, labor and materials to manufacture the DFLS, installation documentation, installation consultation, on-site support during mockup demonstration, installation, start-up (commissioning, qualification, and verification), provision of a maintenance plan, and local product support after turn-over.

3.3.1 Project Services: The DFLS services to be provided by the manufacturer of the fixtures and control equipment will include:

- a. Full shop drawings of the DFLS and installation instructions.
- b. On-site preconstruction meeting to review shop drawings and installation methods.
- c. Stock "lighting effects".
- d. Custom "lighting effects", specific to the project's layout.

- e. Custom user GUI (graphic user interface), specific to the project, to be designed with the end-user.
- f. If necessary, integration with another building system, such as a lighting control system or a building management system.
- g. Integration to include only the receiving commands or triggers from a third party system.
- h. Commands must be compatible with the input protocols and ports of the DFLS control equipment.
- i. On-site programming and system commissioning services.
- j. Six months to one year after commissioning, once the owner has “lived” with the system, a return visit to make slight adjustments to the GUI lighting effects, and integration.
- k. Additional services and programming outside of the original scope to be provided with separate contracts.

3.3.2 Maintenance:

- a. The Proposer shall maintain DFLS and associated components in first-class, like new condition throughout the life of the contract agreement including refurbishing, reconditioning and if necessary, replacing any systems or components.
- b. The Proposer shall provide maintenance of the entire system in accordance with the manufacturer(s)' recommended frequency to ensure all equipment is properly inspected, tested and fully operational at all times.
- c. Within a month of installation, the Proposer shall provide the City a preventive maintenance schedule for the first year. By month 11 of the first year, the Proposer shall provide maintenance schedule to the City for the second year. The Proposer shall continue providing maintenance schedule for the remaining term of the contract. All maintenance schedules are subject to City's review and approval.
- d. Any malfunctions shall be corrected within a reasonable time they are reported by the City. Reasonable times shall be noted by the level of repair.
 - aa.** Level 1 (Minor Repairs) within 24 hours of being reported
 - bb.** Level 2 (Hardware Repairs) within 72 hours of being reported
 - cc.** Level 3 (Significant Repairs) within 10 business days of being reported
- e. It is the intent of the City to impress upon the Proposer the need for continual maintenance of the DFLS and associated components to ensure the system is always fully functional. In accordance with the service requirements of the resulting agreement, the Proposer shall be liable for damages resulting from its failure to meet contractual requirements or performance standards. The City's assessment of any and all performance penalty fees shall be final, subject to good faith disputes. The City will facilitate the fee assessment by invoicing the Proposer for the amount assessed or deducting the amount from any invoices from the Proposer for the services provided to the City under the contract. The penalty fee shall be interpreted as failure to maintain the DFLS as directed by the City. A written notice of violation and intent to impose a penalty fee shall be provided to the Proposer in the form of a written report. These Penalty Fee reports will be issued to the Proposer by the City's Contract Manager, in order to afford the Proposer time to notify the City of any extenuating circumstances. Penalty Fee shall result in the following per diem fees per reported incident: Days exclude weekends and City observed holidays.

- aa.** Level 1: Penalty Fee in the amount of \$100 per day (24 hours) per reported incident. Repairs to be completed within 24 hours.
 - 1. Level 1: Penalty Fee: Minors Issues
 - i. Example 1: Software resets
 - ii. Example 2: Basic troubleshooting
- bb.** Level 2: Penalty Fee in the amount of \$150 per day (24 hours) per reported incident. Repairs to be completed within (72 hours), if parts are readily available.
 - 1. Level 2 Penalty Fee: Hardware Repairs
 - i. Example 1: Replacing light tracks
 - ii. Example 2: Replacing connectors or cables
- cc.** Level 3: Penalty Fee in the amount of \$200 per day (24 hours) per reported incident. Repairs to be completed within (10 business days), if parts are readily available.
 - 1. Level 3 Penalty Fee: Significant Repairs.
 - i. Example 1: Central control components.
 - ii. Example 2: Computer/Video management equipment

3.3.3 On-Site Repairs

- a. In the event of equipment or hardware malfunction or failure, Proposer shall provide a reporting procedure, and a maintenance crew shall respond to the site within 24 hours, seven days a week, from the time issue is reported.
- b. The Proposer shall provide written quotes to the contract administrator for service activities beyond the contracted service agreement (including labor, parts, and percentage mark-up on parts) for approval prior to proceeding with any work beyond a site visit.

3.3.4 Content Creation

- a. Proposer shall create innovative digital content to be displayed.
- b. Proposer shall provide up to 100 specific digital content designs at the start of the contract. City shall provide list of content.
- c. Contract administrator shall review all content prior to Proposer installing content.
- d. City shall review content on a yearly basis during term of contract.
- e. City may request up to 10 new digital content designs per year of the contract.

3.3.5 Content Management

- a. The City will provide internet access within the server room, utilizing a separate demarcation from the City's primary infrastructure to ensure security and operational independence. The application used to control the lighting themes must be a web-based platform, hosted on cloud infrastructure, enabling secure access through a username and password authentication mechanism. This will serve as the primary method of access.
- b. Additionally, the City requires Bomgar BeyondTrust to be installed as the designated remote access tool. This software aligns with the City's IT Security Protocols and will be utilized for remotely accessing the server or PC when updates or maintenance are necessary.

3.3.6 Required Content

- a. City will provide Proposer with a list of set themes required to be stored as content to be displayed on the DFLS.

- b. City shall have access to Central Control to program set themes on requested dates.
- c. City required programmable themes will consist of calendar related themes, color themes, annual City event themes and other suggested themes.

END OF SECTION

SECTION IV – SUBMITTAL REQUIREMENTS

4.1 Instructions

- 4.1.1** The City of Fort Lauderdale uses its own on-line strategic sourcing platform to administer the competitive solicitation process, including but not limited to soliciting proposals, issuing addenda, responding to questions / requests for information. There is no charge to register and download the RFP from the [City's on-line strategic sourcing platform](#). Proposers are strongly encouraged to read the supplier tutorial available in the City's on-line strategic sourcing platform well in advance of their intention of submitting a proposal to ensure familiarity with the use of the [City's on-line strategic sourcing platform](#). The City shall not be responsible for a Proposer's inability to submit a proposal by the end date and time for any reason, including issues arising from the use of the City's on-line strategic sourcing platform.
- 4.1.2** Careful attention must be given to all requested items contained in this RFP. Proposers are invited to submit proposals in accordance with the requirements of this RFP. Please read entire solicitation before submitting a proposal. Proposers must provide a response to each requirement of the RFP. Proposals should be prepared in a concise manner with an emphasis on completeness and clarity. Notes, exceptions, and comments may be rendered on an attachment, provided the same format of this RFP text is followed.
- 4.1.3** All information submitted by Proposer shall be typewritten or provided as otherwise instructed to in the RFP. Proposers shall use and submit any applicable or required forms provided by the City and attach such to their proposal. Failure to use the forms may cause the proposal to be rejected and deemed non-responsive.

IN THE EVENT OF ANY CONFLICT OR DISCREPANCY BETWEEN BID/PROPOSAL PRICE(S) SUBMITTED BY BIDDER/PROPOSER ELECTRONICALLY INTO THE CITY'S ON-LINE STRATEGIC SOURCING PLATFORM UNIT PRICE FIELD(S), ANY OTHER FORMS OR ATTACHMENTS (WHETHER PART OF THE CITY'S SOLICITATION DOCUMENTS OR DOCUMENTS CREATED AND UPLOADED BY THE BIDDER/PROPOSER), OR ANOTHER SECTION/FIELD OF THE SYSTEM, THE ONLINE UNIT PRICE(S) INPUTTED ELECTRONICALLY INTO THE SYSTEM BY BIDDER/PROPOSER SHALL GOVERN.

- 4.1.4** Proposals shall be submitted by an authorized representative of the firm. Proposals must be submitted in the business entities name by the President, Partner, Officer or Representative authorized to contractually bind the business entity. Proposals shall include an attachment evidencing that the individual submitting the proposal, does in fact have the required authority stated herein.
- 4.1.5** All proposals will become the property of the City. The Proposer's response to the RFP is a public record pursuant to Florida law, which is subject to disclosure by the City under the State of Florida Public Records Law, Florida Statutes Chapter 119.07 ("Public Records Law"). The City shall permit public access to all documents, papers, letters, or other material submitted in connection with this RFP and the Contract to be executed for this RFP, subject to the provisions of Chapter 119.07 of the Florida Statutes. Any language contained in the Proposer's response to the RFP purporting to require confidentiality of any portion of the Proposer's response to the RFP, except to the extent that certain information is in the City's opinion a Trade Secret pursuant to Florida law, shall be void. If a Proposer submits any documents or other information to the City which the Proposer claims is Trade Secret information and exempt from Florida Statutes Chapter 119.07 ("Public Records Laws"), the Proposer shall clearly designate that it is a Trade Secret and

that it is asserting that the document or information is exempt. The Proposer must specifically identify the exemption being claimed under Florida Statutes 119.07. The City shall be the final arbiter of whether any information contained in the Proposer's response to the RFP constitutes a Trade Secret. The city's determination of whether an exemption applies shall be final, and the Proposer agrees to defend, indemnify, and hold harmless the city and the city's officers, employees, and agent, against any loss or damages incurred by any person or entity as a result of the city's treatment of records as public records. In the event of Contract award, all documentation produced as part of the Contract shall become the exclusive property of the City.

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT PRRCONTRACT@FORTLAUDERDALE.GOV, 954-828-5002, CITY CLERK'S OFFICE, ONE EAST BROWARD BOULEVARD, SUITE 444, FORT LAUDERDALE, FLORIDA 33301.

Contractor shall:

1. Keep and maintain public records required by the City in order to perform the service.
2. Upon request from the City's custodian of public records, provide the City with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes (2023), as may be amended or revised, or as otherwise provided by law.
3. Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of this contract if the Contractor does not transfer the records to the City.
4. Upon completion of the Contract, transfer, at no cost, to the City all public records in possession of the Contractor or keep and maintain public records required by the City to perform the service. If the Contractor transfers all public records to the City upon completion of this Contract, the Contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the Contractor keeps and maintains public records upon completion of this Contract, the Contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the City, upon request from the City's custodian of public records, in a format that is compatible with the information technology systems of the City.

- 4.1.6** By submitting a response Proposer is confirming that the firm has not been placed on the convicted vendors list as described in Section §287.133 (2) (a) Florida Statutes; that the only person(s), company or parties interested in the proposal as principals are named therein; that the proposal is made without collusion with any other person(s), company or parties submitting a proposal; that it is in all respects fair and in good faith, without collusion or fraud; and that the signer of the proposal has full authority to bind the firm.

4.2 Contents of the Proposal

The City deems certain documentation and information important in the determination of responsiveness and for the purpose of evaluating proposals. Proposals should seek to avoid information in excess of that requested, must be concise, and must specifically address the issues of this RFP. The City prefers that proposals be no more than 100 pages in one complete pdf document. The proposals should be organized, divided, and indexed into the sections indicated herein. These are not inclusive of all the information that may be necessary to properly evaluate the proposal and meet the requirements of the scope of work and/or specifications. Additional documents and information should be provided as deemed appropriate by the respondent in proposal to specific requirements stated herein or through the RFP.

4.2.1 Table of Contents

The table of contents should outline in sequential order the major areas of the submittal, including enclosures. All pages should be consecutively numbered and correspond to the Table of Contents.

4.2.2 Executive Summary

Each Offeror must submit an executive summary that identifies the business entity, its background, main office(s), and office location that will service this contract. Identify the officers, principals, supervisory staff, and key individuals who will be directly involved with the work and their office locations. The executive summary should also summarize the key elements of the proposal.

4.2.3 Experience and Qualifications

Indicate the firm's number of years of experience in providing the professional services as it relates the work contemplated. Provide details of past projects for agencies of similar size and scope, including information on your firm's ability to meet time and budget requirements. Indicate the firm's initiatives towards its own sustainable business practices that demonstrate a commitment to conservation. Indicate business structure, IE: Corp., Partnership, LLC. Firm should be registered as a legal entity in the State of Florida; Minority or Woman owned Business (if applicable); Company address, phone number, fax number, E-Mail address, web site, contact person(s), etc. Relative size of the firm, including management, technical and support staff; licenses and any other pertinent information shall be submitted.

4.2.4 Approach to Scope of Work

Provide in concise narrative form, your understanding of the City's needs, goals and objectives as they relate to the project, and your overall approach to accomplishing the project. Give an overview on your proposed vision, ideas, and methodology. Describe your proposed approach to the project.

As a part of the response, a design plan and diagram(s) shall be presented to the City for approval.

The Proposer shall also propose a scheduling methodology (timeline) for effectively managing and executing the work in the optimum time. The delivery time shall be stated in calendar days from the date of City notification of award or notice to proceed with delivery. Such timeline information and proposed dates shall include, but not necessarily be limited

to: delivery, installation, acceptance testing, personnel, and other related completion dates, in accordance with the RFP specifications.

NOTE: The project must be completed and accepted within 120 days from the City Notice to Proceed.

Also provide information on your firm's current workload and how this project will fit into your workload. Describe available facilities, technological capabilities, and other available resources you offer for the project.

Additionally, the proposal should specifically address:

- A. Who
- B. What
- C. When
- D. Where
- E. Why
- F. How

4.2.5 References

Provide at least three references, preferably government agencies, for projects with similar scope as listed in this RFP. Information should include:

- Client Name, address, contact person telephone and E-mail addresses.
- Description of work.
- Year the project was completed.
- Total cost of the project, estimated and actual.

Note: Do not include City of Fort Lauderdale work or staff as references to demonstrate your capabilities. The Committee is interested in work experience and references other than the City of Fort Lauderdale.

4.2.6 Minority/Women (M/WBE) Participation

If your firm is a certified minority business enterprise as defined by the Florida Small and Minority Business Assistance Act of 1985, provide copies of your certification(s). If your firm is not a certified M/WBE, describe your company's previous efforts, as well as planned efforts in meeting M/WBE procurement goals under Florida Statutes 287.09451.

4.2.7 Subcontractors

Proposer must clearly identify any subcontractors that may be utilized during the term of this contract.

4.2.8 Required Forms

A. Proposal Certification

Complete and attach the Proposal Certification provided herein.

B. Non-Collusion Statement

This form is to be completed, if applicable, and inserted in this section.

C. Non-Discrimination Certification Form

This form is to be completed and inserted in this section.

D. Local Business Preference (LBP)

This form is to be completed, if applicable, and inserted in this section.

E. Disadvantaged Business Enterprise Preference (DBEP)

This form is to be completed, if applicable, and inserted in this section.

F. Contract Payment Method

This form must be completed and returned with your proposal. Proposers must presently have the ability to accept these credit cards or take whatever steps necessary to implement acceptance of a card before the start of the contract term, or contract award by the City.

G. E-Verify Affirmation Statement

This form must be completed and returned with your proposal.

H. Affidavit of Compliance

This form must be completed, notarized, and returned with your proposal.

I. Anti-Human Trafficking Affidavit

This form must be completed, notarized, and returned with your proposal.

J. Sample Insurance Certificate

Demonstrate your firm's ability to comply with insurance requirements. Provide a previous certificate or other evidence listing the Insurance Companies names for the required coverage and limits.

K. W-9 for Proposing Firm

This form must be completed and returned with your proposal.

L. Active Status Page from Division of Corporations – Sunbiz.org

Provide PDF of current page with your proposal.

4.2.9 Licensing Requirements

Proof of the following: State of Florida Certified Electrical Contractor (CEC) or the Registered Electrical Contractor (REC) license or any other State or County License(s), Certification(s) or Registration(s).

END OF SECTION

SECTION V – EVALUATION AND AWARD

5.1 Evaluation Procedure

5.1.1 Bid/Proposal Tabulations/Intent to Award

Notice of Intent to Award Contract/Bid, resulting from the City's Formal solicitation process may be found at: [Click Here](#). Tabulations of receipt of those parties responding to a formal solicitation may be found at: [Click Here](#). Any interested party may call the Procurement Services Division at 954-828-5933, or email ProcurementSupport@fortlauderdale.gov, for more information.

5.1.2 Evaluation of proposals will be conducted by an Evaluation Committee, consisting of a minimum of three members of City Staff, or other persons selected by the City Manager or designee. All committee members must be in attendance at scheduled evaluation meetings. Proposals shall be evaluated based upon the information and references contained in the responses as submitted.

5.1.3 The Committee may short list Proposals that it deems best satisfy the weighted criteria set forth herein. The committee may then conduct interviews and/or require oral presentations from the short-listed Proposers. The Evaluation Committee shall then re-score and re-rank the short-listed firms in accordance with the weighted criteria.

5.1.4 The City may require visits to the Proposer's facilities to inspect record keeping procedures, staff, facilities and equipment as part of the evaluation process.

5.1.5 The final ranking and the Evaluation Committee's recommendation may then be reported to the City Manager for consideration of contract award.

5.2 Evaluation Criteria

5.2.1 The City uses a mathematical formula to determine the scoring for each individual responsive and responsible firm based on the weighted criteria stated herein. Each evaluation committee member will rank each firm by criteria, giving their first ranked firm a number 1, the second ranked firm a number 2, and so on. The City shall multiply that average ranking by the weighted criterion identified herein to determine the total the points for each Proposer. The lowest average final ranking score will determine the recommendation by the evaluation committee to the City Manager.

5.2.2 Weighted Criteria

Ability to Meet Objectives: Understands the scope of the project.; Product meets City's objectives; requirement in RFP; Support/Services	50%
Experience: References; Staffing qualifications; Years in Business	20%
Total Project Cost	30%
TOTAL PERCENT AVAILABLE:	100%

5.3 Contract Award

The City reserves the right to award a contract to that Consultant who will best serve the interest of the City. The City reserves the right, based upon its deliberations and in its opinion, to accept or reject any or all proposals. The City also reserves the right to waive minor irregularities or variations of the submittal requirements and RFP process.

Las Olas Parking Garage

Fort Lauderdale, FL

Drawing Index

TX000 - Title Sheet

TX001 - Notes & Contact Info

TX002 - BOM & Symbol Key

TX101 - Architectural

TX102 - Architectural

TX103 - Schedule

TX104 - Schedule

TX105 - Schedule

TX106 - Schedule

TX401 - Wiring

TX402 - Wiring

TX501 - Controls

TX502 - Controls

TX503 - Controls

TX504 - Controls

TX901 - Pin Out

PROJECT CAM #25-0822	Las Olas Parking Garage	LOCATION: Fort Lauderdale, FL	REV. _____
DATE 2017-12-08	JOB NO. XXX	FILE NAME: TX000.dwg	
SHEET SIZE: ANSI-B	SCALE NTS	DRAWN BY: RDE	CHECKED BY: CRC
SHEET NUMBER		SHEET TITLE:	
TX000		Title Sheet	

PROJECT NOTES:

- 1. Fixture system voltage is 120v AC.
- 2. Control system voltage is 120VAC.
- 3. All Cat5 data cables to be provided by contractor.
- 4. Controls to be located in dry, accessible, and conditioned location. Enclosures and mounting hardware required to maintain products within stated operating limits to be provided by others.
- 5. Fixture installation (mounting, wiring, and aiming) to be performed by others.
- 6. Dot XL-3 48PXL include 48 nodes with 7" on-center spacing. 10 meter leader cable included..
- 7. Maximum 3 Dot XL-3 strings per DMX universe.
- 8. Maximum distance from controls to fixtures is 300m.
- 9. Strings to be field Cut per fin as needed.
- 10. Basic video content provided.
- 11. Video is hosted from server.
- 12. LCE2FX to utilize Sympholight software.
- 13. IP67 Field Installable RJ-45 connector sleeves to be provided by Traxon.
- 14. Cat5 (typ) and RJ-45 connectors to be provided by others.
- 15. Cat5 (typ) must be outdoor rated with outside diameter of 4.5-6.5mm.
- 16. Mounting hardware to be provided by others.
- 17. Exact mounting methods and of DOTXL3 Strings to be determined and coordinated by architect and installing contractors.
- 18. DOTXL3 Strings to be field cut as needed- Proper use of the field cut termination kits are required to keep the IP66 rating on these fixtures.
- 19. Electrical contractor to allow for field cutting as required. Follow instructions included with Field Cut Kits.
- 20. DOTXL3 Strings, Power Supply, Pixel Distributors, and RJ45 Connections MUST be made when fixtures are installed outdoors.
- 21. Any DOTXL3 String, PSU, Pixel Distributor, or Outdoor RJ45 termination/cable installed without being connected to all of the above listed parts is not outdoor rated. All parts and pieces of this system carry the IP66 rating only when all connections are made. Installing any part of this system (outdoors) without its other components will render those parts unwarrantable.
- 22. All RJ45 connections to Pixel Distributors must be made using outdoor RJ45 Connectors. Follow included instructions for assembling those connectors. Be sure each connector has the proper adhesive backed rubber gasket installed to ensure watertight operation.
- 23. (12) spare DotXL-3 systems are provided.
- 24. The first DOTXL3 node must be placed consistently 6" from the bottom of each curved fin.
- 25. In the case of fins requiring a second string of DOTXL3- the first node of the second string must be mounted exactly 6 inches on center from the last node of the previous string in order to maintain consistent pixel pitch.
- 26. For visual consistency, the last DOTXL3 node of any fin, should not be mounted any closer than 4" from the top of that fin. Remaining nodes should be field cut per field cut end cap instructions. DO NOT CUT UNDER LOAD.

GENERAL NOTES:

- 1. Please contact Traxon personnel at least three weeks before energizing equipment to schedule System Setup Services (Commissioning and Programming Services). Do not energize system if a Traxon representative is not present.
- 2. All questions regarding this system should be directed to the Technical Solutions Consultant.
- 3. CAT 5 cables to be provided by EC. Refer to TX901 for Traxon pinout.
- 4. All dimensions are in meters unless otherwise specified. Use the following conversion to obtain dimensions in feet.
Feet = $\frac{\text{meter}}{0.3048}$
- 5. All layouts shown on this package are suggestive only. Final fixture layout to be determined by others.
- 6. For additional information on mounting and configuration, refer to each product's specification sheet, wiring diagram, mounting guide, and manual from Traxon's website:
<http://www.traxontechnologies.com>

PROJECT: Las Olas Parking Garage		LOCATION: Fort Lauderdale, FL		REMARKS	
DATE: 2017-12-08	JOB NO: xxx	FILE NAME: TX000.dwg	REV	DATE	BY
SHEET SIZE: ANSI-B	SCALE: NTS	DRAWN BY: RDE			
SHEET NUMBER: TX001		CHECKED BY: CRC			
Notes + Contact Info			SUBMITTAL		

Project Bill of Materials:

Part Number:	Description:	Quantity:
custom	Dot XL-3 RGB 48PXL 15v with a 7" (178) mm pitch-NO DOME. 10m Leader	581
PS.OA.0002200	LED Engine 75W 15v Outdoor - Dot XL	581
DE.AC.0100000	RJ45 Field Installation Male Connector	1161
DO.AC.0002400	Dot XL-3 Clip (50 pcs)	581
DO AC.0003600	Dot XL Field-cut End Cap (50pcs)	13
EN.LC.9400000	LIGHTING CONTROL ENGINE FX 2	1
EN.BP.0000100	BUTLER PRO DMX/RDM	12
AC.C3.5240000	300 series 24 port switch	1
160174	BUTLER XT2 GARAGE	1
EN.BX.0000001	Butler XT2	1
AC.EN.0000001	Din Rail Engine Accessory Pack (Butler XT2, LCE MX)	1
160215	GLASS TOUCH T12 white	1
RM-KB-LCD17KVMHD	1 Space (1 3/4") Rackmount 17" LCD Monitor With Keyboard	1
RA.C3.ERK4425	44 Space (77"). 25" Deep Stand Alone Rack Less Rear Door,	1
RA.C3.ERKRR44	44 Space (77") Erk Rear Rail Kit	1
RA.C3.PD1820R	18 Outlet, Single 20 Amp Circuit, Multimount Power Distributio	1
RA.C3.00VFD44	Vented Front Door, Fits 44 Space Erk, Mrk, Wrk, Vrk Series R	1
TBD	RKMT UPS2200VA1650W 2SP 3 1/2" VS1 MIDAT	1
PS.AC.0000200	AC Power Cord (US)	1

Symbol List

FIXTURES



Dot XL

CABLES

CONTROLS



Lighting Control Engine 2 FX



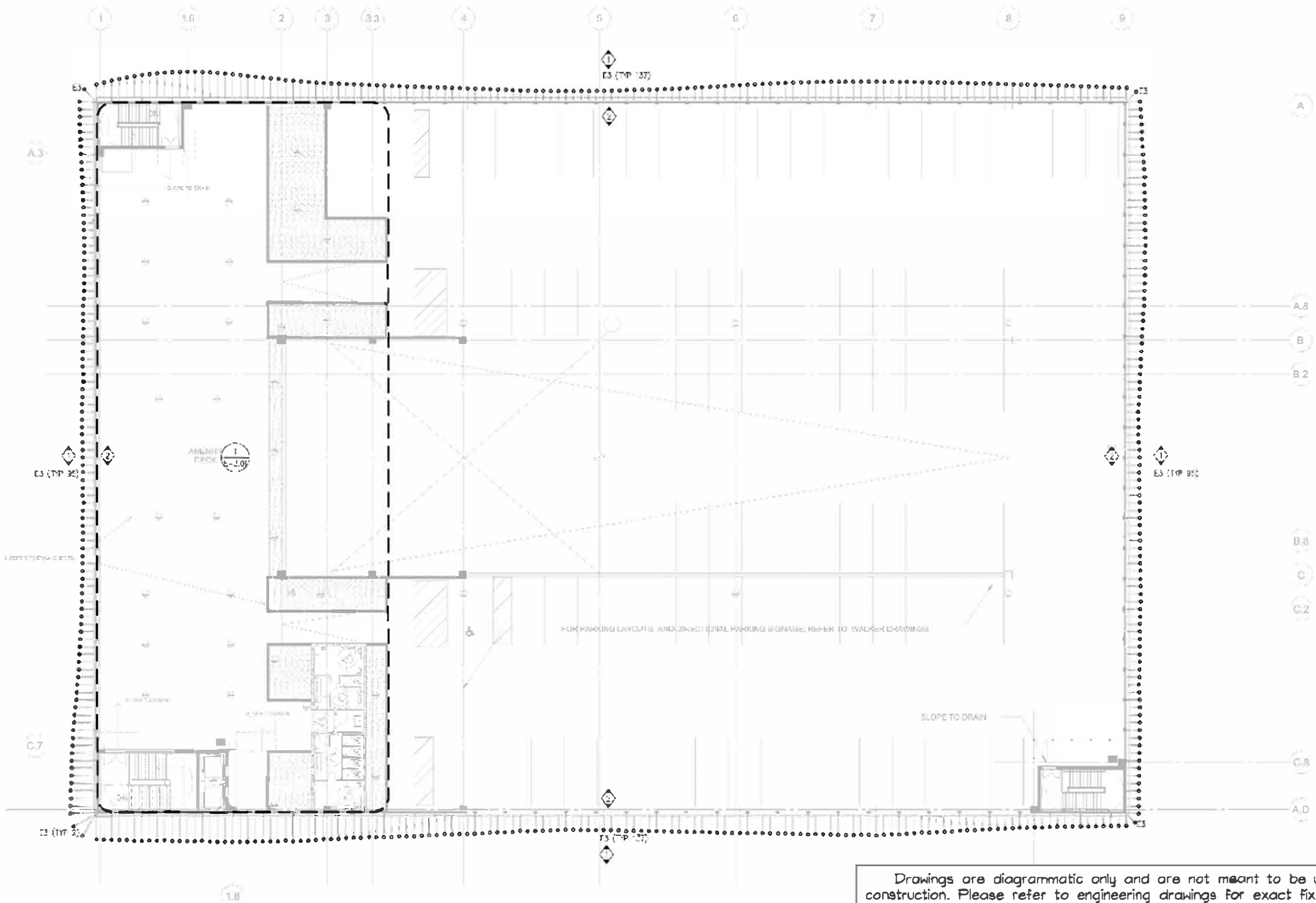
Butler Pro



Butler XT 2

ACCESSORIES

PROJECT	LOCATION	DATE	BY	REMARKS
Las s arking Garage	Fort La de e, FL			
DATE	FILE			
2017-12-08	TX000.dwg			
SHEET SIZE:	DRAWN BY:	CHECKED BY:		
ANSI-B	RDE	CRC		
NTS				
SHEET TITLE:				
TX002	BOM +	bol Key		SUBMITTAL

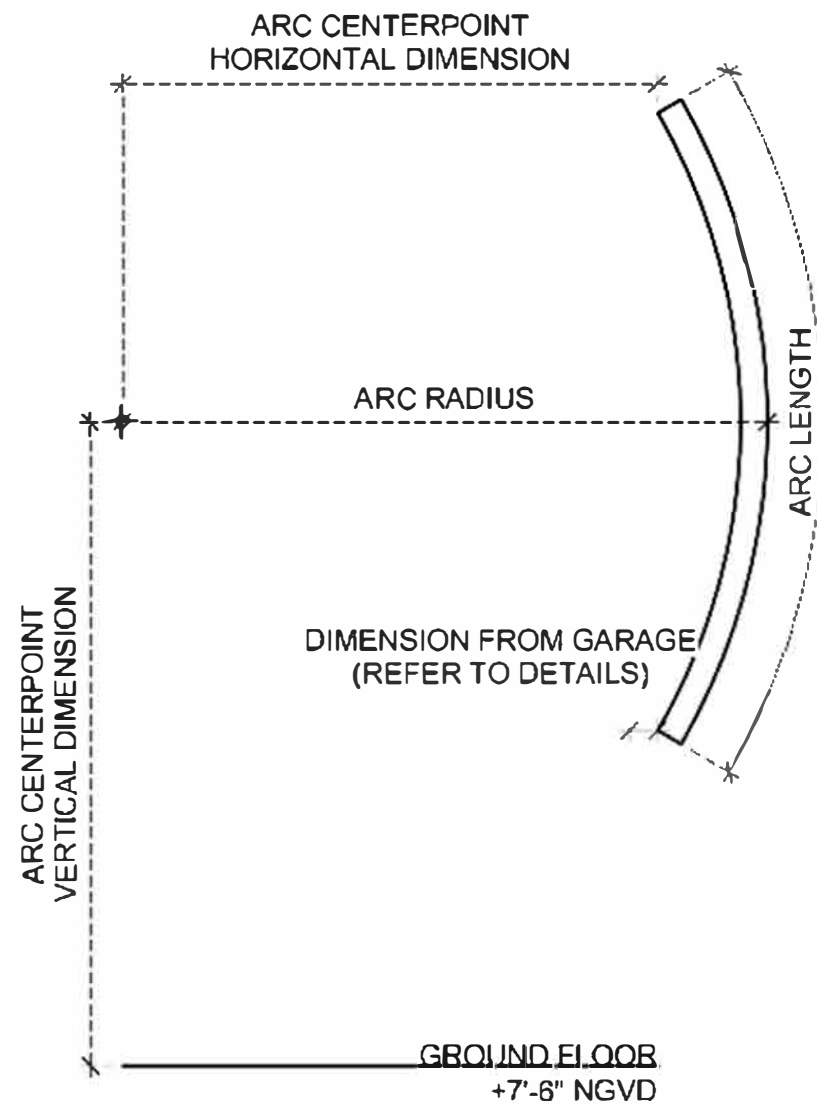


Traxon Fixture Locations
SCALE: N.T.S.

Drawings are diagrammatic only and are not meant to be used for construction. Please refer to engineering drawings for exact fixture location and placement.

Drawings are based on "Electrical and Lighting Enlarged Plan" drawings, sheet "E-3.01". Drawings are dated October 16th, 2016, and their issue type is not indicated.

PROJECT: Las Olas Parking Garage		LOCATION: Fort Lauderdale, FL		REMARKS	
CAM #25-0822	JOB NO: 2017-12-08	FILE NAME: TX100.dwg	DATE	BY	SUBMITTAL
	XXX	CHECKED BY: CRC			
	SCALE: NTS	DRAWN BY: RDE			
	SHEET SIZE: ANSI-B				
SHEET NUMBER: TX101			SHEET TITLE: Architectural		

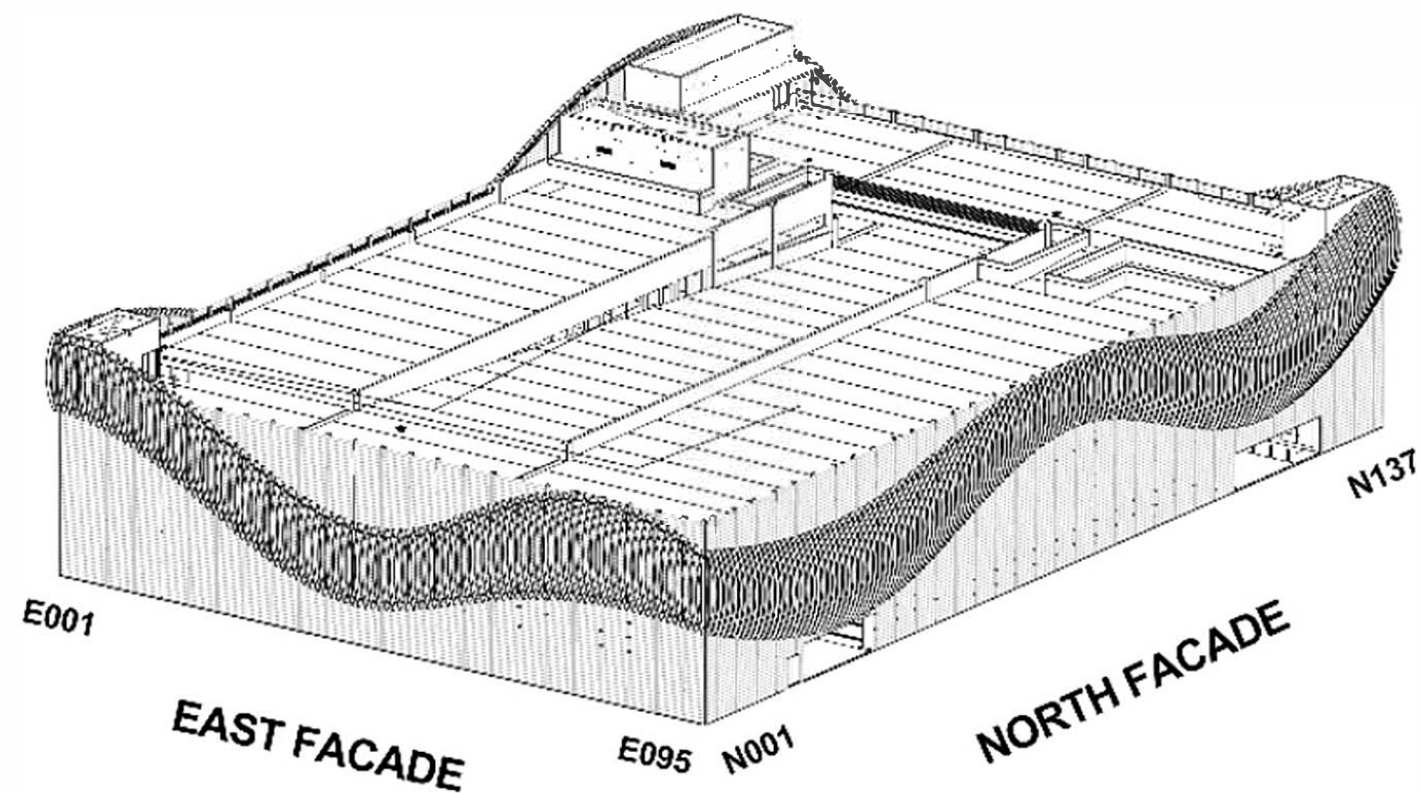
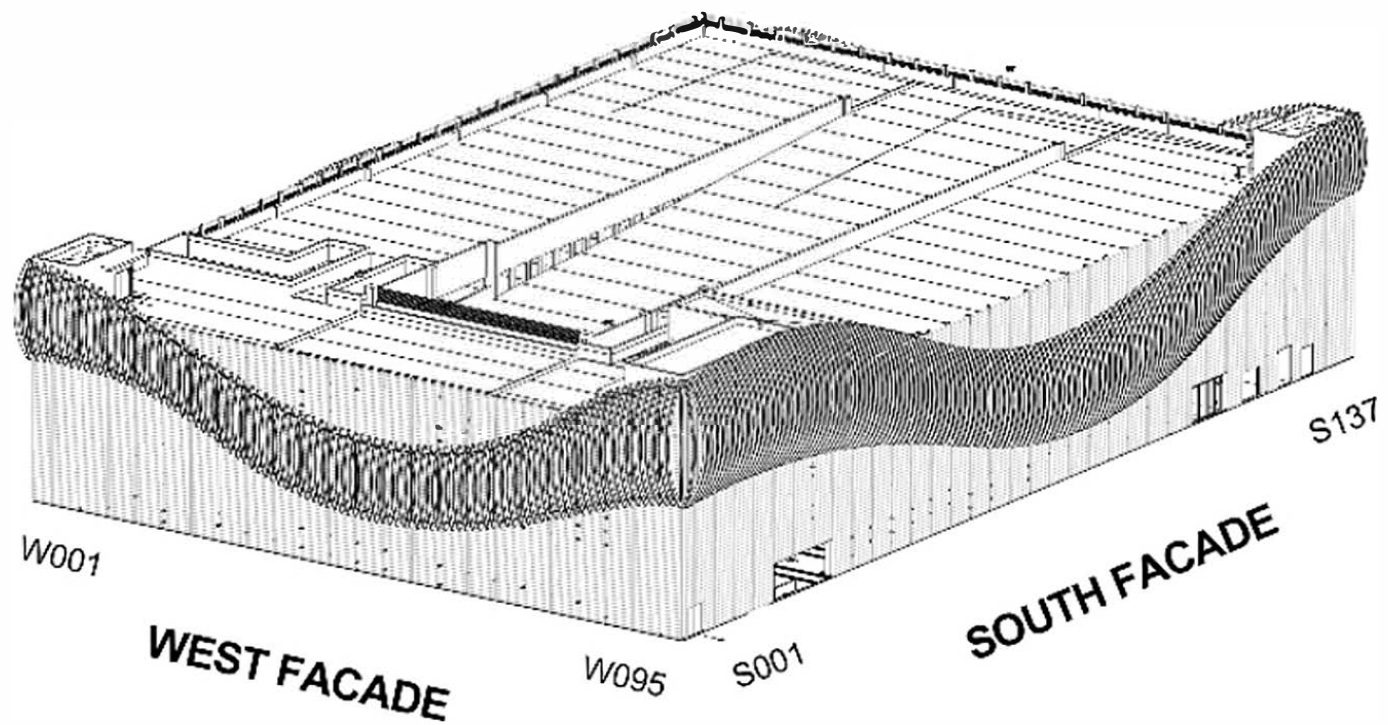


Drawings are diagrammatic only and are not meant to be used for construction. Please refer to engineering drawings for exact fixture location and placement.

Drawings are based on "Parking Garage Facade Schedules" drawings, sheet "A4-4.21". Drawings are dated July 29th, 2016, and their issue type is not indicated.

Drawings are based on "Parking Garage Facade Schedules" drawings, sheet "A4-4.22". Drawings are dated July 29th, 2016, and their issue type is not indicated.

Traxon Fixture Locations
TX102 SCALE: N.T.S.



PROJECT: Las Olas Parking Garage		LOCATION: Fort Lauderdale, FL			
DATE: 2017-12-08	JOB NO: xxx	FILE NAME: TX100.dwg			
SHEET SIZE: ANSI-B	SCALE: NTS	DRAWN BY: RDE	CHECKED BY: CRC		
SHEET NUMBER:		SHEET TITLE:			
TX102		Architectural		SUBMITTAL	
CAM #25-0822					

CAM #25-0822

Run:	Length (Ft.):	Offset:	# requirec
N001	21.83	21.33	1
N002	22.13	21.63	1
N003	22.43	21.93	1
N004	22.73	22.23	1
N005	23.02	22.52	1
N006	23.30	22.80	1
N007	23.59	23.09	1
N008	23.87	23.37	1
N009	24.14	23.64	1
N010	24.42	23.92	1
N011	24.68	24.18	1
N012	24.94	24.44	1
N013	25.20	24.70	1
N014	25.45	24.95	1
N015	25.70	25.20	1
N016	25.94	25.44	1
N017	26.18	25.68	1
N018	26.41	25.91	1
N019	26.63	26.13	1
N020	26.84	26.34	1
N021	27.05	26.55	1
N022	27.25	26.75	1
N023	27.44	26.94	1
N024	27.62	27.12	1
N025	27.79	27.29	1
N026	27.95	27.45	1
N027	28.10	27.60	1
N028	28.24	27.74	1
N029	28.37	27.87	1
N030	28.48	27.98	1
N031	28.58	28.08	2
N032	28.66	28.16	2
N033	28.72	28.22	2
N034	28.77	28.27	2
N035	28.80	28.30	2
N036	28.80	28.30	2
N037	28.78	28.28	2
N038	28.74	28.24	2
N039	28.67	28.17	2
N040	28.58	28.08	2

N041	28.46	27.96	1
N042	28.30	27.80	1
N043	28.12	27.62	1
N044	27.90	27.40	1
N045	27.64	27.14	1
N046	27.36	26.86	1
N047	27.04	26.54	1
N048	26.69	26.19	1
N049	26.30	25.80	1
N050	25.90	25.40	1
N051	25.46	24.96	1
N052	25.01	24.51	1
N053	24.55	24.05	1
N054	24.09	23.59	1
N055	23.62	23.12	1
N056	23.15	22.65	1
N057	22.67	22.17	1
N058	22.21	21.71	1
N059	21.74	21.24	1
N060	21.29	20.79	1
N061	20.85	20.35	1
N062	20.43	19.93	1
N063	20.02	19.52	1
N064	19.63	19.13	1
N065	19.27	18.77	1
N066	18.93	18.43	1
N067	18.62	18.12	1
N068	18.35	17.85	1
N069	18.11	17.61	1
N070	17.91	17.41	1
N071	17.75	17.25	1
N072	17.63	17.13	1
N073	17.55	17.05	1
N074	17.52	17.02	1
N075	17.54	17.04	1
N076	17.60	17.10	1
N077	17.71	17.21	1
N078	17.87	17.37	1
N079	18.07	17.57	1
N080	18.32	17.82	1

N081	18.61	18.11	1
N082	18.92	18.42	1
N083	19.26	18.76	1
N084	19.63	19.13	1
N085	20.00	19.50	1
N086	20.38	19.88	1
N087	20.76	20.26	1
N088	12.13	11.63	1
N089	21.50	21.00	1
N090	21.86	21.36	1
N091	22.20	21.70	1
N092	22.64	22.14	1
N093	22.86	22.36	1
N094	23.17	22.67	1
N095	23.48	22.98	1
N096	23.77	23.27	1
N097	24.06	23.56	1
N098	24.34	23.84	1
N099	24.62	24.12	1
N100	24.90	24.40	1
N101	25.19	24.69	1
N102	25.49	24.99	1
N103	25.81	25.31	1
N104	26.15	25.65	1
N105	26.52	26.02	1
N106	26.91	26.41	1
N107	27.34	26.84	1
N108	27.81	27.31	1
N109	28.32	27.82	1
N110	28.88	28.38	1
N111	29.49	28.99	1
N112	30.15	29.65	1
N113	30.86	30.36	2
N114	31.60	31.10	2
N115	32.35	31.85	2
N116	33.11	32.61	2
N117	33.84	33.34	2
N118	34.54	34.04	2
N119	35.19	34.69	2
N120	35.78	35.28	2

N121	36.29	35.79	2
N122	36.70	36.20	2
N123	37.01	36.51	2
N124	37.19	36.69	2
N125	37.25	36.75	2
N126	37.16	36.66	2
N127	36.93	36.43	2
N128	36.53	36.03	2
N129	35.98	35.48	2
N130	35.26	34.76	2
N131	34.38	33.88	2
N132	33.34	32.84	2
N133	32.14	31.64	2
N134	30.78	30.28	2
N135	29.27	28.77	1
N136	27.61	27.11	1
N137	25.80	25.30	1

TX103

North Facade

SCALE: nts

PROJECT: Las Olas Parking Garage	LOCATION: Fort Lauderdale, FL	REV	DATE	BY	REMARKS
	FILE NAME: TX100.dwg				
	CHECKED BY: CRC				
	DRAWN BY: RDE				
DATE: 2017-12-08	JOB NO. xxx	SHEET SIZE: ANSI-B	SCALE: NTS	SHEET TITLE: Schedules	
CAM #25-0822				SUBMITTAL	
TX103					

Run:	Length (F)	Offset:	# required
E001	19.50	19.00	1
E002	19.87	19.37	1
E003	20.19	19.69	1
E004	20.47	19.97	1
E005	20.73	20.23	1
E006	20.95	20.45	1
E007	21.15	20.65	1
E008	21.34	20.84	1
E009	21.50	21.00	1
E010	21.65	21.15	1
E011	21.79	21.29	1
E012	21.92	21.42	1
E013	22.05	21.55	1
E014	22.17	21.67	1
E015	22.29	21.79	1
E016	22.41	21.91	1
E017	22.53	22.03	1
E018	22.64	22.14	1
E019	22.76	22.26	1
E020	22.87	22.37	1
E021	22.97	22.47	1
E022	23.07	22.57	1
E023	23.15	22.65	1
E024	23.23	22.73	1
E025	23.29	22.79	1
E026	23.34	22.84	1
E027	23.38	22.88	1
E028	23.40	22.90	1
E029	23.40	22.90	1
E030	23.39	22.89	1
E031	23.36	22.86	1
E032	23.32	22.82	1
E033	23.25	22.75	1
E034	23.17	22.67	1
E035	23.07	22.57	1
E036	22.95	22.45	1
E037	22.82	22.32	1
E038	22.67	22.17	1
E039	22.52	22.02	1
E040	22.35	21.85	1

c	22.18	21.68	1
E042	22.00	21.50	1
E043	21.83	21.33	1
E044	21.66	21.16	1
E045	21.50	21.00	1
E046	21.35	20.85	1
E047	21.22	20.72	1
E048	21.11	20.61	1
E049	21.02	20.52	1
E050	20.96	20.46	1
E051	20.94	20.44	1
E052	20.98	20.48	1
E053	21.07	20.57	1
E054	21.24	20.74	1
E055	21.47	20.97	1
E056	21.76	21.26	1
E057	22.10	21.60	1
E058	22.49	21.99	1
E059	22.91	22.41	1
E060	23.35	22.85	1
E061	23.81	23.31	1
E062	24.29	23.79	1
E063	24.76	24.26	1
E064	25.24	24.74	1
E065	25.70	25.20	1
E066	26.15	25.65	1
E067	26.58	26.08	1
E068	26.98	26.48	1
E069	27.36	26.86	1
E070	27.70	27.20	1
E071	28.00	27.50	1
E072	28.27	27.77	1
E073	28.49	27.99	1
E074	28.67	28.17	1
E075	28.80	28.30	1
E076	28.89	28.39	1
E077	28.92	28.42	1
E078	28.91	28.41	1
E079	28.85	28.35	1
E080	28.74	28.24	1

E081	28.58	28.08	1
E082	28.38	27.88	1
E083	28.13	27.63	1
E084	27.93	27.43	1
E085	27.48	26.98	1
E086	27.10	26.60	1
E087	26.66	26.16	1
E088	26.19	25.69	1
E089	25.68	25.18	1
E090	25.13	24.63	1
E091	24.54	24.04	1
E092	23.91	23.41	1
E093	23.25	22.75	1
E094	22.56	22.06	1
E095	21.83	21.33	1



East Facade

SCALE: nts

PROJECT	LOCATION	DATE	TIME	BY	REMARKS
CAM Las as parking Garage	Fort La de e, FL	2017-12-08	TX 00.dwg		
JOB NO: XXX	E ALE				
SHEET SIZE: ANSI-B	SCALE: NTS	DRAWN BY: RDE	CHECKED BY: CRC		
SHEET NUMBER	SHEET TITLE:				
TX 04	Sched s	SU	TTAL		

Run:	Length (Ft)	Offset:	# required
S001	34.48	33.98	2
S002	34.63	34.13	2
S003	34.78	34.28	2
S004	34.93	34.43	2
S005	35.07	34.57	2
S006	35.22	34.72	2
S007	35.35	34.85	2
S008	35.48	34.98	2
S009	35.60	35.10	2
S010	35.72	35.22	2
S011	35.83	35.33	2
S012	35.92	35.42	2
S013	36.01	35.51	2
S014	36.09	35.59	2
S015	36.15	35.65	2
S016	36.20	35.70	2
S017	36.23	35.73	2
S018	36.24	35.74	2
S019	36.24	35.74	2
S020	36.22	35.72	2
S021	36.18	35.68	2
S022	36.12	35.62	2
S023	36.03	35.53	2
S024	35.93	35.43	2
S025	35.80	35.30	2
S026	35.64	35.14	2
S027	35.46	34.96	2
S028	35.26	34.76	2
S029	35.03	34.53	2
S030	34.78	34.28	2
S031	34.50	34.00	2
S032	34.19	33.69	2
S033	33.87	33.37	2
S034	33.52	33.02	2
S035	33.16	32.66	2
S036	23.77	23.27	1
S037	32.37	31.87	2
S038	31.96	31.46	2
S039	31.54	31.04	2
S040	31.11	30.61	2

S041	30.67	30.17	2
S042	30.24	29.74	2
S043	29.81	29.31	1
S044	29.38	28.88	1
S045	28.97	28.47	1
S046	28.57	28.07	1
S047	28.18	27.68	1
S048	27.81	27.31	1
S049	27.46	26.96	1
S050	27.13	26.63	1
S051	26.82	26.32	1
S052	26.54	26.04	1
S053	26.28	25.78	1
S054	26.06	25.56	1
S055	25.86	25.36	1
S056	25.68	25.18	1
S057	25.54	25.04	1
S058	25.42	24.92	1
S059	25.33	24.83	1
S060	25.27	24.77	1
S061	25.23	24.73	1
S062	25.22	24.72	1
S063	25.23	24.73	1
S064	25.26	24.76	1
S065	25.32	24.82	1
S066	25.39	24.89	1
S067	25.48	24.98	1
S068	25.58	25.08	1
S069	25.70	25.20	1
S070	25.83	25.33	1
S071	25.96	25.46	1
S072	26.10	25.60	1
S073	26.25	25.75	1
S074	26.40	25.90	1
S075	26.56	26.06	1
S076	26.73	26.23	1
S077	26.90	26.40	1
S078	27.08	26.58	1
S079	27.26	26.76	1
S080	27.44	26.94	1

S081	27.63	27.13	1
S082	27.82	27.32	1
S083	28.01	27.51	1
S084	28.21	27.71	1
S085	28.40	27.90	1
S086	28.59	28.09	1
S087	28.78	28.28	1
S088	28.97	28.47	1
S089	29.15	28.65	1
S090	29.33	28.83	1
S091	29.50	29.00	1
S092	29.66	29.16	1
S093	29.81	29.31	1
S094	29.95	29.45	2
S095	30.08	29.58	2
S096	30.20	29.70	2
S097	30.30	29.80	2
S098	30.38	29.88	2
S099	30.43	29.93	2
S100	30.45	29.95	2
S101	30.44	29.94	2
S102	30.35	29.85	2
S103	30.28	29.78	2
S104	30.13	29.63	2
S105	29.94	29.44	2
S106	29.70	29.20	1
S107	29.43	28.93	1
S108	29.13	28.63	1
S109	28.80	28.30	1
S110	28.44	27.94	1
S111	28.06	27.56	1
S112	27.67	27.17	1
S113	27.27	26.77	1
S114	26.85	26.35	1
S115	26.43	25.93	1
S116	26.01	25.51	1
S117	25.59	25.09	1
S118	25.18	24.68	1
S119	24.77	24.27	1
S120	24.37	23.87	1

S121	23.98	23.48	1
S122	23.61	23.11	1
S123	23.24	22.74	1
S124	22.89	22.39	1
S125	22.55	22.05	1
S126	22.23	21.73	1
S127	21.92	21.42	1
S128	21.62	21.12	1
S129	21.34	20.84	1
S130	21.07	20.57	1
S131	20.81	20.31	1
S132	20.57	20.07	1
S133	20.34	19.84	1
S134	20.11	19.61	1
S135	19.90	19.40	1
S136	19.70	19.20	1
S137	19.51	19.01	1

TX105

South Facade

SCALE: nts

PROJECT: Las Olas Parking Garage		LOCATION: Fort Lauderdale, FL		REMARKS	
DATE: 2017-12-08		FILE NAME: TX100.dwg		BY	
SHEET SIZE: ANSI-B		DRAWN BY: RDE		DATE	
SHEET NUMBER:		CHECKED BY: CRC		REV	
TX105		Schedules		SUBMITTAL	

Run:	Length (F)	Offset:	#required
W001	25.77	25.27	1
W002	25.62	25.12	1
W003	25.41	24.91	1
W004	25.15	24.65	1
W005	24.84	24.34	1
W006	24.49	23.99	1
W007	24.11	23.61	1
W008	23.70	23.20	1
W009	23.28	22.78	1
W010	22.86	22.36	1
W011	22.43	21.93	1
W012	22.01	21.51	1
W013	21.60	21.10	1
W014	21.21	20.71	1
W015	20.84	20.34	1
W016	20.51	20.01	1
W017	20.21	19.71	1
W018	19.96	19.46	1
W019	19.75	19.25	1
W020	19.60	19.10	1
W021	19.48	18.98	1
W022	19.44	18.94	1
W023	19.45	18.95	1
W024	19.51	19.01	1
W025	19.62	19.12	1
W026	19.77	19.27	1
W027	19.96	19.46	1
W028	20.17	19.67	1
W029	20.40	19.90	1
W030	20.64	20.14	1
W031	20.87	20.37	1
W032	21.08	20.58	1
W033	21.27	20.77	1
W034	21.43	20.93	1
W035	21.55	21.05	1
W036	21.65	21.15	1
W037	21.73	21.23	1
W038	21.78	21.28	1
W039	21.82	21.32	1
W040	21.84	21.34	1

W041	21.85	21.35	1
W042	21.84	21.34	1
W043	21.82	21.32	1
W044	21.80	21.30	1
W045	21.76	21.26	1
W046	21.73	21.23	1
W047	21.69	21.19	1
W048	21.64	21.14	1
W049	21.60	21.10	1
W050	21.56	21.06	1
W051	21.52	21.02	1
W052	21.48	20.98	1
W053	21.45	20.95	1
W054	21.42	20.92	1
W055	21.41	20.91	1
W056	21.40	20.90	1
W057	21.40	20.90	1
W058	21.42	20.92	1
W059	21.45	20.95	1
W060	21.50	21.00	1
W061	21.57	21.07	1
W062	21.66	21.16	1
W063	21.77	21.27	1
W064	21.91	21.41	1
W065	22.07	21.57	1
W066	22.27	21.77	1
W067	22.51	22.01	1
W068	22.79	22.29	1
W069	23.12	22.62	1
W070	23.49	22.99	1
W071	23.91	23.41	1
W072	24.37	23.87	1
W073	24.86	24.36	1
W074	25.39	24.89	1
W075	25.94	25.44	1
W076	26.52	26.02	1
W077	27.12	26.62	1
W078	27.72	27.22	1
W079	28.33	27.83	1
W080	28.94	28.44	1

W081	29.54	29.04	1
W082	30.13	29.63	2
W083	30.69	30.19	2
W084	31.21	30.71	2
W085	21.70	21.20	1
W086	32.15	31.65	2
W087	32.54	32.04	2
W088	32.89	32.39	2
W089	33.19	32.69	2
W090	33.43	32.93	2
W091	33.64	33.14	2
W092	33.82	33.32	2
W093	33.99	33.49	2
W094	34.19	33.69	2
W095	34.48	33.98	2

Corners	# required
NE01	1
SE01	1
SW01	2
SW02	2
NW01	1

2

TX106

Corners

SCALE: nts

1

TX106

West Facade

SCALE: nts

PROJECT
Las as arking Garage

LOCATION
Fort La de e, FL

DATE
2017-12-08

DATE
2017-12-08

SHEET SIZE:
ANSI-B

SHEET SIZE:
ANSI-B

SCALE
NTS

SCALE
NTS

DRAWN BY:
RDE

DRAWN BY:
RDE

CHECKED BY:
CRC

CHECKED BY:
CRC

SHEET TITLE:
TX 06

SHEET TITLE:
TX 06

SU

SU

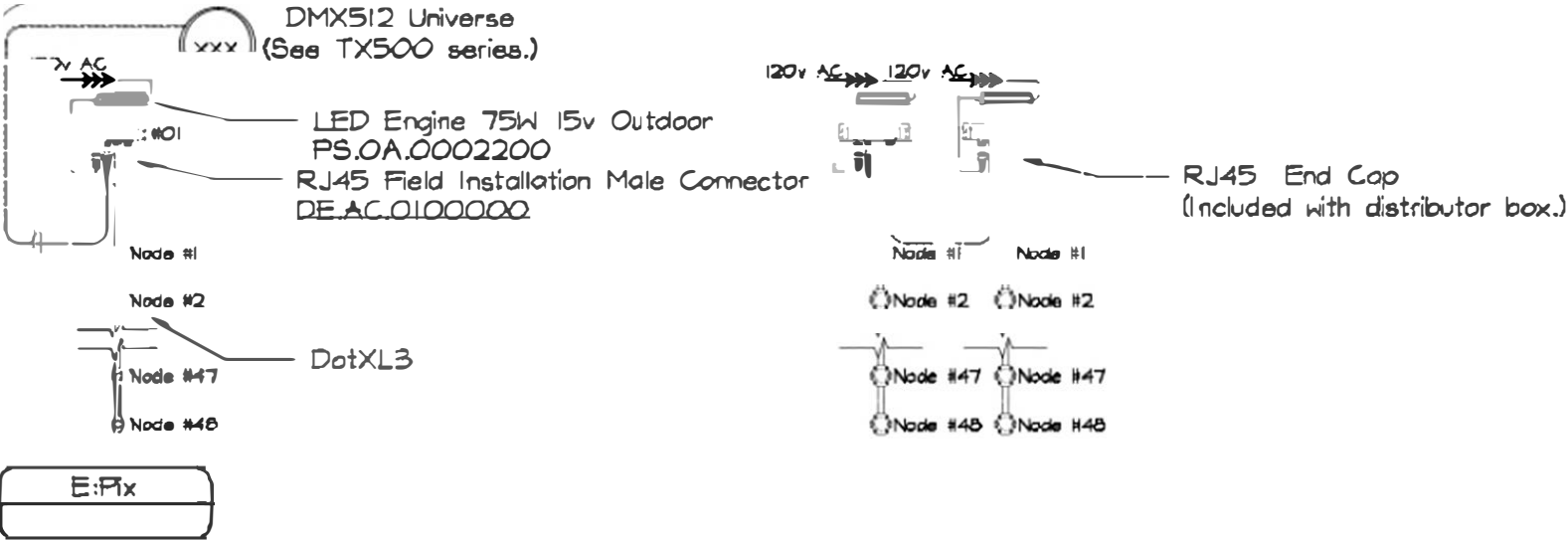
TTAL

TTAL

CAM #25-0822

Exhibit 1

Page 39 of 99

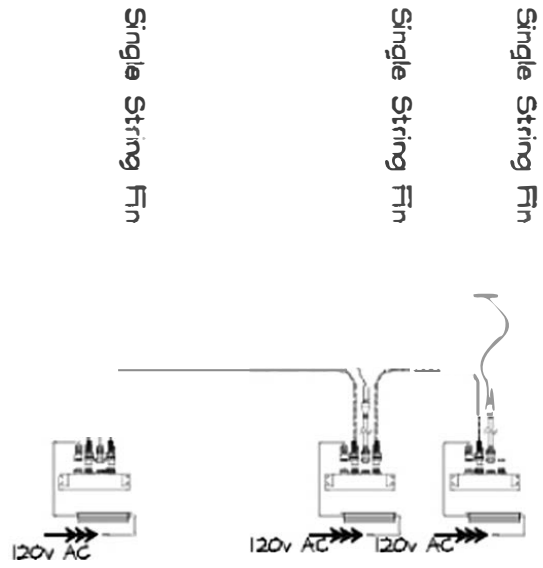


Each Fin is comprised of either one or two DOT XL3 strings. A maximum of three DOT XL3 strings can be connected to a single DMX universe. DMX Universes will include multiple fins in some cases. Contractor/Engineer shall allow for Cat5 cable to be run between multiple Fins.

1 Wiring - Dot XL (Typical)
TX401 SCALE: N.T.S.

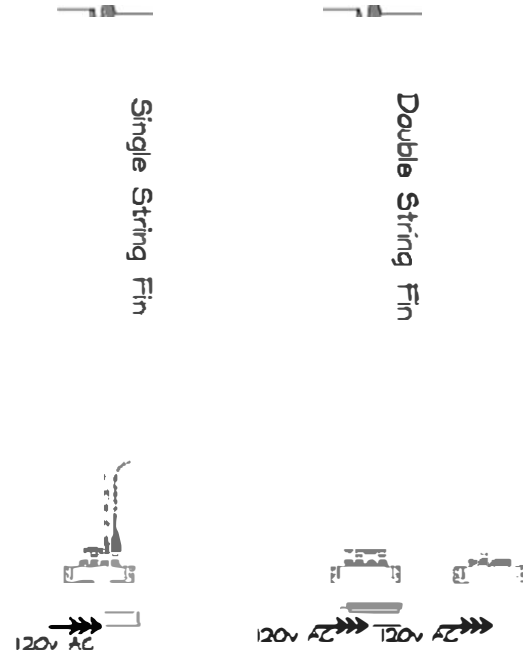
PROJECT	LOCATION	DATE	REV	BY	REMARKS
Las Olas Parking Garage	Fort Lauderdale, FL	2017-12-08			
DATE	FILE				
2017-12-08	TX400.dwg				
SM	DRAWN BY:	CHECKED BY:			
ANSI-B	RDE	CRC			
SHEET NUMBER	SHEET TITLE:				
TX401	Wiring				
					SUBMITTAL

001



1 Fin - Scenario #01
TX402 SCALE: N.T.S.

001

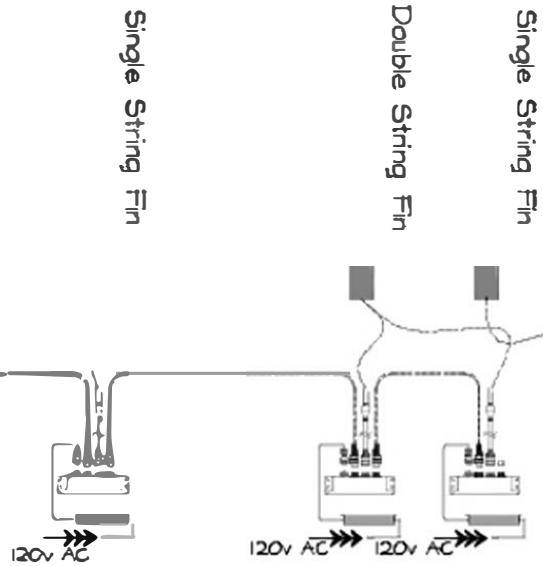


2 Fin - Scenario #02
TX402 SCALE: N.T.S.

Each Fn is comprised of either one or two DOT XL3 strings. A maximum of three DOT XL3 strings can be connected to a single DMX universe. DMX Universes will include multiple fins in some cases. Contractor/Engineer shall allow for Cat5 cable to be run between multiple fins.

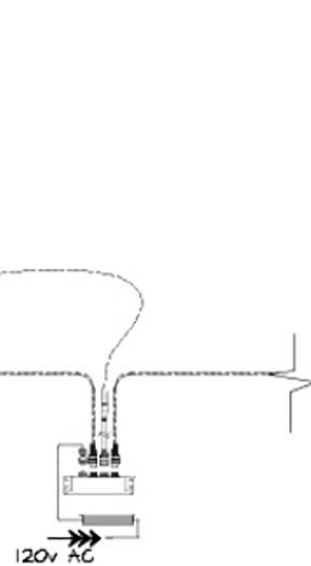
Scenarios are diagrammatic and shown for purposes of clarity. There will be multiple combinations of one and two string fins that will require Cat5 cables to be run between fins. The drawings on this sheet are meant to convey wiring methodology.

001



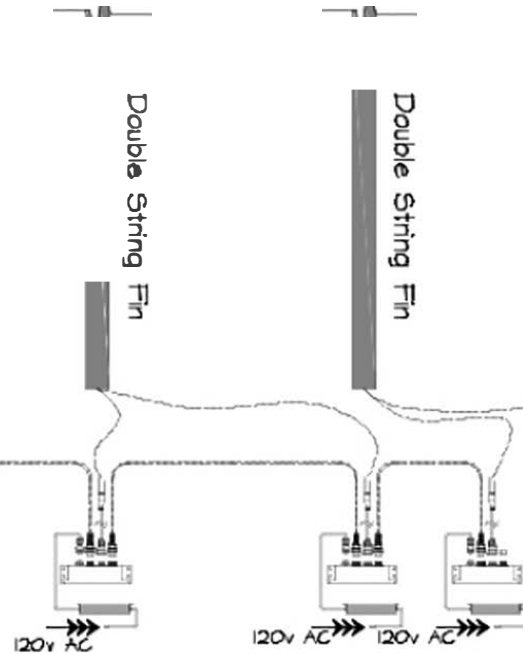
3 Fin - Scenario #03
TX402 SCALE: N.T.S.

002



4 Fin - Scenario #04
TX402 SCALE: N.T.S.

001



002

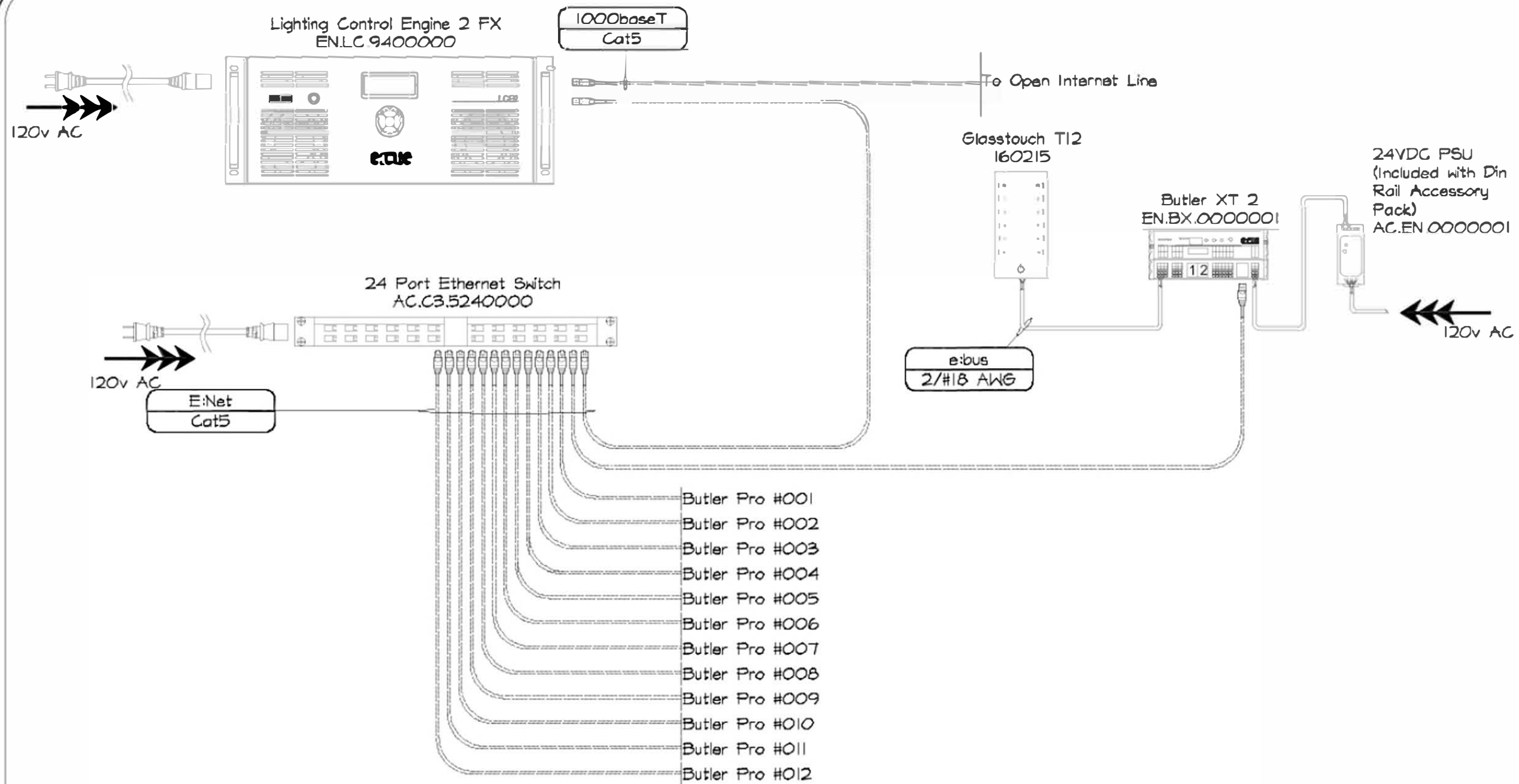


PROJECT Las Olas Parking Garage	LOCATION: Fort Lauderdale, FL		REV.
	DATE	BY	REMARKS
	FILE NAME: TX400.dwg	CHECKED BY: CRC	
	DRAWN BY: RDE		
DATE: 2017-12-08	JOB NO: XXX	SCALE: NTS	SHEET SIZE: ANSI-B
CAM #25-0822	Exhibit 1	Page 41 of 99	

SUBMITTAL

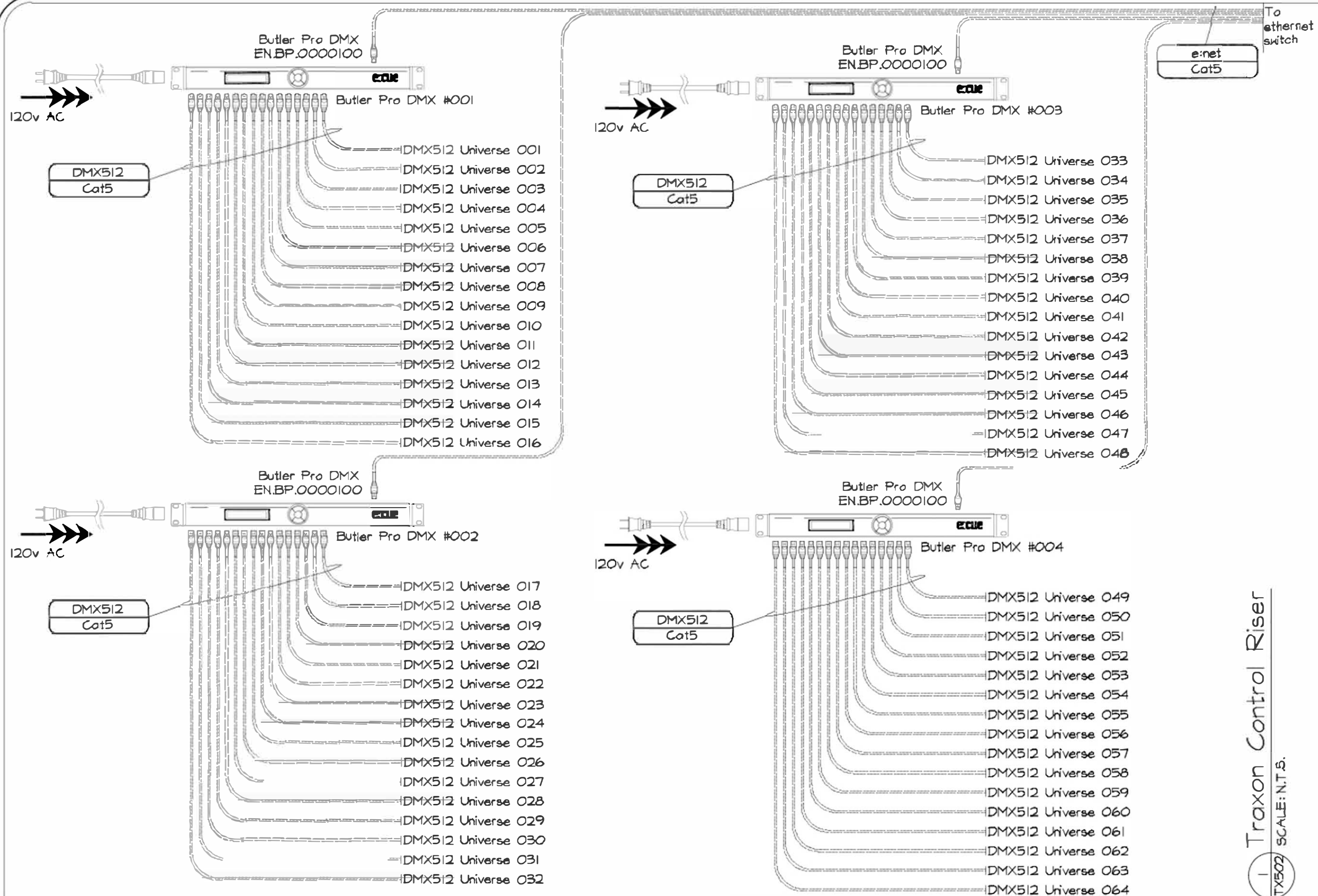
Wiring

TX402



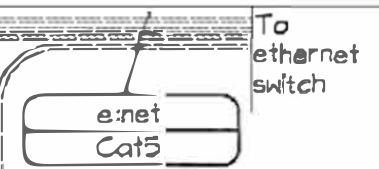
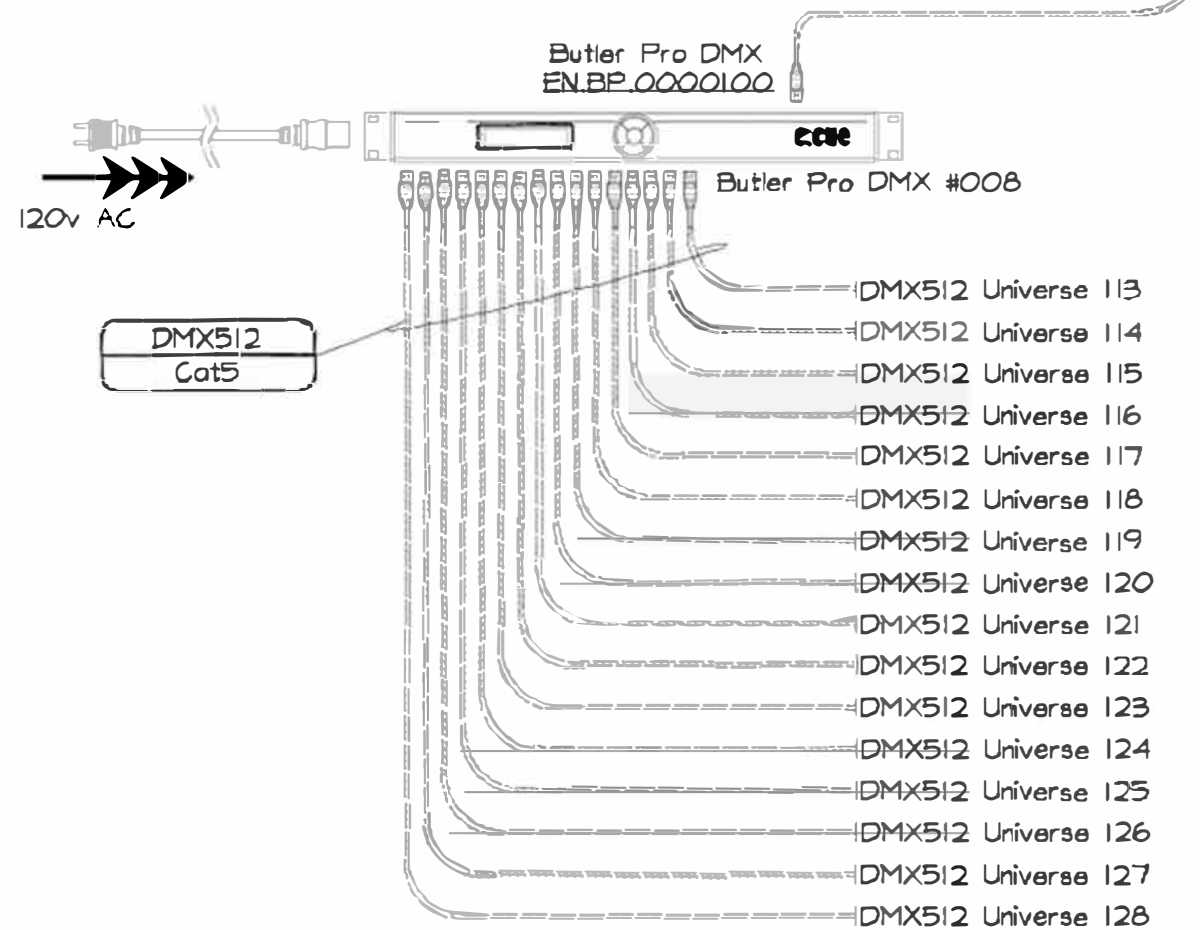
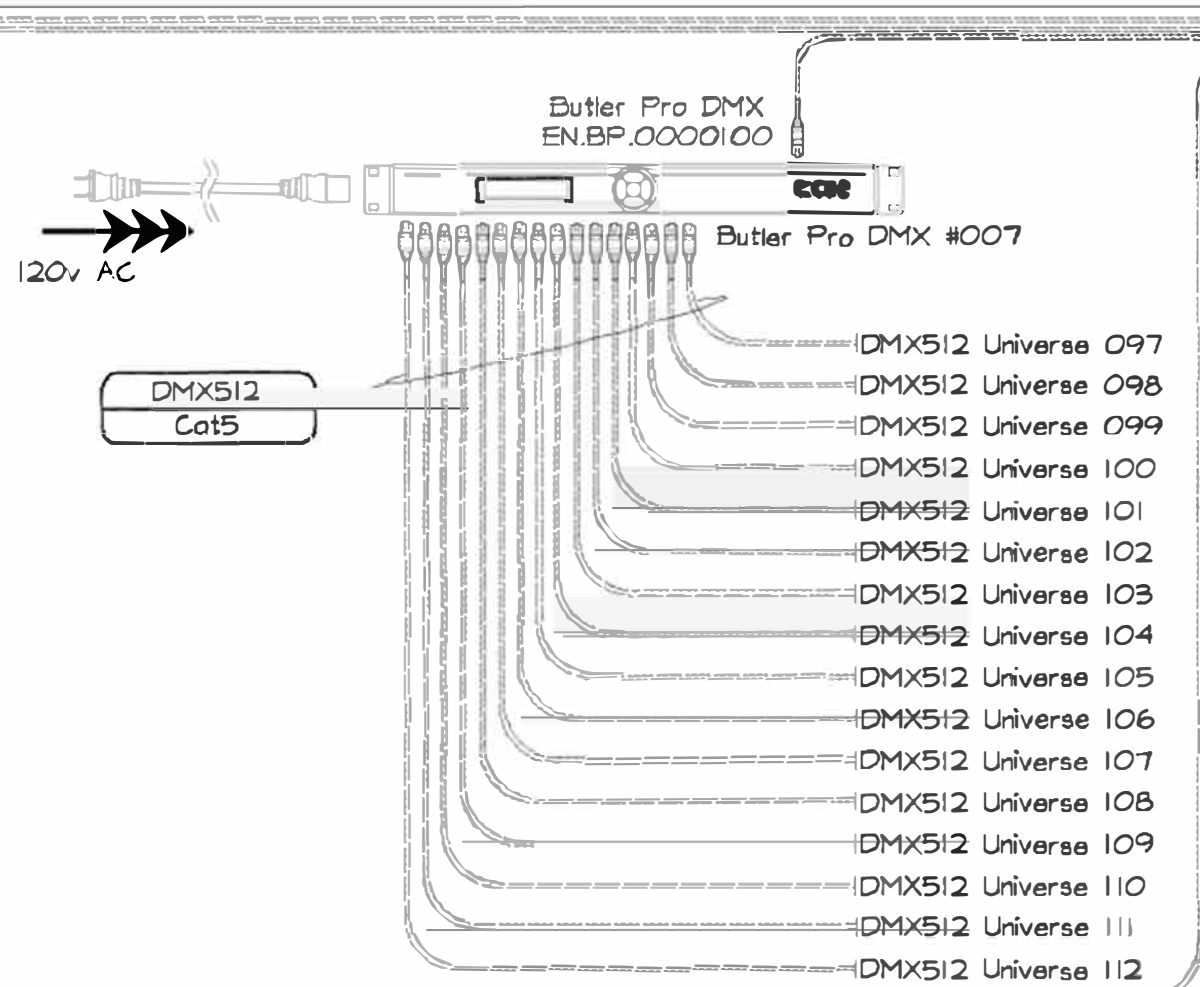
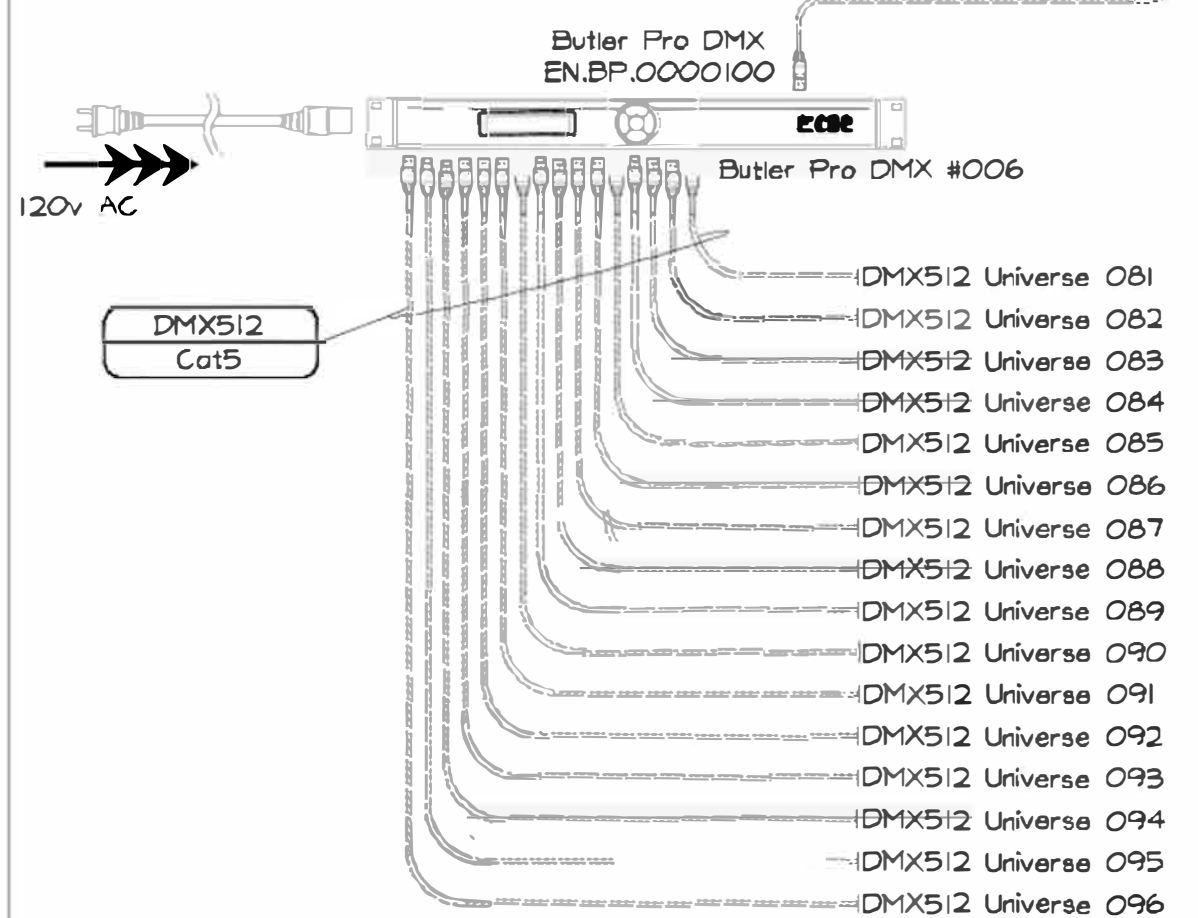
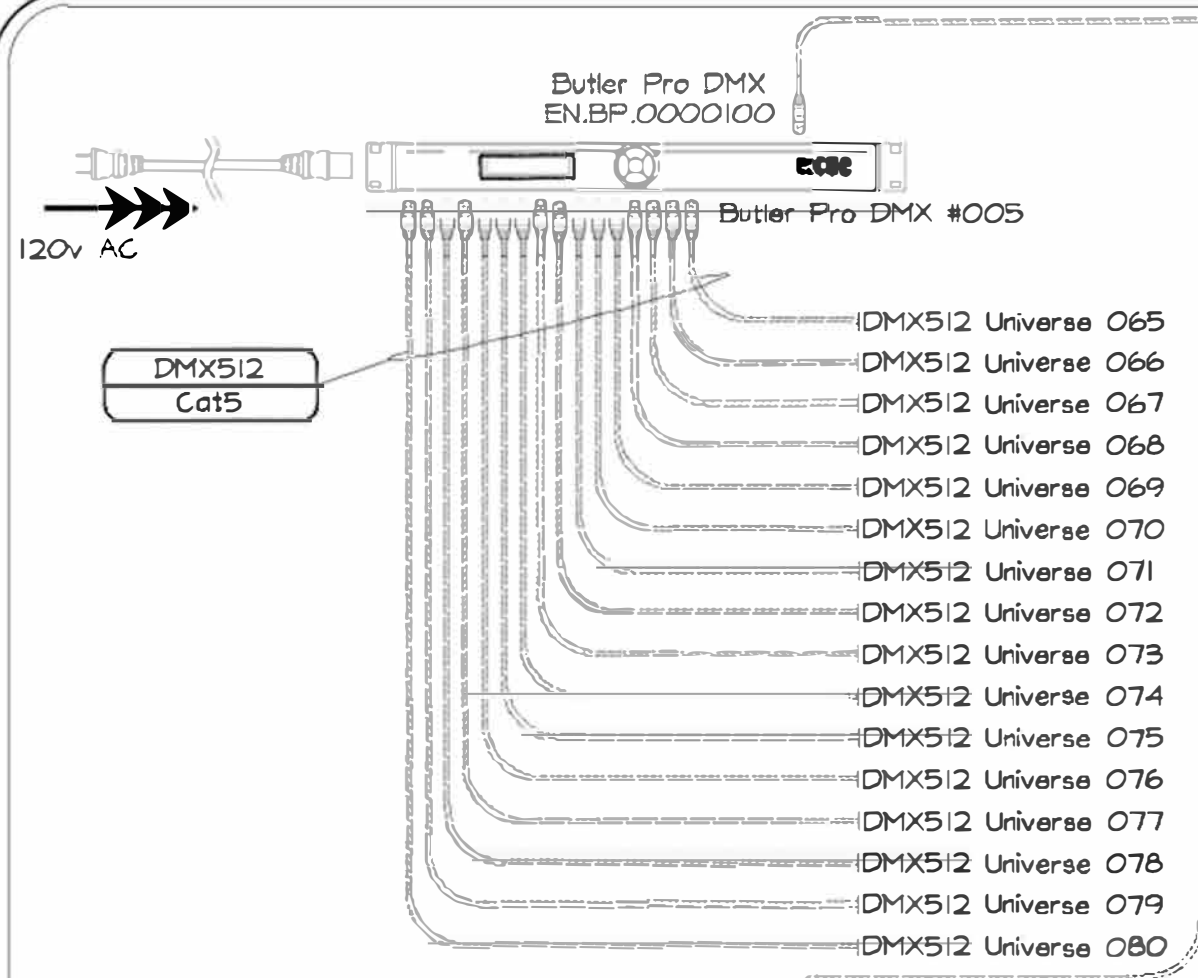
Traxon Control Riser
SCALE: N.T.S.

PROJECT:	LOCATION:	REVISIONS	DATE	BY	REMARKS
Las Olas Parking Garage	Fort Lauderdale, FL				
DATE:	FILE NAME:				
2017-12-08	TX500.dwg				
SHEET SIZE:	DRAWN BY:	CHECKED BY:			
ANSI-B	RDE	CRC			
SHEET NUMBER:	SHEET TITLE:				
TX501	Controls				
					SUBMITTAL



Traxon Control Riser
SCALE: N.T.S.

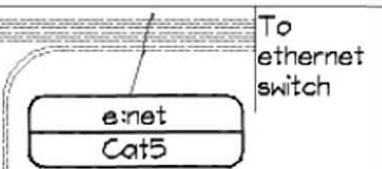
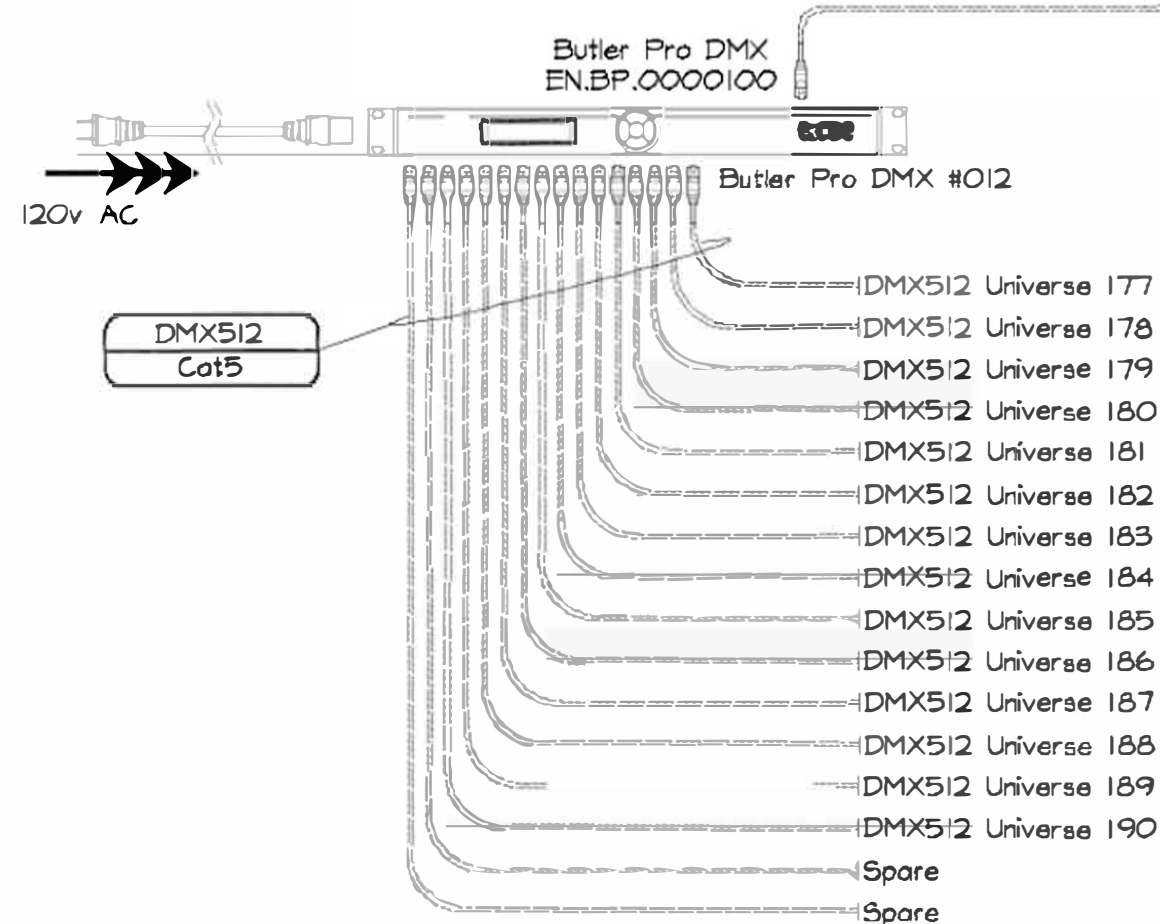
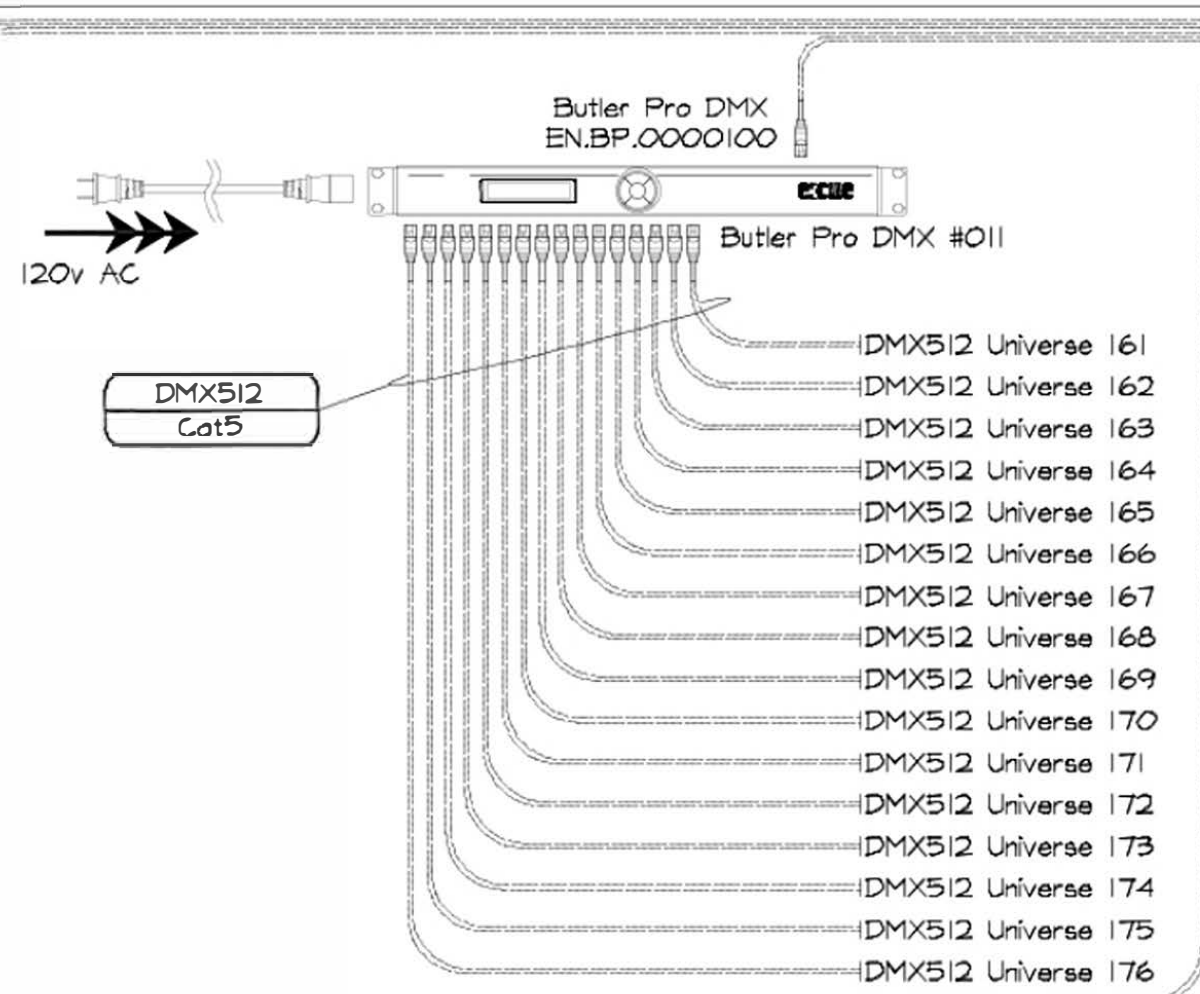
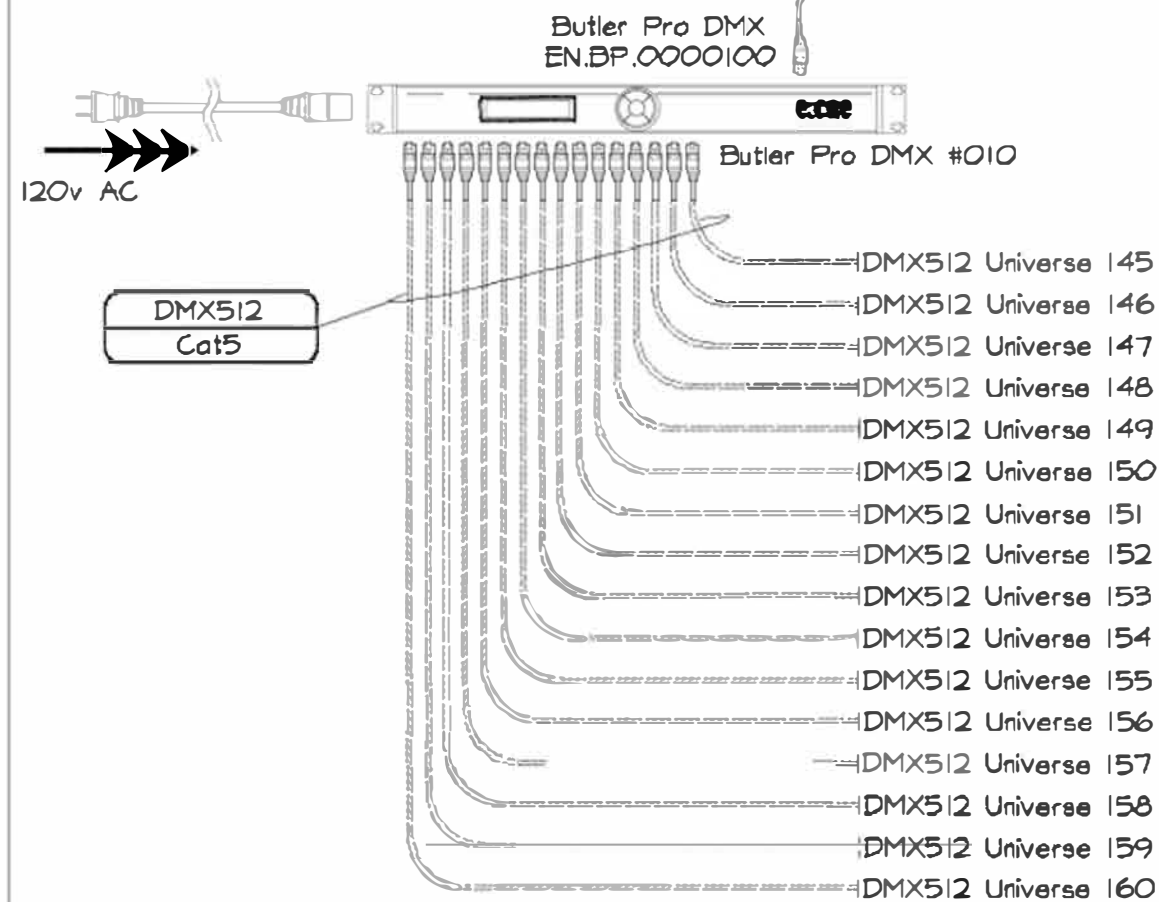
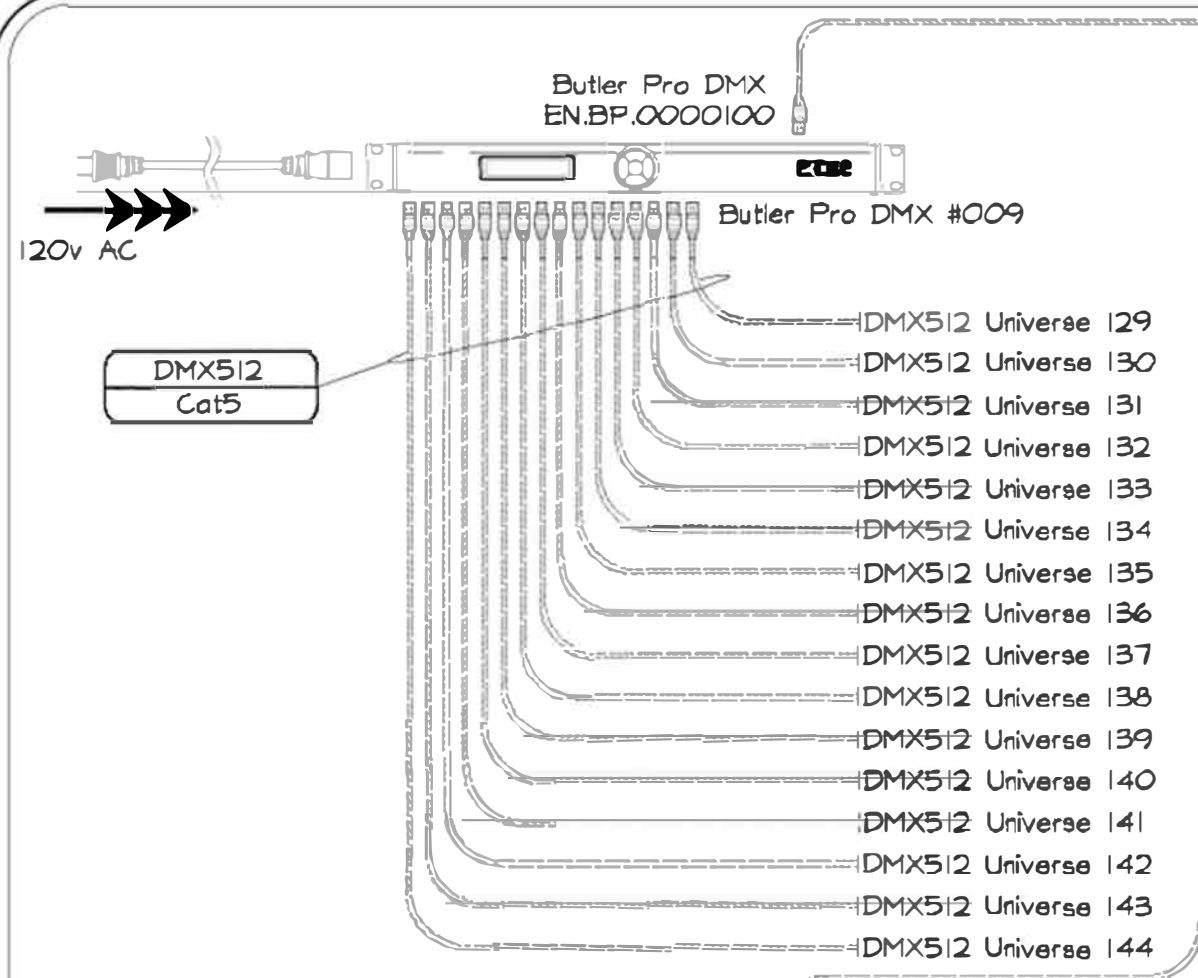
PROJECT: Las Olas Parking Garage	LOCATION: Fort Lauderdale, FL	REMARKS		
		REV	DATE	BY
DATE: 2017-12-08	FILE NAME: TX500.dwg	SUBMITTAL		
SHEET SIZE: ANSI-B	JOB NO: xxx	Controls		
SHEET NUMBER:	SCALE: NTS			
TX502		Controls		
CAM #25-0822		Controls		
Exhibit 1		Controls		
Page 43 of 99		Controls		



Traxon Control Riser

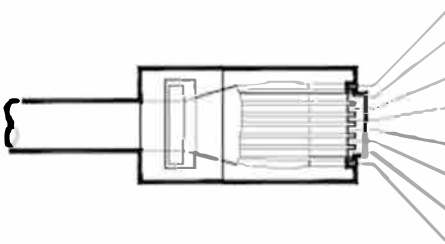
TX503 SCALE: N.T.S.

PROJECT:		LOCATION:		REMARKS	
Las Olas Parking Garage		Fort Lauderdale, FL			
DATE: 2017-12-08		FILE NAME: TX500.dwg			
SHEET SIZE: ANSI-B		JOB NO: xxx			
SCALE: NTS		DRAWN BY: RDE			
SHEET NUMBER:		CHECKED BY: CRC			
TX503		Controls		SUBMITTAL	
CAM #25-0822					

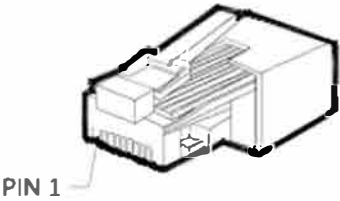


Traxon Control Riser
TX504 SCALE: N.T.S.

PROJECT:		LOCATION:		REMARKS	
Las Olas Parking Garage		Fort Lauderdale, FL			
DATE:		FILE NAME:		BY	
2017-12-08		TX500.dwg			
SHEET SIZE:		DRAWN BY:		DATE	
ANSI-B		RDE			
SHEET NUMBER:		CHECKED BY:		REV	
		CRC			
		SHEET TITLE:			
		Controls			
		TX504			
				SUBMITTAL	



PIN Number	Signal	Color (Standard 568B)	Color (Crossover 568A)
1	DMX-	Orange / White	Green / White
2	DMX+	Orange	Green
3	GND	Green / White	Orange / White
4	nc	Blue	Blue
5	nc	Blue / White	Blue / White
6	nc	Green	Orange
7	nc	Brown / White	Brown / White
8	nc	Brown	Brown



PROJECT: Las Olas Parking Garage	LOCATION: Fort Lauderdale, FL	REMARKS	
	FILE NAME: TX900.dwg	BY	
	DATE		
	REV		
SHEET NUMBER: TX901		SUBMITTAL	
SHEET TITLE: Details			
DATE: 2017-12-08	JOB NO: xxx		
SHEET SIZE: ANSI-B	SCALE: NTS	DRAWN BY: RDE	CHECKED BY: CRC

Las Olas Parking Garage

Fort Lauderdale, Florida



Spec Sheet Package

December 8th, 2017

AN OSRAM BUSINESS



Dot XL-3 RGB

Dot XL-3 RGB is an extra bright dot with 3 LEDs per dot casing. The dots are constructed on a flexible cable with a customizable pitch. The dots are single dot controllable by DMX or e:pix (DVI capable), and are connected per string using the Dot XL Pixel Distributor. The Pixel Distributors can be daisy chained to form large installations.



Product Specifications

Model ¹	Dot XL-3 RGB	Dot XL-3 RGB with diffuser dome
Number of Pixel	48 pixels	
Light Source	3 High intensity Nichia SMT LEDs per dot	
Color Range	16.7 Million additive RGB colors	
Color Resolution	3 x 14-bit (Gamma correction)	
Viewing Angle	120°	170°
Luminous Flux ²	16 lm	11 lm
Efficacy ²	11.7 lm/W	7.3 lm/W
Cover Lens	Clear PVC	Diffuser dome (PC)
LED Pitch	150mm standard; 100mm minimum for customized models 7" o.c. Spacing	
Lead Cable Length	10m standard	
Housing	Thermoplastic Polyurethane Elastomer (optional nylon clip: see Ordering page for details)	
Adjustment Options	Flexible cable	
Dimensions (Ø x L x H)	Ø36 x 60 x 12mm Ø1.4" x 2.4" x 0.5"	Ø36 x 60 x 27mm Ø1.4" x 2.4" x 1.1"
Weight	25g (Dot); 670g (Pixel Distributor)	
Regulatory Listing & Safety Approval	cETLus	
Operating Temperature	-20°C to +50°C / -4°F to +122°F	
Storage Temperature	-20°C to +70°C / -40°F to +158°F	
Environment	Outdoor (DotXL - IP66, IP67 rated; Pixel Distributor - IP66 rated; PSU - IP67 rated)	
Humidity	0 to 90% non-condensing	

Electrical Specifications

Operating Voltage	15V DC
Power Consumption ²	1.5W

System Specifications

Power/Data Interface	TX CONNECT
Control	DMX512 e:pix
Power Supply	LED Engine 75W Outdoor
Addressing Options	Auto-Addressing

1. Diffuser Dome is available upon request. Please consult your regional Traxon office for further details and aid.

2. Measurement per dot

LED CHARACTERISTICS Because LEDs are semiconductor devices, their performance is subject to inherent variability commonly found in semiconductor industry. To improve consistency in performance across the same product, LED manufacturers "sort" LEDs into bins according to different preset parameters, such as forward driving voltage, luminance, etc. Whereas binning is a sorting function, it is not a correction process. Inherent variability in the manufacturing process results always in different binning distributions according to different production lots. Traxon uses automatically binned LEDs on its products, thereby minimizing output variations within the model range.

As with all electronic devices, LED output degrades over time – a term called lumen depreciation. This also explains why it is nearly impossible to expect photometric performance of two LED products with different service life spans to be the same. The rate of LED degradation is a complicated function of many factors such as operating efficiency, duration of continuous operation, and more significantly, environmental conditions (ambient temperature for example). If allowed working under optimal operating temperature range and with good ventilation, LED devices enjoy long service lives over conventional light sources. When using/installing LED devices, care should be taken to ensure that the devices will operate within the operating conditions specified in respective product literature.

This product is NOT suitable for coastal environments. Any such installation will void the product warranty.

www.traxontechnologies.com

©2017 TRAXON TECHNOLOGIES - AN OSRAM BUSINESS. ALL RIGHTS RESERVED. TRAXON™, TX CONNECT®, ARE TRADEMARKS OF TRAXON TECHNOLOGIES. U.S. PATENTS, E.U. PATENTS, JAPAN PATENTS, OTHER PATENTS PENDING. SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

Product Specification

01/17 V0.6

1 of 8



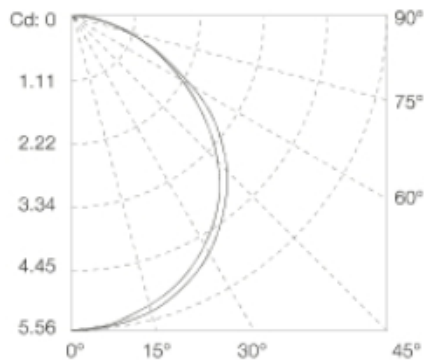
Dot XL-3 RGB

Photometrics

Source Specifications

Source	3 LEDs packaged in RGB (One Dot XL-3)
Optics	110°
Cover Lens	Clear PVC
Distribution	Symmetric direct illumination

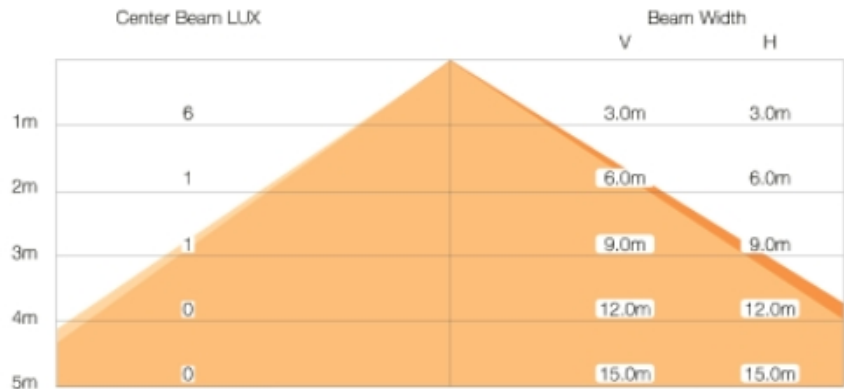
Candela Distribution



Light Output

Color	Luminous Flux (lm)	Power (Watts)	Efficacy (lm/W)
White	15.79	1.3	12.63
Red	4.47	0.8	5.88
Green	9.97	0.9	11.33
Blue	1.93	0.7	2.97

Illuminance at a Distance



For fc divide by 10.7

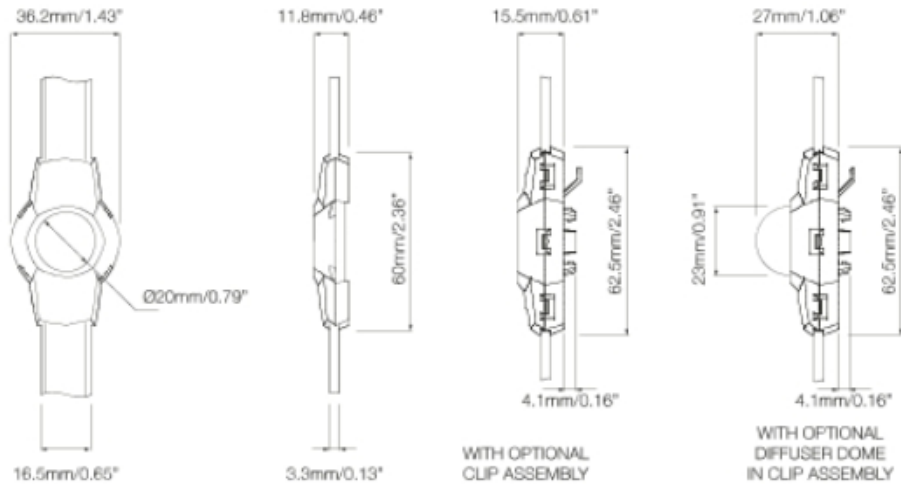
Vert. Spread: 112.5°
 Horiz. Spread: 112.6°
 For feet multiply by 3.28

IES and LDT files are available for download from the Traxon website.

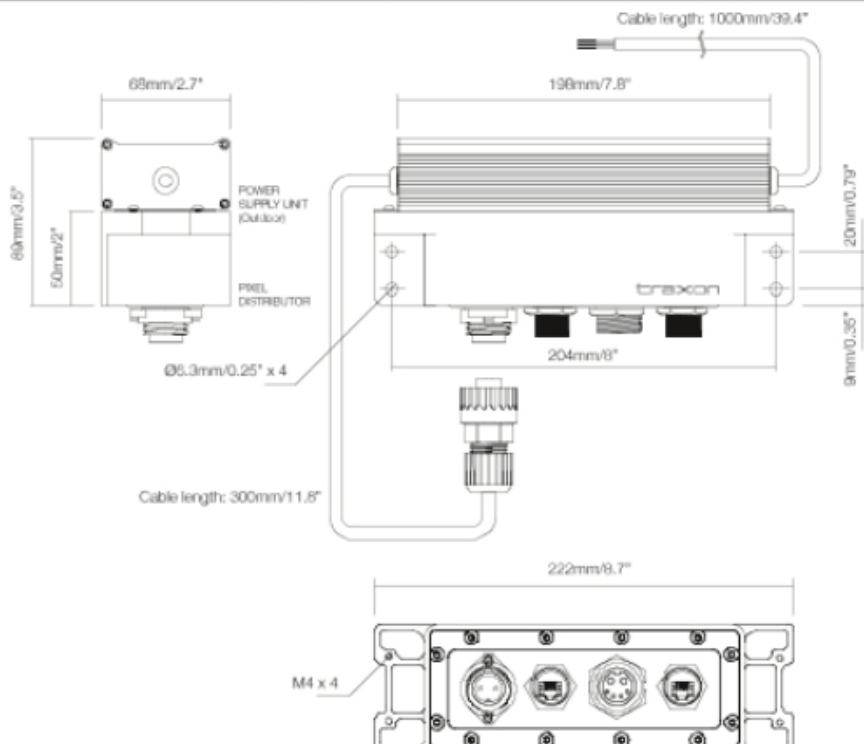
Dot XL-3 RGB

Dimensions

Dot XL



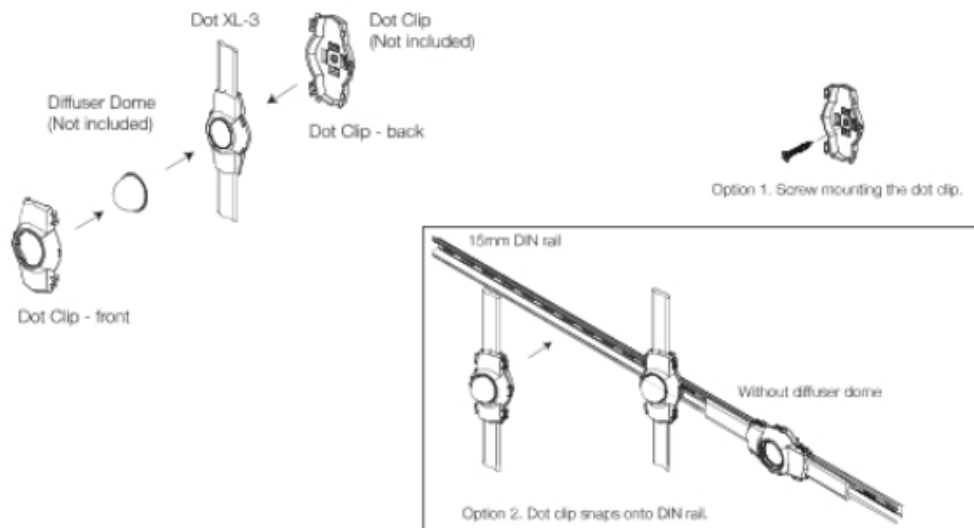
Pixel Distributor with Power Supply (Outdoor)



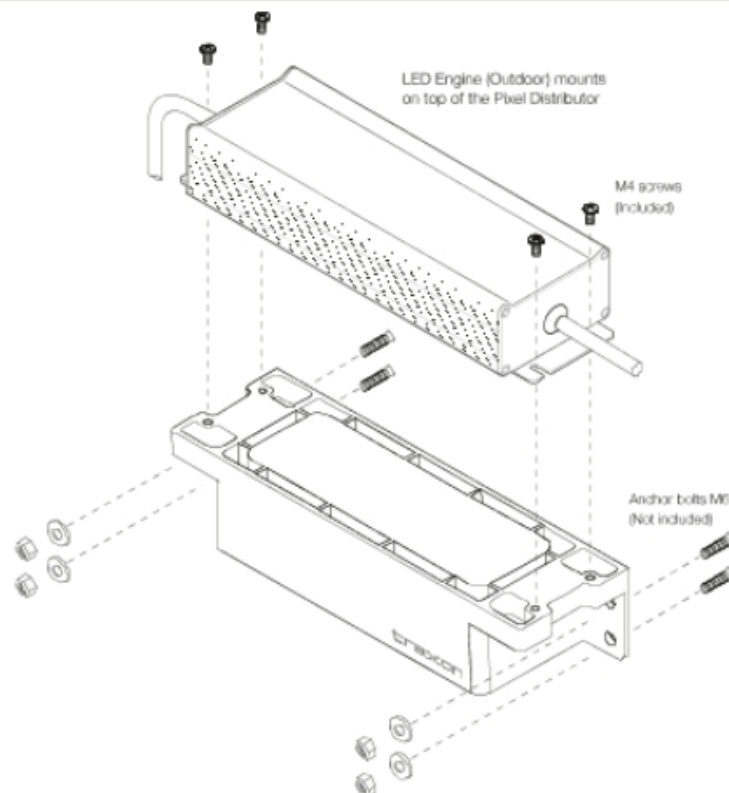
Dot XL-3 RGB

Mounting

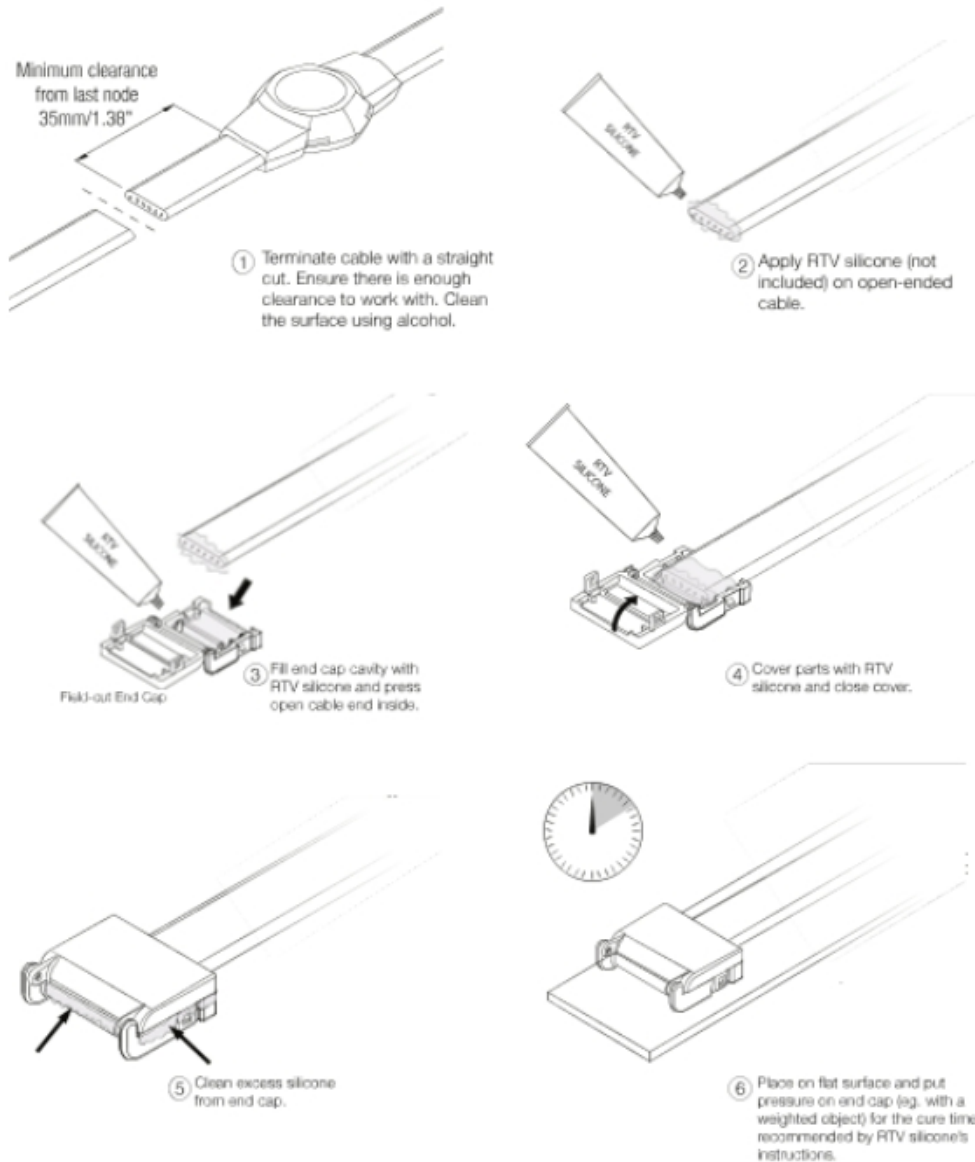
Dot XL



Pixel Distributor



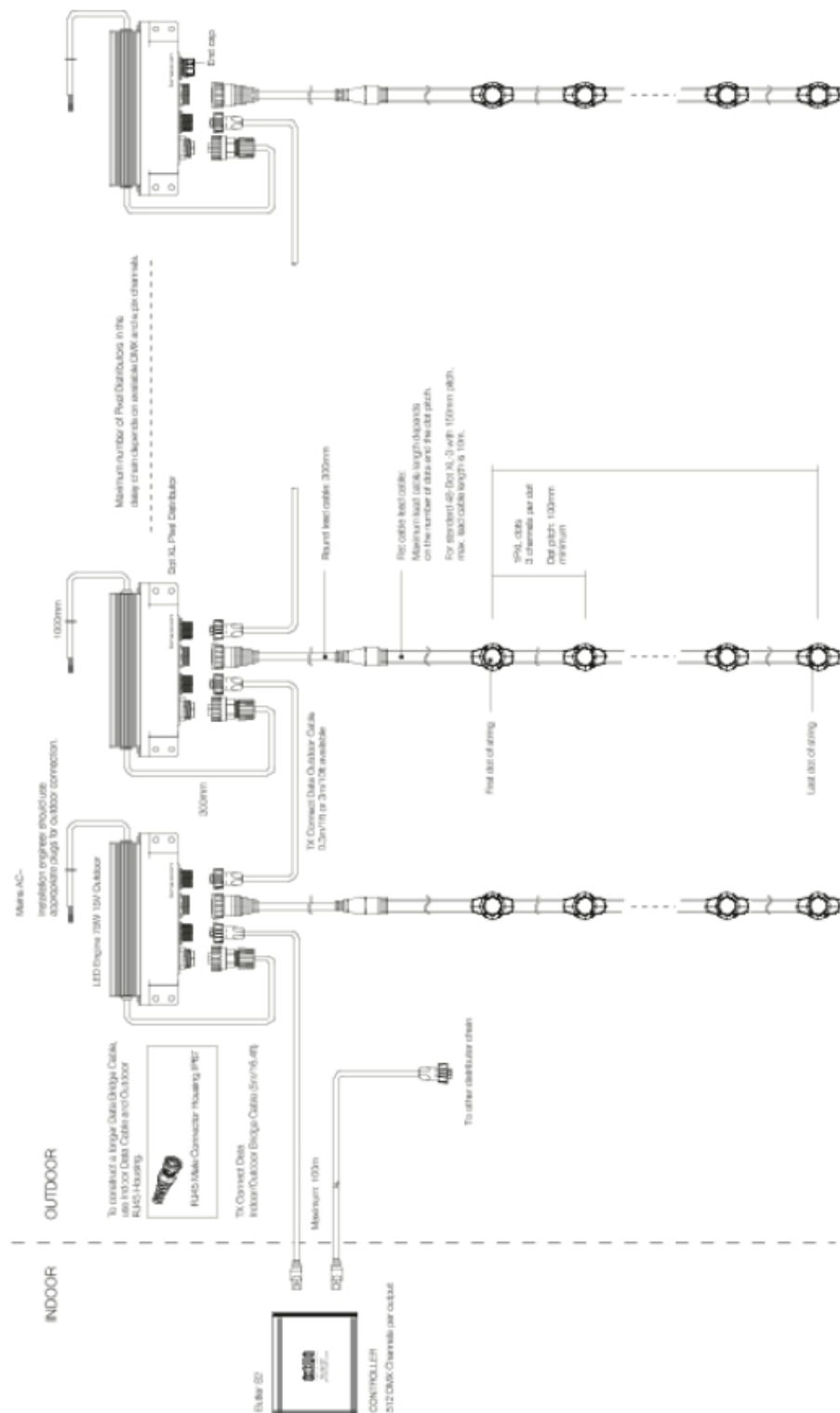
Terminating the Dot XL cable and sealing with Field-cut End Cap (End Cap not included)



Dot XL-3 RGB

System Diagram

System Diagram - Butler S2



www.traxontechnologies.com

©2017 TRAXON TECHNOLOGIES - AN OSHRAM BUSINESS. ALL RIGHTS RESERVED. TRAXON™, TX CONNECT®, ARE TRADEMARKS OF TRAXON TECHNOLOGIES. U.S. PATENTS, JAPAN PATENTS, OTHER PATENTS PENDING. SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

Product Specification

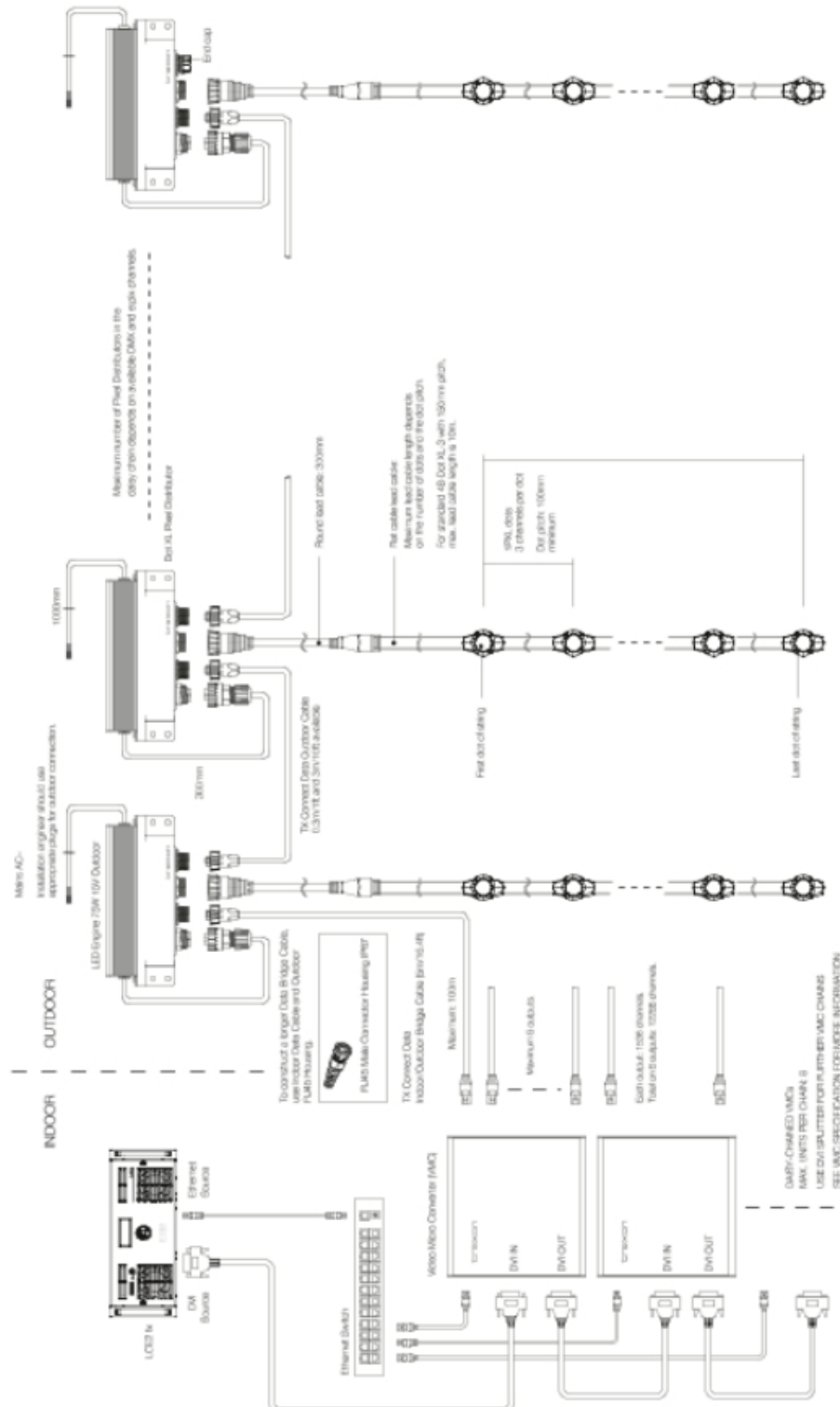
01/17/80.6

6 of 8

Dot XL-3 RGB

System Diagram

System Diagram - Video Micro Converter



www.traxontechnologies.com

©2017 TRAXION TECHNOLOGIES - AN OSRAM BUSINESS. ALL RIGHTS RESERVED. TRAXION™, TX CONNECT®, ARE TRADEMARKS OF TRAXION TECHNOLOGIES. U.S. PATENTS, E.U. PATENTS, JAPAN PATENTS, OTHER PATENTS PENDING. SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

Product Specification

01/17 48.6

7 of 8



Dot XL-3 RGB

Ordering

Fixtures

Model No.	Description	Item Code
DO.XA.7102000	48PXL Dot XL-3 RGB, 150mm Pitch, 10m Lead Cable	AA755760055

Standard Accessories (Included in Delivery)

Model No.	Description	Item Code
N/A	1x Pixel Distributor, 4x M4 Screws	N/A

Optional Accessories

Model No.	Description	Item Code
DO.AC.0002400	Dot XL-3 Clip (50pcs)	AA588400055
DO.AC.0002500	Dot XL-3 Dome (200pcs)	AA556190055
DO.AC.0003600	Field-cut End Cap (50pcs)	AA556200055

TX Control

Model No.	Description	Item Code
EN.BU.0000001	Butler S2	AB436200031
AC.BG.0000001	Butler S2 Garage (Optional)	AA611800031
160185	Video Micro Converter (DMX/e:pix)	AA438940235
160194	Video Micro Converter Garage (Optional)	AA623920031

TX Connect

Model No.	Description	Item Code
DE.AC.0000100	TX CONNECT Data Indoor/Outdoor Bridge Cable, 5m/16.4ft	AA508850055
DIJC.0100000	TX CONNECT Data Cable, 1m/3.28ft	AA556130055
DIJC.0300000	TX CONNECT Data Cable 3m/9.84ft	A63408C0055
DIJC.1000000	TX CONNECT Data Cable 10m/32.8ft	A6341040055
DE.IC.0060000	TX CONNECT Data Outdoor Cable, 0.6m/1.97ft	AA664580055
DE.IC.0300000	TX CONNECT Data Outdoor Cable, 3m/9.84ft	AA438810055
DE.AC.0100000	RJ45 Male Connector Housing IP67	AA556100155

TX Power

Model No.	Description	Item Code
PS.OA.0002200	LED Engine 75W Outdoor	AA759120055
DO.AC.0090000	2-pin Field-Installable Connector for Dot XL	AA763350055



©2017 TRAXON TECHNOLOGIES - AN OSRAM BUSINESS. ALL RIGHTS RESERVED. TRAXON™, TX CONNECT®, ARE TRADEMARKS OF TRAXON TECHNOLOGIES. U.S. PATENTS, E.U. PATENTS, JAPAN PATENTS, OTHER PATENTS PENDING. SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

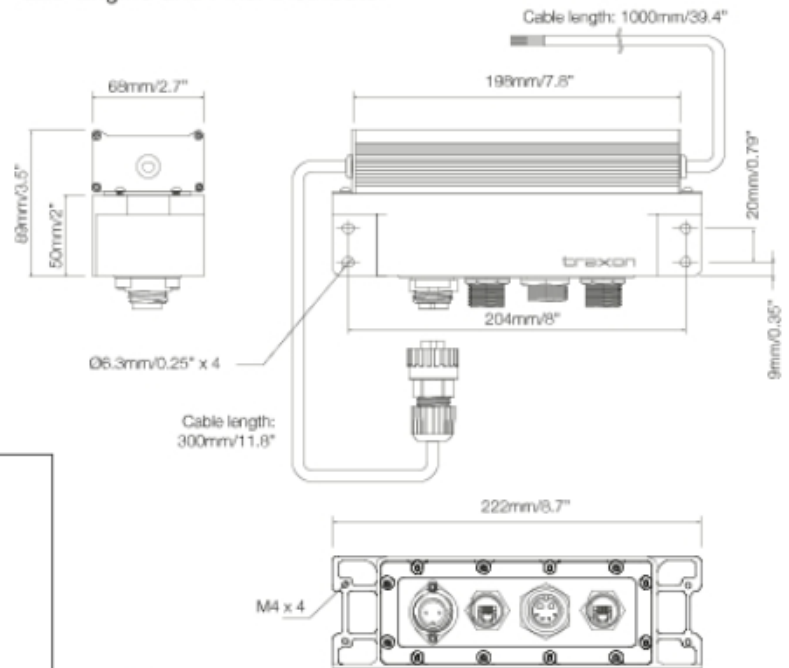
Product Specification

01/17 V0.6

8 of 8



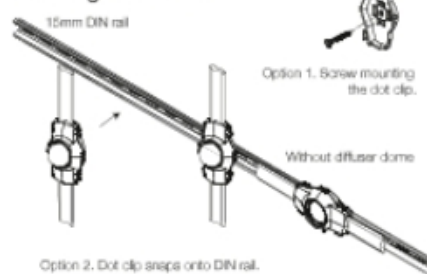
LED Engine and Pixel Distributor



Dot clip assembly

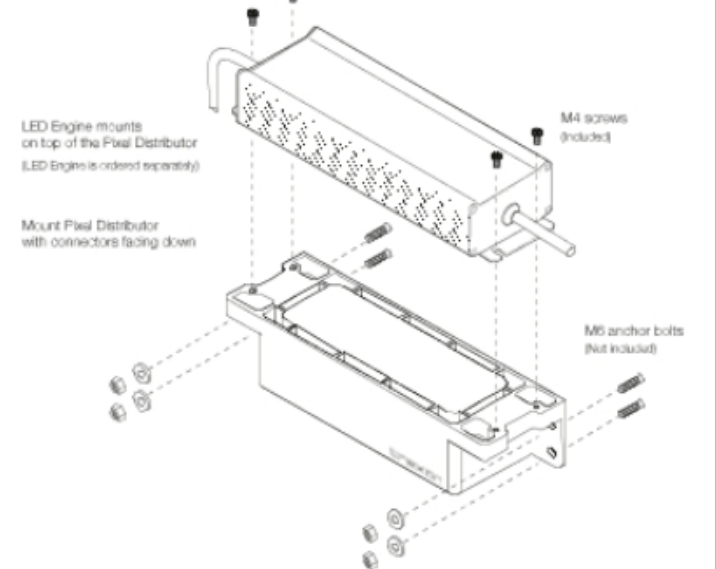


Mounting the Dot XL

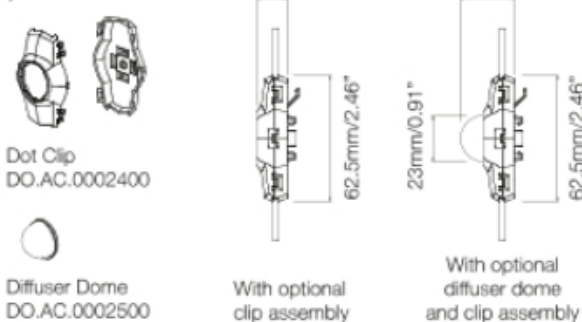


CAUTION: Always use the housing unit for mounting. Handle string with care. Improper handling of lead cable and string will cause damage.

Mounting the LED Engine and Pixel Distributor

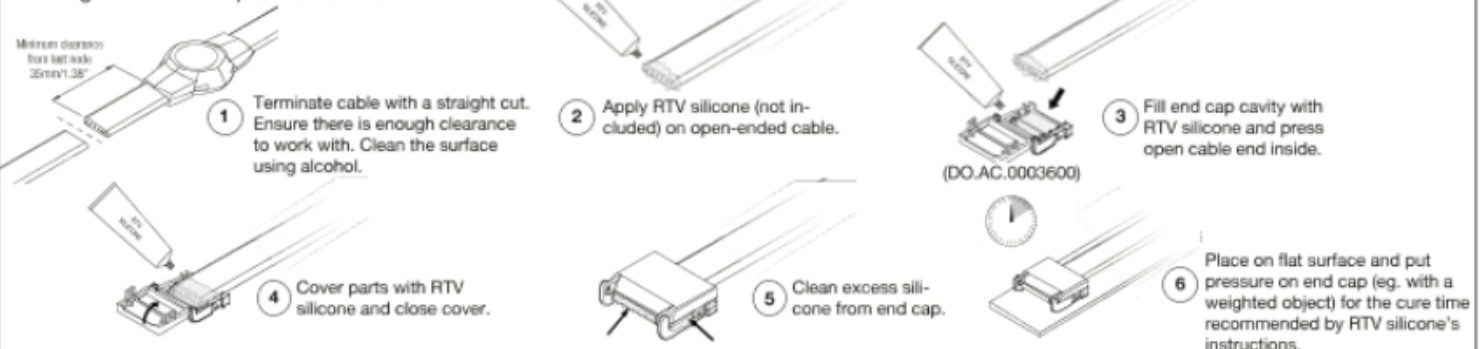


Optional Parts



Terminating the Dot XL cable and Sealing with End Cap

(End cap not included)





<p>(EN)</p> <ul style="list-style-type: none"> -CONNECT TO THE POWER SUPPLY IN ACCORDANCE WITH NATIONAL REGULATIONS. -IF THE EXTERNAL FLEXIBLE CABLE OF THIS LUMINAIRE IS DAMAGED, IT SHALL BE EXCLUSIVELY REPLACED BY THE MANUFACTURER OR A SIMILAR QUALIFIED PERSON IN ORDER TO AVOID ANY HAZARD. -INSTALLATION/MAINTENANCE ONLY BY SKILLED PERSONNEL. -DURING OVERHAUL/MAINTENANCE ONLY USE ORIGINAL PARTS. -IF ANY LUMINAIRE IS SUBSEQUENTLY MODIFIED, THE PERSON RESPONSIBLE FOR THE MODIFICATION SHALL BE CONSIDERED THE MANUFACTURER. -THE MANUFACTURER BEARS NO LIABILITY FOR DAMAGE CAUSED BY INAPPROPRIATE USE OR APPLICATION. 	<p>(DE)</p> <ul style="list-style-type: none"> -NETZANSCHLUSS BITTE NACH DEN LÄNDERSPEZIFISCHEN ERRICHTUNGSBESTIMMUNGEN TÄTIGEN. -FALLS DAS EXTERNE FLEXIBLE KABEL DIESER LEUCHTE BESCHÄDIGT IST, DARF ES AUSSCHLIESSLICH ERSETZT WERDEN DURCH DEN HERSTELLER ODER EINER ÄHNLICH QUALIFIZIERTEN PERSON, UM GEFÄHRDUNGEN ZU VERMEIDEN. -MONTAGE/WARTUNG NUR DURCH FACHKRÄFTE. -BEI INSTANDSETZUNG/INSTANDHALTUNG NUR ORIGINALTEILE VERWENDEN. -WERDEN NACHTRÄGLICH ÄNDERUNGEN AN LEUCHTEN VORGENOMMEN, SO GILT DERJENIGE ALS HERSTELLER, DER DIESE ÄNDERUNG VORNIMMT. -DER HERSTELLER ÜBERNIMMT KEINE HAFTUNG FÜR SCHÄDEN, DIE DURCH UNSACHGEMÄSSEN EINSATZ ENTSTEHEN.
<p>(FR)</p> <ul style="list-style-type: none"> -CONNEXION À L'ALIMENTATION CONFORMÉMENT AUX NORMES EN VIGUEUR. -SI LE CÂBLE EXTÉRIEUR SOUPLE OU LE CORDON DE CE LUMINAIRE EST ENDOMMAGÉ, IL DOIT ÊTRE REMPLACÉ EXCLUSIVEMENT PAR LE FABRICANT, OU TOUTE PERSONNE DE QUALIFICATION ÉQUIVALENTE, CECI AFIN D'ÉVITER TOUT RISQUE. -LES OPERATIONS D'INSTALLATION ET D'ENTRETIEN DOIVENT ÊTRE EFFECTUÉES EXCLUSIVEMENT PAR DES PERSONNES QUALIFIÉES. -DANS LE CAS D'UNE REMISE EN ÉTAT, UTILISER UNIQUEMENT DES COMPOSANTS D'ORIGINE. -TOUTES MODIFICATIONS APPORTÉES AU LUMINAIRE SE FERONT SOUS LA RESPONSABILITÉ EXCLUSIVE DE CELUI QUI LES EFFECTUE. -LE FABRICANT DÉCLINE TOUTE RESPONSABILITÉ RESULTANT D'UN MISE EN ŒUVRE INAPPROPRIÉE DU PRODUIT. 	<p>(IT)</p> <ul style="list-style-type: none"> -EFFETTUARE L'ALLACCIAMENTO ALLA RETE SECONDO LE NORME DI INSTALLAZIONE VIGENTI NEL PAESE D'UTILIZZO. -SE IL CAVO FLESSIBILE ESTERNO DI QUESTO APPARECCHIO D'ILLUMINAZIONE È DANNEGGIATO, PER EVITARE PERICOLI ESSO PUÒ ESSERE SOSTITUITO ESCLUSIVAMENTE DAL PRODUTTORE O DA PERSONA DOTATA DI ANALOGA QUALIFICA. -MONTAGGIO/MANUTENZIONE SOLO PER MEZZO DI PERSONALE SPECIALIZZATO. -PER RIPARAZIONE/MANUTENZIONE IMPIEGARE SOLO PARTI ORIGINALI. -IL COSTRUTTORE SI RISERVA IL DIRITTO DI APPORTARE SENZA PREAVVISO MODIFICHE DI PESO, DIMENSIONI E CARATTERISTICHE TECNICHE. -IL COSTRUTTORE NON È RESPONSABILE PER DANNI DERIVANTI DA MODIFICHE REALIZZATE DA TERZI E DA UNA INSTALLAZIONE NON CORRETTA.
<p>(ES)</p> <ul style="list-style-type: none"> -LA CONEXIÓN A RED DEBE DE REALIZARSE SIGUIENDO LAS NORMAS ESPECÍFICAS DE CADA PAÍS. -EN CASO DE QUE EL CABLE EXTERNO FLEXIBLE DE ESTA LUMINARIA ESTE DAÑADO SÓLO PUEDE REEMPLAZARSE POR EL FABRICANTE O UNA PERSONA SIMILAR CUALIFICADA, PARA EVITAR PELIGROS. -EL MONTAJE Y MANTENIMIENTO LO EFECTUARÁN ÚNICAMENTE LOS TÉCNICOS ESPECIALIZADOS. -PARA REPARACIONES HAN DE EMPLEARSE SOLO PIEZAS ORIGINALES DE RECAMBIO. -RESERVADO EL DERECHO DE MODIFICACION DE DIMENSIONES, PESOS Y CARACTERÍSTICAS TÉCNICAS, SIN PREVIO AVISO. -EL FABRICANTE NO ASSUME RESPONSABILIDAD POR MODIFICACIONES REALIZADAS POR TERCEROS, NIP OR INSTALACION INCORRECTA. 	<p>(PT)</p> <ul style="list-style-type: none"> -LIGAR À FONTE DE ALIMENTAÇÃO, DE ACORDO COM A REGULAMENTAÇÃO NACIONAL. -CASO O CABO EXTERNO E FLEXÍVEL DA LUMINÁRIA SE DANIFIQUE, DEVE SER SUBSTITUÍDO PELO FABRICANTE OU PESSOA IGUALMENTE QUALIFICADA, PARA EVITAR SITUAÇÕES DE PERIGO. -MONTAGEM/MANUTENÇÃO EFECTUADA ÚNICAMENTE POR PESSOAL TÉCNICO ESPECIALIZADO. -UTILIZAR SOMENTE PEÇAS ORIGINAIS DO FABRICANTE. -O FABRICANTE NÃO SE RESPONSABILIZA POR DANOS RESULTANTES DA INADEQUADA UTILIZAÇÃO DOS MATERIAIS.
<p>(EL)</p> <ul style="list-style-type: none"> -ΗΕΥΝΑΞΗ ΜΕ ΤΗΝ ΠΑΡΟΧΗ ΡΕΥΜΑΤΟΣ ΝΑ ΓΙΝΕΤΑΙ ΣΥΜΦΩΝΑ ΜΕ ΤΙΣ ΕΘΝΙΚΕΣ ΠΡΟΔΙΑΓΡΑΦΕΣ. -ΣΕ ΠΕΡΙΠΤΩΣΗ ΠΟΥ ΤΟ ΕΞΩΤΕΡΙΚΟ ΕΥΚΑΜΠΤΟ ΚΑΛΩΔΙΟ ΑΥΤΟΥ ΤΟΥ ΦΩΤΙΣΤΙΚΟΥ ΕΙΝΑΙ ΚΑΤΕΣΤΡΑΜΜΕΝΟ, ΠΡΕΠΕΙ ΝΑ ΑΝΤΙΚΑΤΑΣΤΑΘΕΙ ΑΠΟΚΛΕΙΣΤΙΚΑ ΚΑΙ ΜΟΝΟ ΑΠΟ ΤΟΝ ΚΑΤΑΣΚΕΥΑΣΤΗ Η ΑΠΟ ΑΛΛΟ ΕΞΟΥΣΙΟΔΟΤΗΜΕΝΟ ΑΤΟΜΟ, ΓΙΑ ΤΗΝ ΑΠΟΦΥΓΗ ΚΙΝΔΥΝΩΝ. -ΤΟΠΟΘΕΤΗΣΗ/ΣΥΝΤΗΡΗΣΗ ΜΟΝΟ ΑΠΟ ΗΛΕΚΤΡΟΛΟΓΟ. -ΚΑΤΑ ΤΗΝ ΕΠΙΣΚΕΥΗ/ΔΙΑΤΗΡΗΣΗ ΧΡΗΣΙΜΟΠΟΙΕΙΤΕ ΓΗΝΙΖΙΑ ΑΝΤΑΛΛΑΚΤΙΚΑ ΜΟΝΟ. 	<p>(NL)</p> <ul style="list-style-type: none"> -AANSluiten op het lichtnet, conform de nationale regelgeving. -ALS HET EXTERNE FLEXIBELE SNOER VAN DEZE ARMATUUR BESCHADIGD IS, MAG DIT UITSLUITEND WORDEN VERVANGEN DOOR DE FABRIKANT OF EEN ANDERE GEKWALIFICEERDE PERSOON, OM RISICO'S TE VOORKOMEN. -MONTAGE/SERVICE ALLEEN DOOR VAKKUNDIG PERSONEEL. -BIJ INBEDRIJFSTELLEN/ONDERHOUD ALLEEN ORIGINELE ONDERDELEN GEBRUIKEN.
<p>(SV)</p> <ul style="list-style-type: none"> -NÄTANSLUTNING SKALL SKE ENLIGT NATIONELLA BESTÄMMELSER. -ÄR DEN EXTERNA FLEXIBLA SLADDEN PÅ LAMPAN SKADAD, FÅR ENDAST TILLVERKAREN ELLER EN ANNAN PERSON MED LIKNANDE KVALIFIKATIONER BYTA UT DENNA, FÖR ATT UNDVIKA FAROR. -MONTERING AKÖTSEL ENDAAT AV FACKFOLK. -ANVÄND BARA ORIGINALDELAR VID IGÅNGSÄTTNING/UNDERHÅLL. 	<p>(NO)</p> <ul style="list-style-type: none"> -KOBLE TIL STRØMFORSYNINGEN I HENHOLD TIL NASJONALE BESTEMMELSER. -HVIS DEN EKSTERNE OG FLEKSIBLE KABELN TIL DENNE LAMPEN ER SKADET, SÅ MÅ DEN KUN SKIFTES UT AV PRODUSENTEN ELLER EN LIKEVERDIG KVALISERT PERSON, FOR AT SKADER UNNGÅS. -MONTERES KUN AV FAGPERONELL. -VED FEILRETTING : BRUK KUN ORIGINALDELER.
<p>(CZ)</p> <ul style="list-style-type: none"> -PŘIPOJENÍ K SÍŤOVÉMU NAPĚTÍ DLE PLATNÝCH NÁRODNÍCH NŮREM. -POKUD JE EXTERNÍ PRUŽNÝ KABEL TOHTO SVĚTLIDLA POŠKOZEN, SMÍ JEHO VÝMĚNU PROVĚST POUZE VÝROBCE NEBO PODOBNĚ KVALIFIKOVANÁ OSOBA, ABY NEDOŠLO K ŽÁDNÉMU OHROŽENÍ. -MONTÁŽ A ÚDRŽBA MŮŽE BÝT PROVÁDĚNA VÝHRADNĚ ODBORNOU OSOBOU. -PŘI ÚDRŽBĚ NEBO OPRAVĚ MUSÍ BÝT POUŽITY JEN ORIGINÁLNÍ NÁHRADNÍ DÍLY. 	<p>(RU)</p> <ul style="list-style-type: none"> -ВЫПОЛНИТЬ ПОДКЛЮЧЕНИЕ К СЕТИ В СООТВЕТСТВИИ С ПРИНЯТЫМИ В ДАННОЙ СТРАНЕ ПРАВИЛАМИ МОНТАЖА. -В СЛУЧАЕ ПОВРЕЖДЕНИЯ ВНЕШНЕГО ГИБКОГО КАБЕЛЯ ЭТОГО СВЕТИЛЬНИКА, ЧТОБЫ ИСКЛЮЧИТЬ РИСК, ОН ДОЛЖЕН БЫТЬ ЗАМЕНЕН ТОЛЬКО ИЗГОТОВИТЕЛЕМ ИЛИ ЛИЦОМ, ИМЕЮЩИМ ТАКУЮ ЖЕ КВАЛИФИКАЦИЮ. -ПРИ РЕМОНТЕ ПРИМЕНЯТЬ ТОЛЬКО ТЕЖЕ САМЫЕ ЧАСТИ. -МОНТАЖ/ОБСЛУЖИВАНИЕ ТОЛЬКО СПЕЦИАЛИСТАМИ.
<p>(HU)</p> <ul style="list-style-type: none"> -CSATLAKOZTASSA A TÁPEGYSÉGBE A HELYI ELŐÍRÁSOKNAK MEGFELELŐEN. -HA EZEN LÁMPÁK HAJLÍTHATÓ/RUGALMAS KÁBELEI MEGSÉRÜLNEK, AKKOR AZOK KIZÁRÓLAG CSAK A GYÁRTÓ VAGY HASONLÓAN KVALIFIKÁLT SZEMÉLY ÁLTAL CSERÉLHETŐK KI, HOGY ELKERÜLJÜK A BALESETEKET. -A SZERELÉST/KARBANTARTÁST CSAK SZAKSZEMÉLYZET VÉGEZHETI. -ÜZEMBEHelyezéSNEl/KARBANTARTASNAk CSAK EREDETI ALKATRÉSZEK HASZNÁLHATÓK. 	<p>(PL)</p> <ul style="list-style-type: none"> -ZASILANIE NALEŻY POŁĄCZYĆ ZGODNIE Z WYMAGANIAM I ODPOWIEDNICH NORM. -W PRZYPADKU USZKODZENIA PRZEWODU ZASILAJĄCEGO NALEŻY GO WYMIENIĆ NA NOWY. WYMIANA PRZEWODU MOŻE BYĆ WYKONANA JEDYNIE PRZEZ WYKWALIFIKOWANEGO ELEKTRYKA. -MONTAŻ/KONSERWACJA TYLKO PRZEZ FACHOWY PERSONAL. -DLA NAPRAWY/BIEŻĄCEJ EKSPLOATACJI STOSOWAĆ TYLKO ORYGINALNE CZĘŚCI ZAMIENNE.
<p>(SK)</p> <ul style="list-style-type: none"> -ZAPOJTE DO EL. PRÍVODU PODĽA PREDPÍSANÝCH NORIEM. -AK JE EXTERNÝ PRUŽNÝ KÁBEL TOHTO SVETIDLA POŠKODENÝ, SMIE BYŤ NAHRADENÝ VYLUČNE VÝROBCOM ALEBO PODOBNĚ KVALIFIKOVANOU OSOBOU, ABY SA ZABRÁNILO OHROŽENIU. -MONTÁŽ/VZDRŽEVANJE LAHKO IZVRŠÍ LE USTREZNO USPOSOBLJENA OSOBA. -PRI POPRAVILU/VZDRŽEVALNIH DELIH SE LAHKO UPORABLJAJO SAMO ORIGINALNI DELI. -V KOLIKOR SE NA SVETILKAH NAKNADNO IZVEDEJO SPREMEMBE, SE ZA PROIZVAJALCA SVETILKE SMATRA TISTI, KI JE IZVEDEL SPREMEMBO. -PROIZVAJALEC NE JAMČI ZA ŠKODO, KI BI NASTALA ZARADI NEPRAVILNE UPORABE. 	<p>(TR)</p> <ul style="list-style-type: none"> -ŞEBEKE BAĞLANTISINI LÜTFEN ÜLKEYE ÖZGÜ KURULUM KURALLARI ÇERÇEVESİNDE YAPINIZ. -AVİZENİN (LUMINAIRE) HARICİ ESNEK KABLOSUNUN HASAR GÖRMESİ DURUMUNDA, TEHLİKELERDEN KAÇINMAK ÜZERE BU SADECE ÜRETİCİ TARAFINDAN VEYA BENZERİ VASİFLİ KİŞİLER TARAFINDAN DEĞİSTİRİLEBİLİR. -MONTAJ VE BAKIM SADECE YETKİLİ PERSONEL TARAFINDAN YAPILMALIDIR. -BAKIMDA SADECE ORJINAL PARÇALAR KULLANIMALIDIR.
<p>(HR)</p> <ul style="list-style-type: none"> -MOLIMO IZVRŠITE MREŽNI PRIKLJUČAK PREMA SPECIFIČNIM NACIONALNIM ODREDBAMA O NJEGOVOM IZVRŠENJU. -UKOLIKO JE EKSTERNI FLEKSIBILNI KABEL TE SVJETILJKE OŠTEĆEN, ZAMJENA ISTOG JE DOZVOLJENA ISKLJUČIVO PROIZVOĐAČU ILI SLIČNOJ KVALIFICIRANOJ OSOBI, KAKO BI SE IZBEGLE OPASNOSTI. -MONTAŽU/ODRŽAVANJE MORA VRŠITI ODGOVARAJUĆE OSPOSOBLJENA OSOBA. -PRI POPRAVKU/ODRŽAVANJU KORISTITI SAMO ORIGINALNE DIJELOVE. -UKOLIKO SE NA SVJETILJKAMA NAKNADNO VRŠE PROMJENE, ZA PROIZVOĐAČA SVJETILJKE SE SMATRA TAJ KOJI JE PROMJENE IZVRŠIO. -PROIZVOĐAČ NE GARANTUJE ZA ŠETU KOJA BI MOGLA NASTATI USLED NEPRAVILNE UPOTREBE. 	<p>(SR)</p> <ul style="list-style-type: none"> -MOLIMO DA MREŽNI PRIKLJUČAK PROVEDETE PREMA SPECIFIČNIM NACIONALNIM ODREDBAMA O NJEGOVOM PROVOĐENJU. -AKO JE EKSTERNI FLEKSIBILNI KABAL OVE SVETILJKE OŠTEĆEN, NJEGA SME DA ZAMENI ISKLJUČIVO PROIZVOĐAČ ILI NEKO SLIČNO KVALIFIKOVANO LICE, DA BI SE IZBEGLA UGROŽAVANJA. -MONTAŽU/ODRŽA VANJE MOŽE DA OBAVI SAMO STRUČNO OSPOSOBLJENA OSOBA. -PRI POPRAVLJANJU/ODRŽAVANJU UPOTREBLJAVATI SAMO ORIGINALNE DELOVE. -UKOLIKO SE NA SVETILKAMA NAKNADNO URADE IZMENE, ZA PROIZVOĐAČA SVETILKE ĆE SE SMATRATI ONAJ KO IZMENE IZVRŠIO. -PROIZVAĐAČ NE GARANTUJE ZA ŠETU KOJA BI MOGLA NASTATI USLED NEPRAVILNE UPOTREBE.

DE.AC.0100000 RJ45 Field Installation Male Connector



For use with:



1. Strip cable sheath.



Recommended Wire Gauge: 24AWG

4. Crimp the RJ45 plug.



Crimp the RJ45 plug

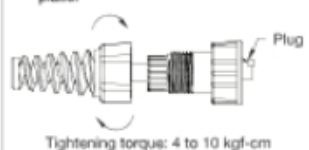


Traxon Part Number: DE.AC.0100000

2. Insert Seal into the back end of the Clamp Ring.

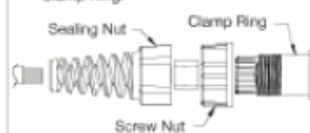


5. Insert the plug into the housing then secure the Sealing Nut in place.

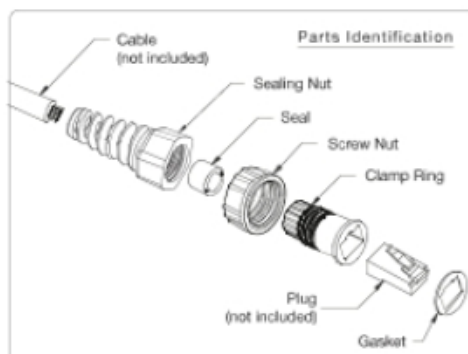


Tightening torque: 4 to 10 kgf-cm

3. Insert stripped end cable through the Sealing Nut, Screw Nut, and Clamp Ring.



6. Attach the Gasket into the front end of the housing.



Type:	RJ45 Male Connector Housing IP67
Use:	Houses RJ45 Male Connector for outdoor connections
Indoor/Outdoor	Outdoor (IP67)
Notes:	Field installable

Lighting Control Engine 2

e:cue Engines

e:cue engines are the perfect platform for building dynamic, effective and reliable lighting applications. These engines are the functional backbone of lighting installations controlling fixtures, interacting with user terminals and executing shows. e:cue engines are built for steadiness, long-term use and flexibility. They are feature-rich and benefit from many years pioneering work in the field of lighting control.



e:cue Lighting Control Engine 2

The Lighting Control Engine 2 (LCE2) serves as a high performance server to control large lighting projects, the e:cue Lighting Application Suite is pre-installed and ready to run. As a central control unit, this versatile lighting control server orchestrates all devices and fixtures within a project. It also outputs other protocols such as KiNet and Art-Net and integrates various external engines and triggering sources. It can be mounted in a standard 19 inch rack or can be used as a standalone unit. The LCE2 is the ultimate server solution for any demanding lighting project.

Main features

- e:cue's Lighting Application Suite pre-installed
- High quality components for reliable uninterrupted operation
- Integrated DMX inputs and outputs, dry contact inputs and relay outputs
- LC display and cursor keys for status messages and system control
- Support for a variety of Ethernet-based protocols
- Easily mountable in 19 inch racks

Delivery scope

	Item code
• Lighting Control Engine 2	AA629450035
Rack mounting rails	
Ethernet cable 2 m CAT5e SFTP	
Printed LCE2 Setup Manual English/German	
Printed Lighting Application Suite System Manual English	
e:cue Lighting Application Suite LCE2 Edition	
USB license dongle	



EN55022, EN55024, EN/UL60950



ETL LISTED
Conforms to ANSI/UL Std 60950-1
Certified to CAN/CSA STD C22.2 Nr. 60950-1

4006376

Technical data

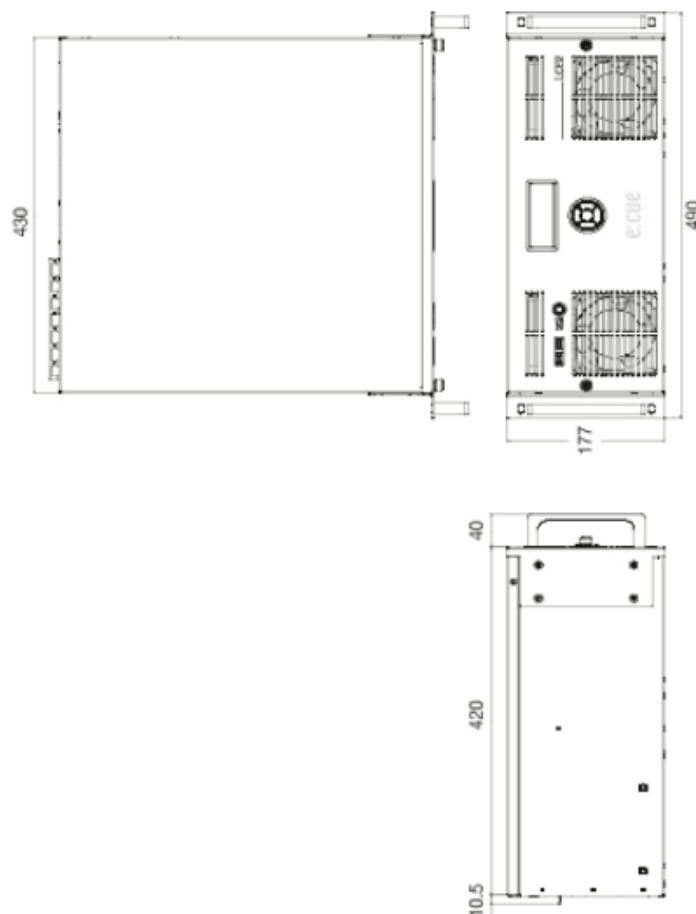
Modell number	EN.LC.9300000
Dimensions (W x H x D)	491 x 176 x 432 mm 19.3 x 6.9 x 17 inch (incl. brackets)
Weight	15 kg
Power supply	100 ... 240 V AC, 50/60 Hz
Power consumption	115 W
Operating temperature	0 ... 35 °C/32 ... 95 °F
Storage temperature	-10 ... 70 °C/14 ... 158 °F
Operating/storage hum.	0 ... 95% non-condensing
Protection class	IP20
Housing	Steel, front powder-coated
Mounting	in 19-inch rack systems with rails
Certifications	CE (EN55022, EN55024 EN/UL60950)
User interface	USB or PS/2 keyboard/mouse, LC Display, Keypad
Ethernet ports	2 x e:net 10/100/1000 Mbps
Serial interfaces	2 x RS-232 Sub-D
Keyboard/mouse	2 x PS/2
USB	2 x USB3 (blue, front) 2 x USB3 (blue, rear) 2 x USB2 (black, rear)
DMX	2 x DMX/RDM output/input 1 kV galvanically isolated
Digital dry contacts	6 x inputs, max. 24 V DC off: Vin < 1 V DC, on: Vin > 4 V DC Input current lin (typical): Vin = 5 V/lin = 0.8 mA Vin = 12 V/lin = 2.3 mA Vin = 24 V/lin = 4.8 mA 12 V DC output: max. 70 mA, overload protected
Relay outputs	2 x SPDT, max. 24 V, 3A
Graphics	1 x VGA, 1 x DVI-D

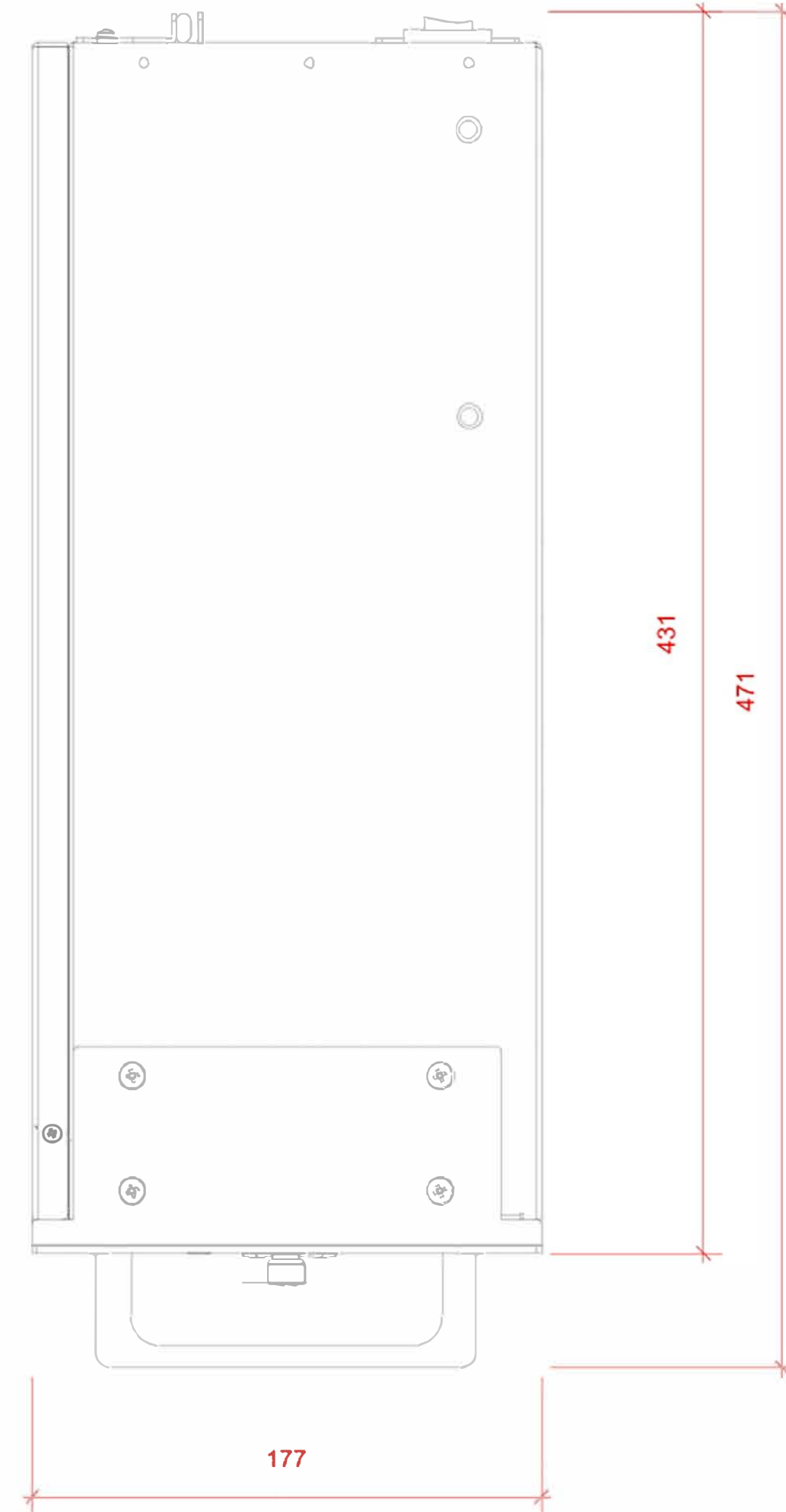
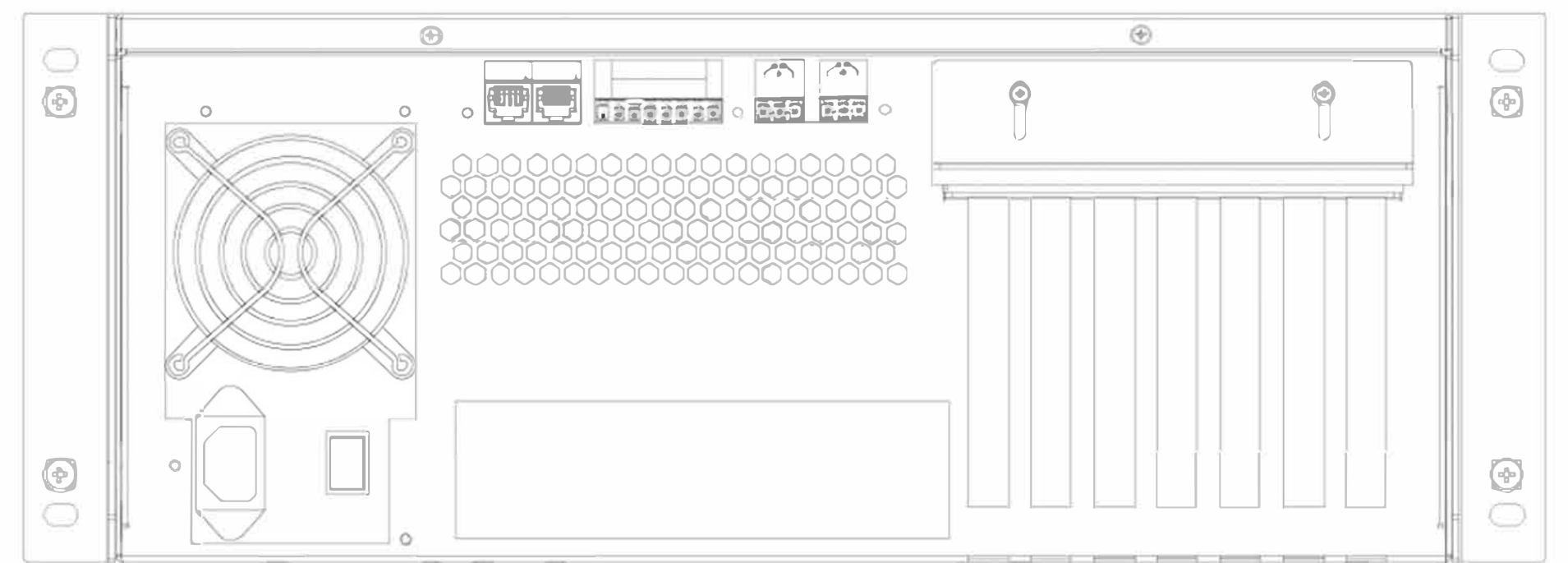
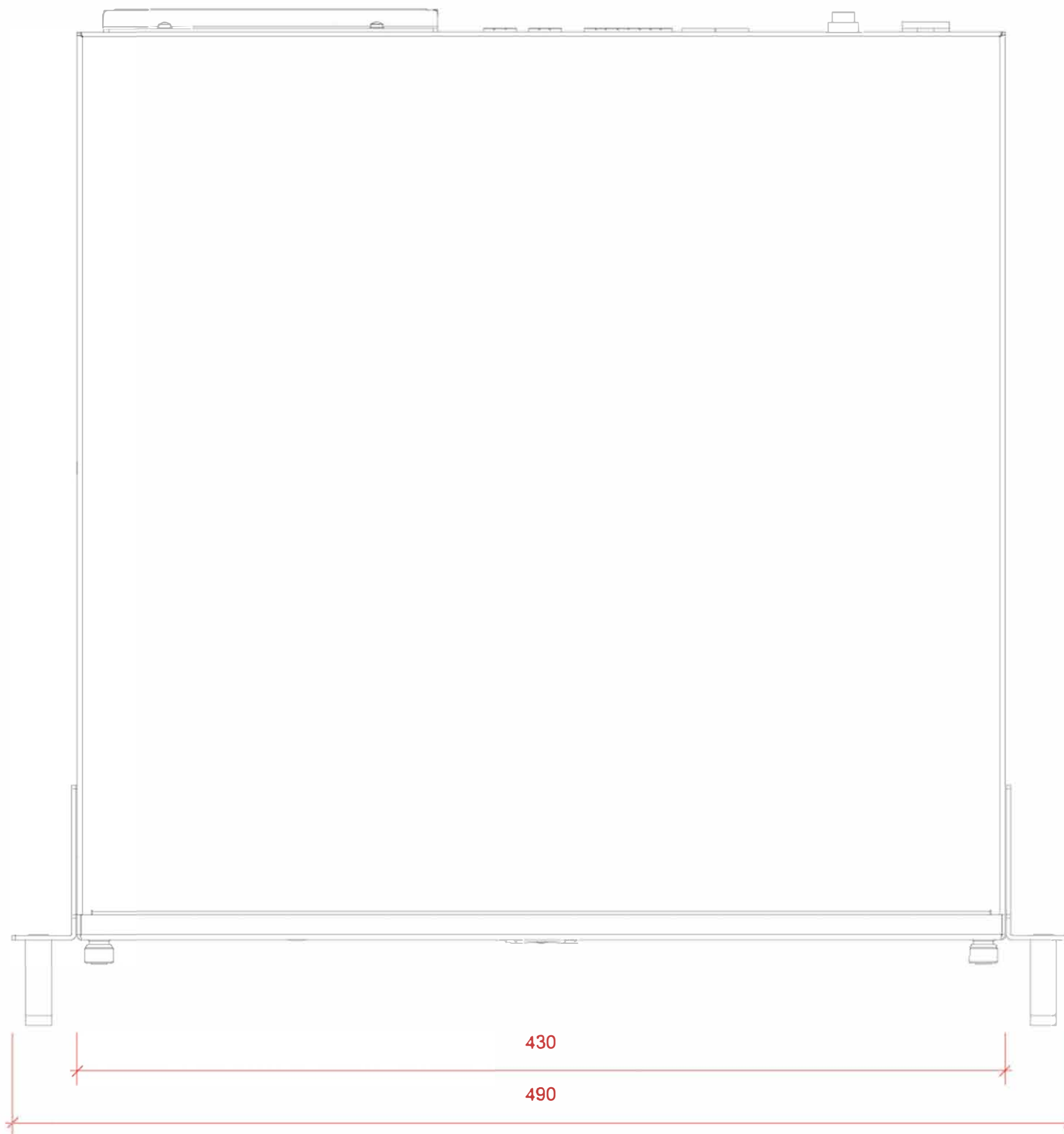
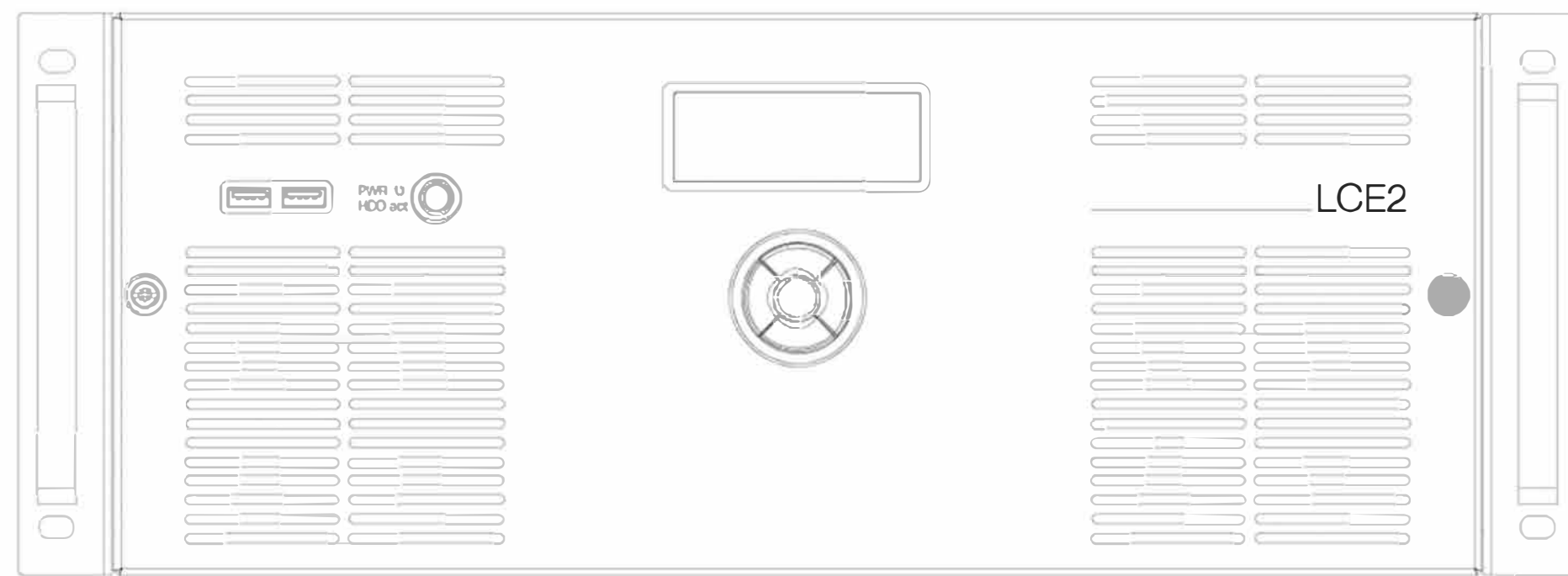
Technical data (contd.)

Audio	1 x mic/line input 1 x headphone/line output
Data storage	Removable SSD HDD
Media drives	CD/DVD via USB port

Dimensions

All dimensions in mm



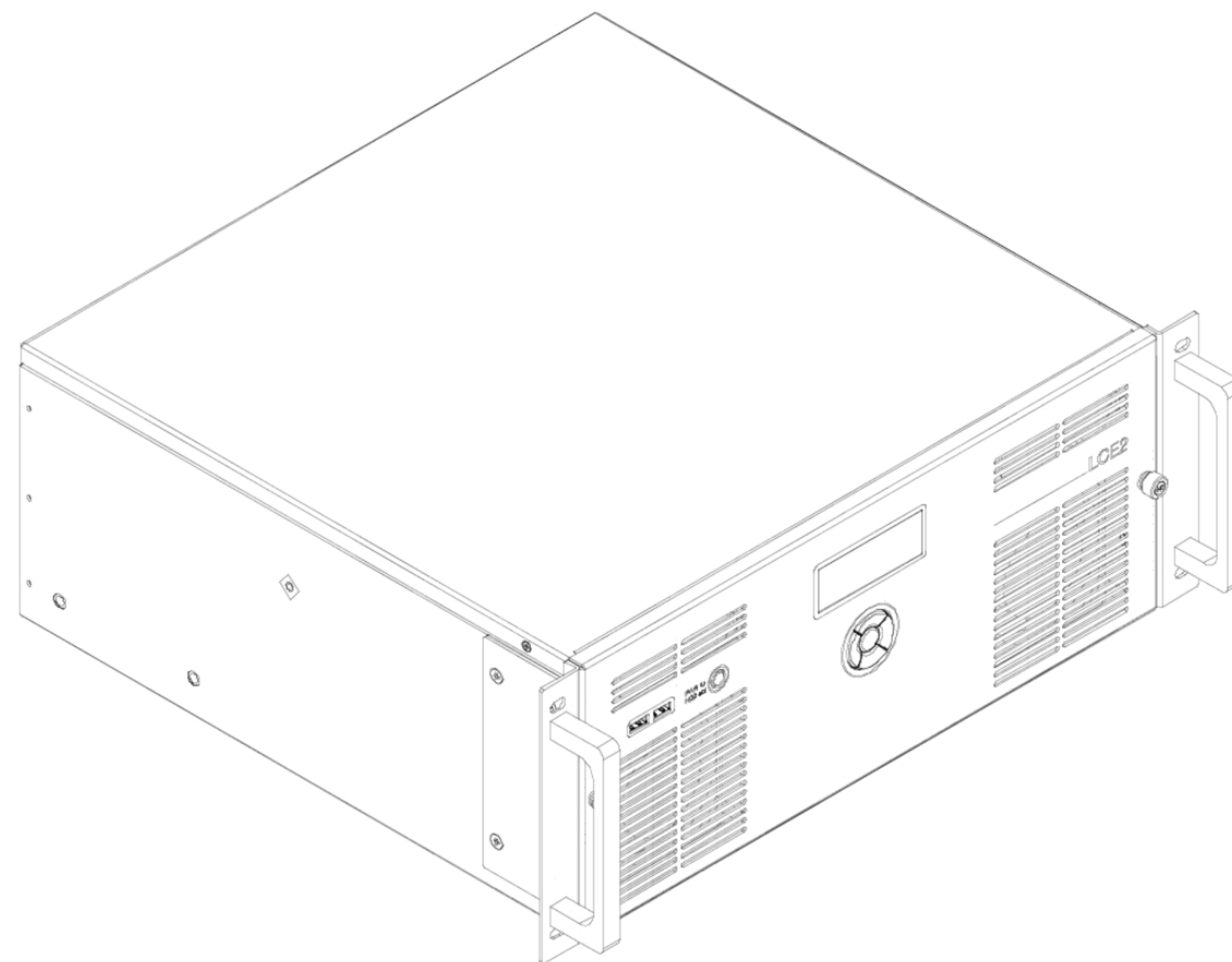
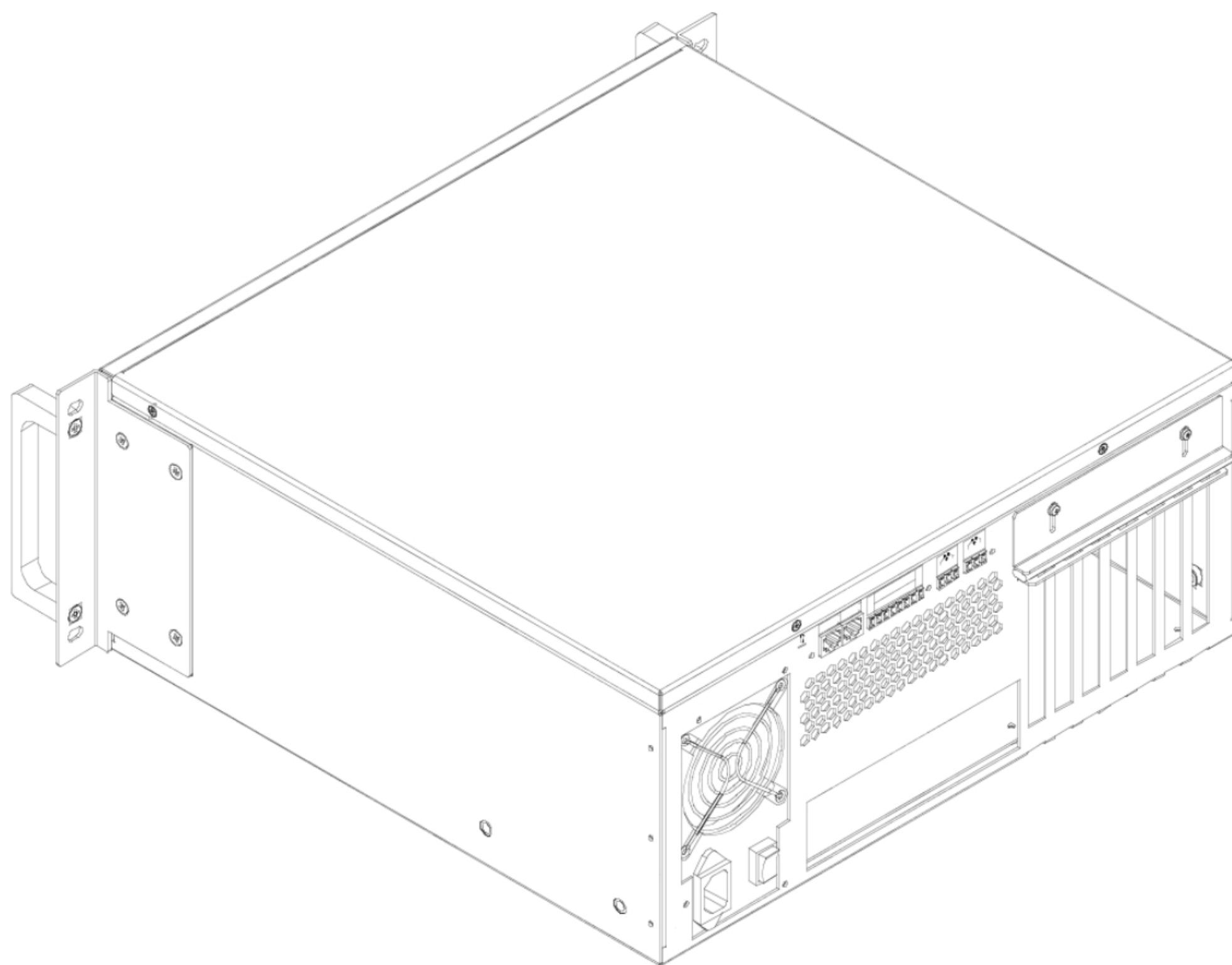


M 1:2

LCE_2

Scale: Overview_M_1:2
 Contact: Industrial_Engineering_Department | damian.sale@ecue.de
 Drawer: holger.ruether@ecue.de | andreas.snopkowski@ecue.de

DIN_A2
 March_2013
 01_von_02



LCE_2

Scale: without scale
 Contact: Industrial_Engineering_Department | damian.sale@ecue.de
 Drawer: holger.ruether@ecue.de | andreas.snopkowski@ecue.de

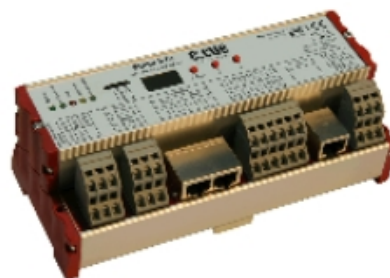
DIN_A2
 March_2013
 02_von_02

traxconecue
 AN OSRAM BUSINESS

CAM #25-0822
 Exhibit 1
 Page 62 of 99

e:cue Engines

e:cue engines are the perfect platform for building dynamic, effective and reliable lighting applications. These engines are the functional backbone of lighting installations controlling fixtures, interacting with user terminals and executing shows. e:cue engines are built for steadiness, long-term use and flexibility. They are feature-rich and benefit from many years pioneering work in the field of lighting control.



Butler XT2

Similar to the Butler but with more connectivity options and RDM capability, the Butler XT2 is a DMX/RDM engine that can be used in standalone mode to replay and loop previously uploaded lighting shows, programmed using a PC running the e:cue software suite. The Butler XT2 is also used as a DMX/RDM device controlled by another e:cue engine. In standalone mode, one DIN-rail mountable Butler XT2 controls up to 1024 DMX/RDM channels. The DMX/RDM channel control can be increased to 65,536 channels by clustering more Butler XT2. This engine has many connectivity options used to control the lighting show running on the device. Connectivity options include direct connection to Glass Touch User Terminals, RS-232, digital inputs and Ethernet.

Main features

- Controls up to 1024 DMX/RDM channels
- Scalable up to 65,536 channels
- Supports RDM protocol for bidirectional communication
- Internal real-time and astronomical clock
- Standalone configuration via web browser
- Control via web browser or iOS and Android apps with Action Pad
- 100 MBit e:net
- Serial input port (RS-232) for connectivity to 3rd party systems
- Eight freely configurable (optically isolated) digital inputs
- MicroSD card for show upload/configuration file storage (included in delivery)
- Freely configurable actions for standalone mode (e.g. play, pause, resume, stop, previous and next cuelist, intensity up/down), plays up to eight cuelist in parallel
- Master intensity dimmable
- Cuelist download from e:cue Lighting Application Suite

Delivery scope

- Butler XT2
- MicroSD card
- Setup Manual English/German

Item code

AA557270131
AA6137401HA

Optional accessories

- Butler XT2 Garage
- Accessory pack (including power supply, network cable, RS-232 to open wire adaptor, CAT5e cross cable 1m, e:cue software CD)

Order numbers

AA556660031
AA556690035

Technical data

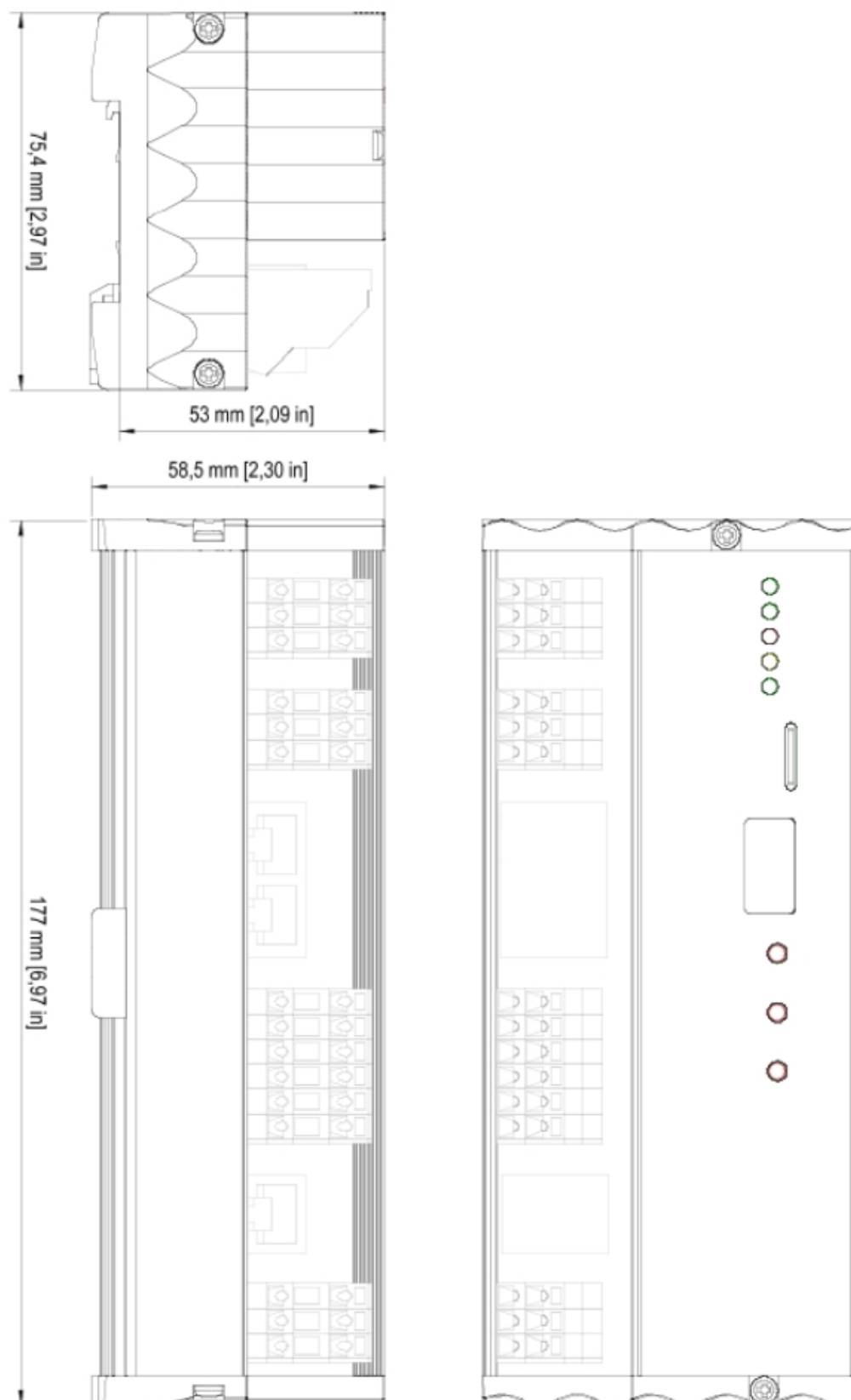
Model number	EN.BX.0000001
Dimensions (W x H x D)	177 x 60 x 75 mm/ 7 x 2.4 x 3 inch
Weight	0.4 kg/0.88 lbs
Power	12 ... 24 V DC, >= 1,3 A with e:bus 24 V DC
Operating/storage temp.	0 ... 40 °C/32 ... 104 °F
Operating/storage hum.	0 ... 80% non-condensing
Protection class	IP20
Materials	Aluminium, Polyamide 6.6
Mounting	on 35 mm DIN rail
Certification	CE, ETL

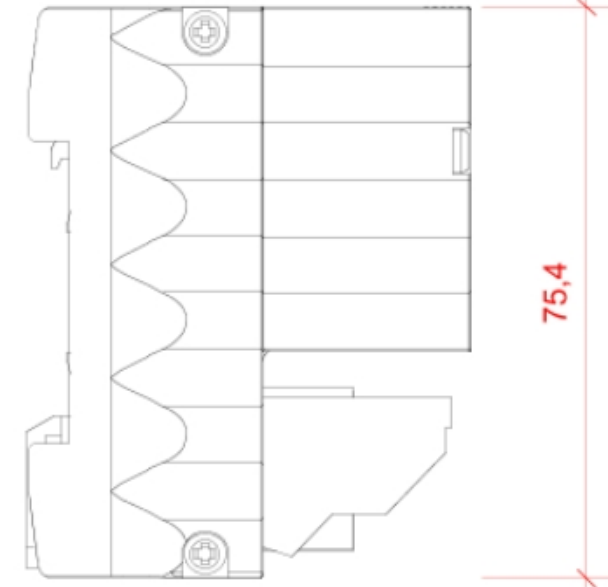
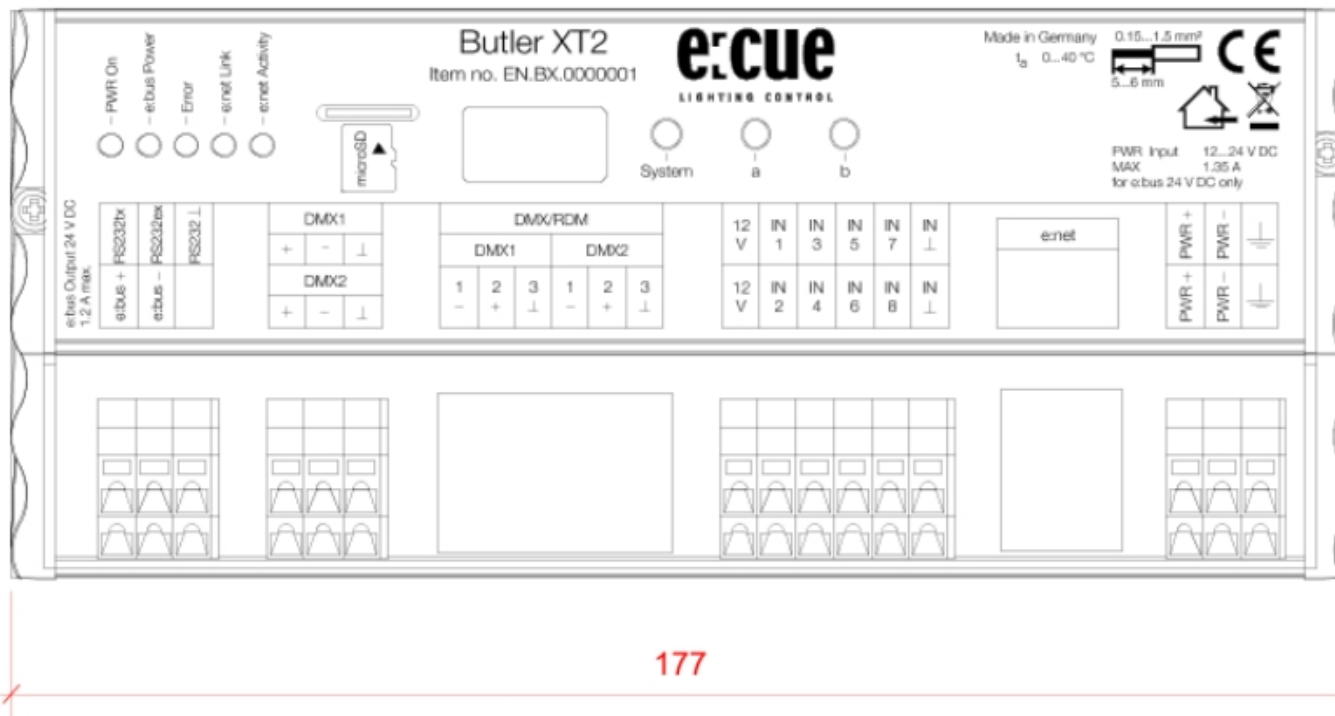
Interfaces

User interface	3 Buttons
System link	e:bus (clamp terminals) e:net (RJ45)
Outputs	DMX (RJ45, clamp terminals)
Inputs	RS-232 (clamp terminals) RDM (RJ45, clamp terminals) 8 optically isolated digital inputs
Display	7-segment LED



Dimensions (mm/in)





M 1:1

Butler_XT2

Scale: Overview_M_1:1
Contact: Industrial_Engineering_Department I damian.sale@ecue.de
Drawer: holger.ruether@ecue.de I andreas.snopkowski@ecue.de

DIN_A4
January_2013
01_of_01

traxonecue
AN OSRAM BUSINESS

CAM #25-0822
Exhibit 1
Page 65 of 99

e:cue Engines

e:cue engines are the perfect platform for building dynamic, effective and reliable lighting applications. These engines are the functional backbone of lighting installations controlling fixtures, interacting with user terminals and executing shows. e:cue engines are built for steadiness, long-term use and flexibility. They are feature-rich and benefit from many years pioneering work in the field of lighting control.



Butler PRO DMX

The e:cue Butler PRO DMX is an e:net to DMX512 interface for the e:cue Lighting Application Suite (LAS). It controls up to 16 DMX512 universes with 512 channels per universe with full RDM capability. Connection to the server runs via Ethernet interface with 100 MBit/s. All cabling, Ethernet and DMX512, uses CAT5 RJ45 connections. XRL5 DMX connections are possible with an optional link adapter. Using a LC display with 2 lines by 20 characters, all basic configurations can be done with the set of four cursor keys and an OK key. When online, the LC display shows status messages from the Butler PRO DMX. The Butler PRO DMX is the optimal interface for running huge numbers of DMX universes still providing full RDM over DMX functionality. The system is mounted in standard 19-inch racks.

Main features

- Controls up to 8,192 DMX512 channels in 16 DMX/RDM universes
- Supports RDM protocol over DMX for bidirectional communication (ANSI/ESTA E1.20, RDM over USITT DMX512)
- Basic configuration via LC display and cursor keys
- Display of status messages while operating
- 100 MBit system interconnect for e:net over Ethernet

Delivery scope

- Butler PRO DMX/RDM
- Rack mounting brackets
- Power chords DE, US, UK
- Setup Manual English/German

Optional accessories

- RJ45 to XLR5 link adapter

Technical data

Model number	EN.BP.0000100
Dimensions (W x H x D)	482 x 44 x 142 mm/19 x 1.7 x 5.6 in (incl. mounting brackets)
Weight	1200 g
Power	100 ... 240 V AC, 50/60 Hz
Power consumption	max. 20 W
Operating temperature	0 ... 40 °C/32 ... 104 °F
Storage temperature	-20 ... 70 °C/-4 ... 158 °F
Operating/storage hum.	0 ... 80% non-condensing
Protection class	IP20
Materials	Steel, front powder coated
Mounting	in 19-inch standard racks
Certification	CE, ETL

Interfaces

User interface	4 + 1 cursor keys, LC display
System link	1 x e:net (RJ45)
Outputs	16 DMX/PDM ports USITT DMX512-A, RDM ANSI E1.20, RJ45 receptacle connector, Traxon pin configuration
Display	2 x 20 characters LCD display

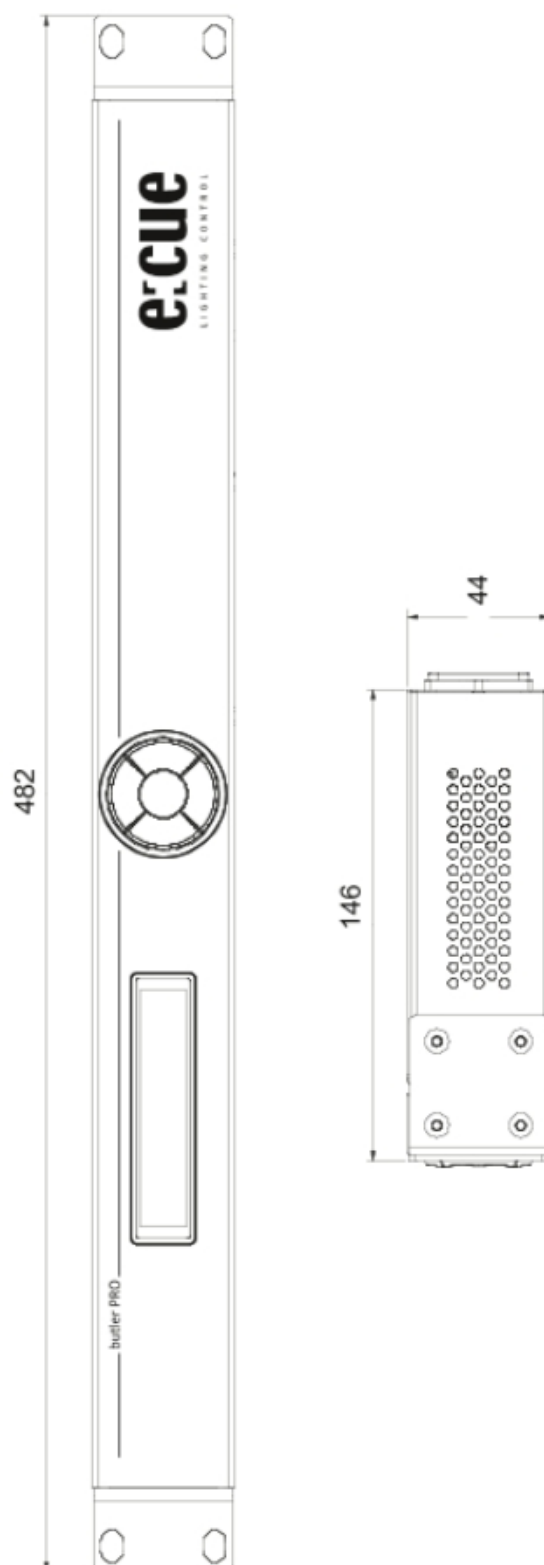


EN55022, EN55024
EN/UL60950



4006376
ETL LISTED
Conforms to ANSI/UL Std 60950-1
Certified to CAN/CSA STD C22.2 No. 60950-1

Dimensions (in mm)



e:cue User Terminals

Many applications of lighting control require interfaces into the human world. e:cue user terminals with their sleek, stylish and yet unostentatious design fit perfectly in all environments. Ergonomics, usability and functionality were emphasized as main aspects in their development. e:cue user terminals conduce controlling your lighting application with a touch of your finger tip, either a room illumination or a complete store front.



Glass Touch User Terminals

Glass Touches are a series of user terminals featuring a sleek design with a glass surface, touch-sensitive keys and a scroll-wheel for user interaction. Designed to work with the Butler XT2 via the e:bus protocol, the Glass Touch keys and wheel are easily customized using the e:cue software to perform any function according to project requirements. Pleasing to the eye, these devices are the perfect solution for user interaction and control in high-end lighting applications such as hospitality, architectural, healthcare, residential and other projects. Glass Touches are wall mountable, and up to eight units can be connected to a single Butler XT2 for flexible installation..

Features

- Sensor keys with status LEDs
- Touch wheel, Play/Pause (T6R only)
- One On-Off sensor
- Simple mounting in standard with in-wall fittings
- Ultra thin design
- Sleek white glass front
- Connects via free topology e:cue e:bus (2-wire power and data connection)

Delivery content

	Item code
• Glass Touch T6 or	AA439100138
• Glass Touch T6R or	AA439120138
• Glass Touch T12	AA439070138
• Hexagon screw key	
• Mounting plate	



Conforms to ANSI/UL Std. 60950-1
Certified to CSA Std. C22.2 NO. 60950-1

Intertek
4000842

Technical data T6, T6R, T12

Power supply	24 V=, 18 mA (via e:bus)
Operating/storage temp.	0 ... 40 °C/32 ... 104 °F
Operating/storage hum.	0 ... 80%, non-condensing
Protection class	IP20
Housing	Glas (surface), aluminium (housing)
Mounting	In standard in-wall fitting
Certification	CE, ETL

Technical data T6

Dimensions (W x H x D)	80 x 80 x 11 mm 3.15 x 3.15 x 0.43 in
Weight	110 g/0.23 lbs
User interface	6 capacitive touch sensors 1 capacitive on/off sensor

Technical data T6R

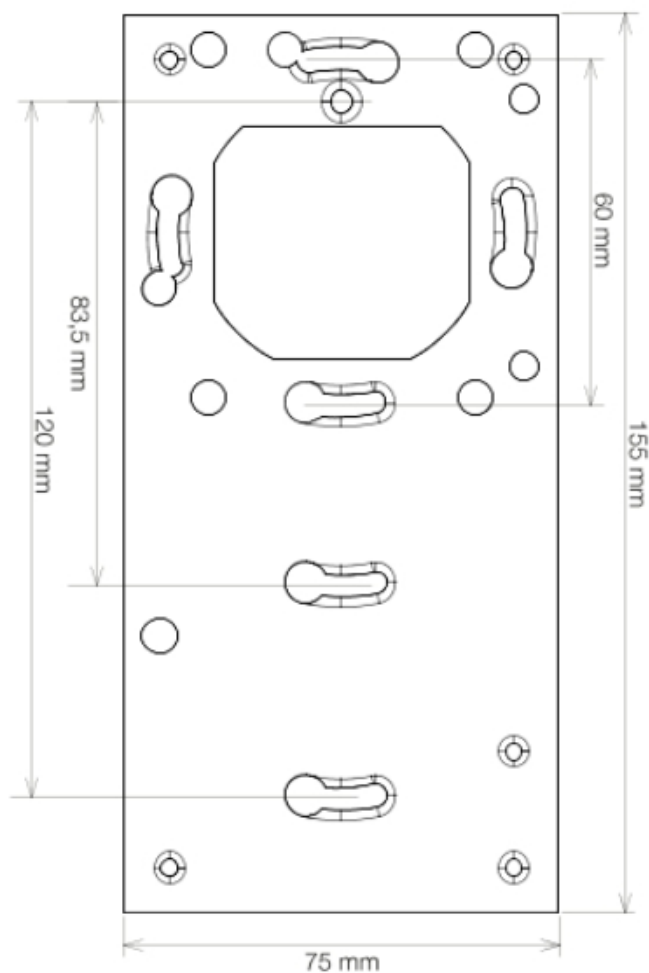
Dimensions (W x H x D)	80 x 160 x 11 mm 3.15 x 6.3 x 0.43 in
Weight	210 g/0.46 lbs
User interface	6 capacitive touch sensors 1 capacitive on/off sensor 1 capacitive touch wheel 1 capacitive play/pause sensor

Technical data T12

Dimensions (W x H x D)	80 x 160 x 11 mm 3.15 x 6.3 x 0.43 in
Weight	210 g/0.46 lbs
User interface	12 capacitive touch sensors 1 capacitive on/off sensor

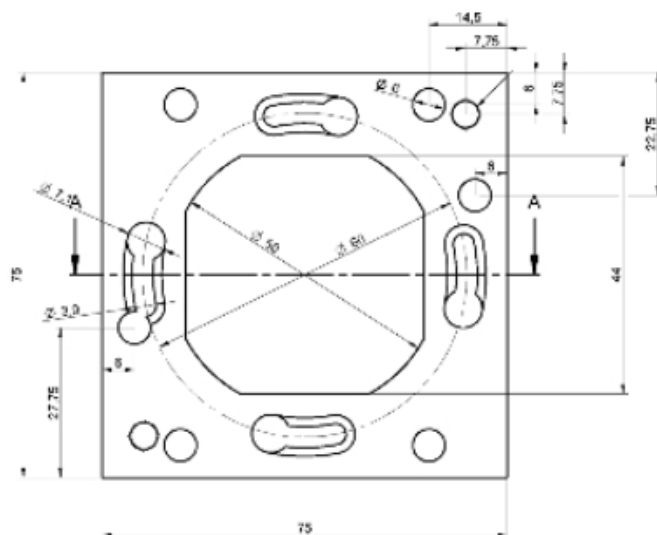
Mounting T6R, T12

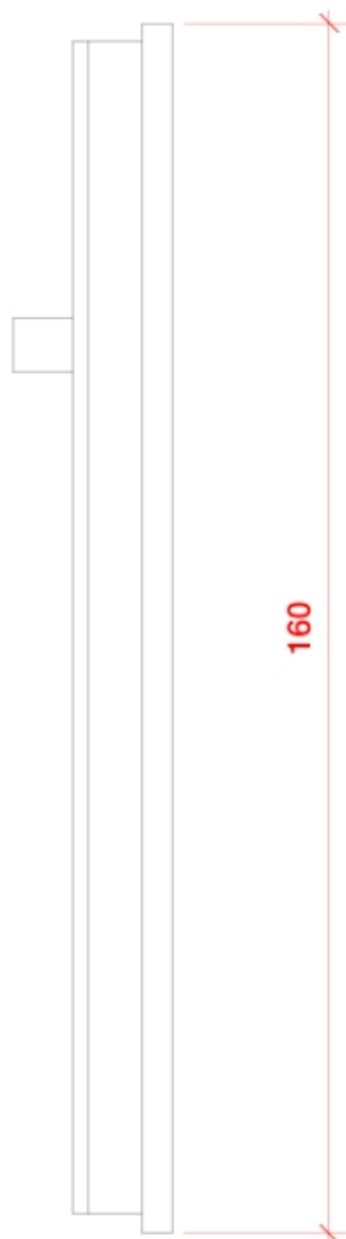
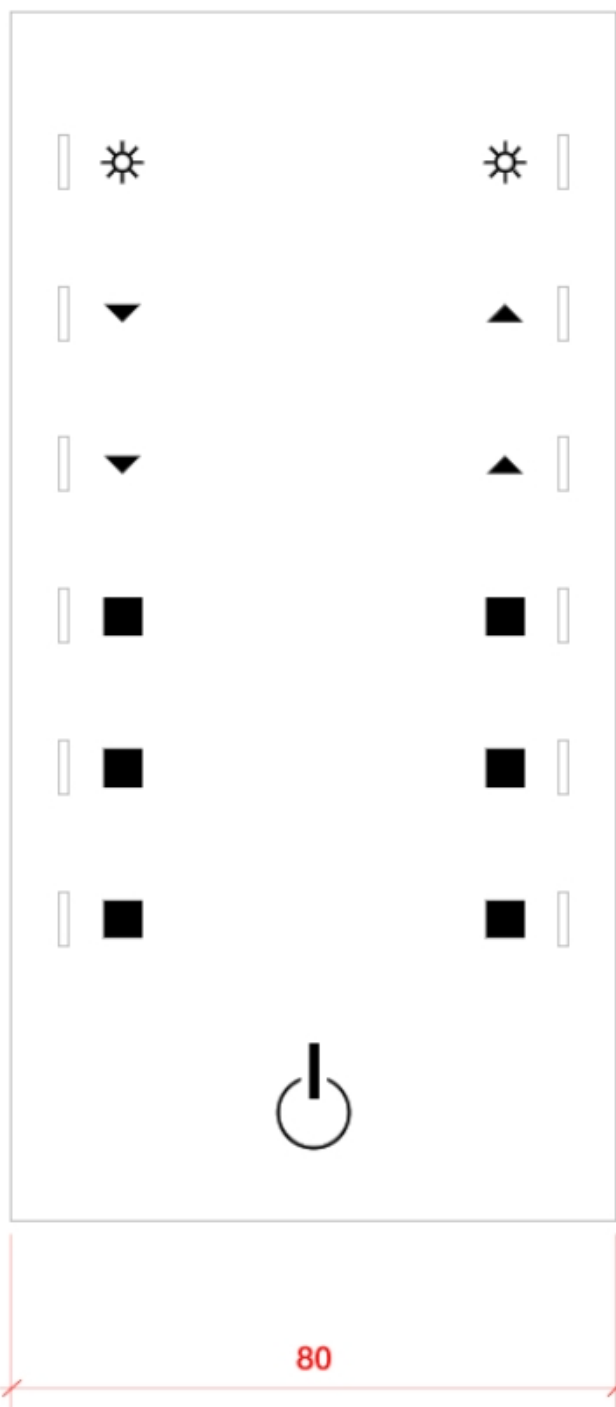
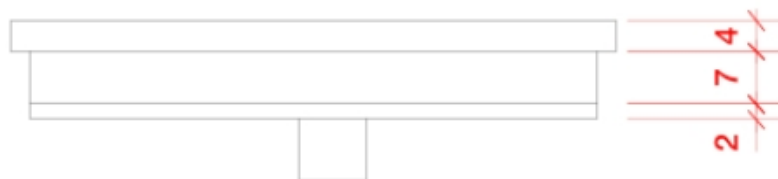
All dimensions in mm



Mounting T6

All dimensions in mm



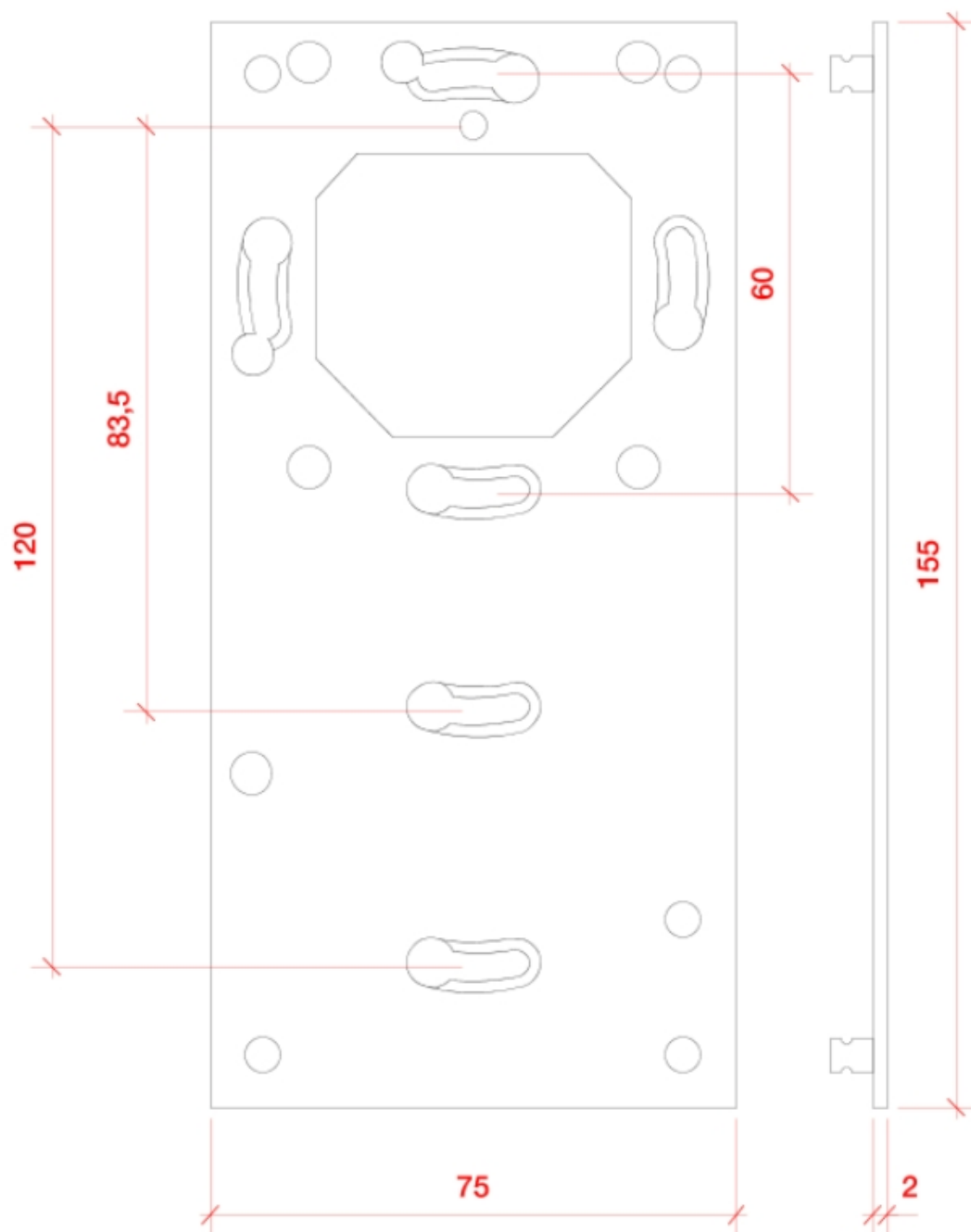


M 1:1

Glass_Touch_T12

Scale: overview_M_1:1
 Contact: damian.sale@ecue.de
 Drawer: andreas.snopkowski@ecue.de

DIN_A4
 August_2012
 01_of_02



Glass Touch T12
system I black
Item-No. 160212
system I white
Item-No. 160213



Glass Touch T12
XT I white
Item-No. 160215
XT I black
Item-No. 160214

M 1:1

M 1:2

Glass_Touch_T12_mounting_plate

Scale: overview_M_1:1
Contact: damian.sale@ecue.de
Drawer: andreas.snopkowski@ecue.de

DIN_A4
August_2012
02_of_02



Cisco 300 Series Switches Cisco Small Business

Easy-to-Use Managed Switches that Provide the Ideal Combination of Features and Affordability

To stay ahead in a competitive marketplace, small businesses need to make every dollar count. That means getting the most value from your technology investments, but it also means making sure that employees have fast, reliable access to the business tools and information they need. Every minute an employee waits for an unresponsive application – and every minute your network is down – has an impact on your bottom line. The importance of maintaining a strong and dependable business network only grows as your business adds more employees, applications, and network complexity.

When your business needs advanced security and features but value is still a top consideration, you're ready for the new generation of Cisco® Small Business managed switches: the Cisco 300 Series.



Cisco 300 Series Switches

The Cisco 300 Series, part of the Cisco Small Business line of network solutions, is a portfolio of affordable managed switches that provides a reliable foundation for your business network. These switches deliver the features you need to improve the availability of your critical business applications, protect your sensitive information, and optimize your network bandwidth to deliver information and applications more effectively. Easy to set up and use, the Cisco 300 Series provides the ideal combination of affordability and capabilities for small businesses, and helps you create a more efficient, better-connected workforce.

The Cisco 300 Series is broad portfolio of fixed-configuration managed Ethernet switches. Models are available with 8 to 48 ports of Fast Ethernet and 10 to 52 ports of Gigabit Ethernet connectivity, providing optimal flexibility to create exactly the right network foundation for your business. However, unlike other small business switching solutions that provide managed network capabilities only in the costliest models, all Cisco 300 Series Switches support the advanced security management capabilities and network features you need to support business-class data, voice, security, and wireless technologies. At the same time, these switches are simple to deploy and configure, allowing you to take advantage of the managed network services your business needs.

Business Applications

Whether you need a basic high-performance network to connect employee computers or a solution to deliver data, voice, and video services, the Cisco 300 Series offers a solution to meet your needs. Possible deployment scenarios include:

- **Secure desktop connectivity:** Cisco 300 Series Switches can simply and securely connect employees working in small offices with each other and with all of the servers, printers, and other devices they use. High performance and reliable connectivity helps speed file transfers and data processing, improves network uptime, and keeps your employees connected and productive.
- **Secure wireless connectivity:** Cisco 300 Series Switches allow employees to work productively from conference rooms and common areas, collaborate in any office, and access business applications from wherever they are. Gigabit Ethernet connectivity helps ensure that your employees have the bandwidth and performance they need to make the most of mobile productivity. And with embedded security, your employees can work with confidence, knowing that only authorized users can access applications and network devices.
- **Unified communications:** As a managed network solution, the Cisco 300 Series provides the performance and advanced traffic-handling intelligence you need to deliver all communications and data over a single network. Cisco offers a complete portfolio of IP telephony and other unified communications products designed for small businesses. Cisco 300 Series Switches have been rigorously tested to help ensure easy integration and full compatibility with these and other products, providing a complete small business solution.
- **Highly secure guest connectivity.** Cisco 300 Series Switches let you extend highly secure network connectivity to guests in a variety of settings, such as a hotel, an office waiting room, or any other area open to nonemployee users. Using powerful but easy-to-configure security and traffic segmentation capabilities, you can isolate your vital business traffic from guest services and keep guests' network sessions private from each other.

Features and Benefits

Cisco 300 Series Switches provide security, performance, traffic management, and other capabilities – optimized and customized, and at the right price for small businesses. The Cisco 300 Series provides:

- **High performance and reliability:** Cisco 300 Series Switches have been rigorously tested to deliver the high availability and performance you expect from a Cisco switch. The solutions speed up file transfer times and improve slow, sluggish networks, while keeping your vital business applications available and preventing costly downtime. As a managed switching solution, the Cisco 300 Series also gives you the flexibility to manage and prioritize high-bandwidth traffic such as voice. That means you can empower your employees with state-of-the-art communication and productivity solutions, without draining the performance of your other business applications.
- **Fast, easy setup and configuration:** Cisco 300 Series Switches are designed to be easy to use and manage by small businesses and the partners who serve them. The included device manager software provides an intuitive, web-based interface to simplify setup, security, and quality of service (QoS) traffic prioritization, allowing even users without IT expertise to configure the switch in minutes. Cisco also provides a Cisco FindIT Network Discovery Utility. This utility that works through a simple toolbar on the user's web browser to discover Cisco devices in the network and display basic information, such as serial numbers and IP addresses, to aid in the configuration and deployment of Cisco Small Business products. For more information, and to download the utility, please visit

www.cisco.com/go/findit. These switches use Cisco Discovery Protocol as well as Link Layer Discovery Protocol (LLDP-MED) to automatically detect all the devices connected to your network, and then automatically configure themselves for the appropriate connectivity and instructs the devices to use appropriate voice VLAN or QoS parameters. For more advanced capabilities and hands-on control, the switches support Smartport roles which configure the ports with specific levels of Security, QoS, and availability according to the type of connected device, based on Cisco best practices and pretested configurations. The Auto Smartports feature applies the intelligence delivered through the Smartport roles and applies it automatically to the port based on the devices discovered over CDP or LLDP-MED. This facilitates zero touch deployments. Although the Cisco 300 Series is designed to be deployed without using a command-line interface (CLI), Cisco Textview is available for those who prefer to use text-based configuration. Together, these features reduce the time your staff must devote to network deployment, management, and troubleshooting.

- **Strong security:** The Cisco 300 Series Switches provide a high level of security and give you fine-grained control to safeguard your network from unauthorized users. Advanced security features include:
 - Embedded security to protect management data traveling to and from the switch and encrypt network communications
 - Extensive access control lists (ACLs) to restrict sensitive portions of the network from unauthorized users and guard against network attacks
 - Guest virtual LANs (VLANs) to let you provide Internet connectivity to nonemployee users while isolating critical business services from guest traffic
 - Support for advanced network security applications such as IEEE 802.1X port security to tightly limit access to specific segments of your network
 - Time based ACLs and Port Operation restrict access to the network during predesignated times, such as business hours.
 - Security mechanisms such as, Bridge Protocol Data Unit (BPDU) Guard and broadcast/multicast/unknown unicast storm control, protect the network from invalid configurations or malicious intent.
 - Secure Core Technology (SCT) helps ensure that the switch will receive and process management and protocol traffic no matter how much traffic is received.
 - Advanced defense mechanisms, including Dynamic ARP Inspection (DAI), IP Source Guard, and Dynamic Host Configuration Protocol (DHCP) snooping, detect and block deliberate network attacks. Combinations of these protocols are also referred to as IPMB (IP-MAC-port binding)
 - DOS (denial-of-service) attack prevention maximizes network uptime in the presence of an attack
 - Protection of management sessions using Radius, TACACS+ and local database authentication as well as secure management sessions over SSL, SSH, and SNMPv3.
- **Power over Ethernet:** Cisco 300 Series Switches are available with up to 48 PoE ports of Fast Ethernet or 28 PoE ports of Gigabit Ethernet connectivity. This capability simplifies advanced technology deployments such as IP telephony, wireless, and IP surveillance by allowing you to connect and power network endpoints over a single Ethernet cable. With no need to install separate power supplies for IP phones or wireless access points, you can take advantage of advanced communications technologies more quickly, and at a lower cost.
- **IP telephony support:** Cisco 300 Series Switches include embedded QoS intelligence to prioritize delay-sensitive services such as voice and video, simplify unified communications deployments, and

help ensure consistent network performance for all services. For example, automated voice VLAN capabilities let you plug any IP phone (including third-party phones) into your IP telephony network and receive an immediate dial tone. The switch automatically configures the device with the right VLAN and QoS parameters to prioritize voice traffic.

- **Networkwide Automatic Voice Deployment:** Using a combination of CDP, LLDP-MED, Auto Smartports, and VSDP (Voice Services Discovery Protocol – a unique patent-pending Cisco protocol), customers can deploy an end-to-end voice network dynamically. The switches in the network automatically converge around a single voice VLAN and QoS parameters and then propagate them out to the phones on the ports where they are discovered. For example, automated voice VLAN capabilities let you plug any IP phone (including third-party phones) into your IP telephony network and receive an immediate dial tone. The switch automatically configures the device with the right VLAN and QoS parameters to prioritize voice traffic.
- **Advanced network management capabilities:** As managed switches, the Cisco 300 Series lets you use a variety of advanced features to control traffic over your network. Features include:
 - *Static routing/Layer 3 switching between VLANs:* This capability allows you to segment your network into separate workgroups and communicate across VLANs without degrading application performance. As a result, you can manage internal routing with your switches and dedicate your router to external traffic and security, helping your network run more efficiently.
 - *IPv6 support:* As the IP network addressing scheme evolves to accommodate more devices, you can make sure that your network is ready. The Cisco 300 Series provides native support for IPv6, the newest version of the Internet Protocol, as well as the previous IPv4 standard. As a result, you will be able to move up to the next generation of networking applications and operating systems without an extensive equipment upgrade.
 - *Dual image support:* With the ability to maintain dual images of your switches, you can perform software upgrades without having to take the network offline and without worrying about an outage during an upgrade.
 - *Dual Configuration files support:* Allows configuring the device, validating that it is configured correctly and then saving this configuration to become effective after reboot. Additionally, a mirror configuration file, providing automatic back-up of the latest stable configuration file maximizes network uptime.
 - *Remote management:* Using Simple Network Management Protocol (SNMP), you can set up and manage all switches and other Cisco devices in your network remotely, instead of having to directly connect to them.
 - *Additional management options:* The switches can be fully managed using the Web GUI or using a full command-line interface (CLI).
- **Optimal energy efficiency:** Cisco 300 Series Switches are designed with a variety of power-saving features across all models, providing the industry's broadest portfolio of "green" switches. These switches optimize power use to protect the environment and reduce energy costs, without compromising performance. Power-saving features include:
 - The latest application-specific integrated circuits (ASICs), using low-power 65-nanometer technology (these chipsets allow for lower power consumption and thinner, more efficient designs)
 - Support for the Energy Efficient Ethernet (IEEE 802.3az) standard, which reduces energy consumption by monitoring the amount of traffic on an active link and putting the link into a sleep state during quiet periods

- Automatic power shutoff on ports when a link is down
- Embedded intelligence to adjust signal strength based on cable length
- Fanless design in most models, which reduces power consumption, increases reliability, and provides quieter operation
- LEDs can be turned off to conserve power
- **Expansion ports:** The Cisco 300 Series provides more ports per Gigabit Ethernet switch than traditional switch models, giving you more flexibility to connect and empower your business. Gigabit Ethernet models feature 28- and 52-port switches, versus traditional devices that offer 20 or 44 ports with four shared ports giving you more value. The Cisco 300 Series also offers mini gigabit interface converter (mini-GBIC) expansion slots that give you the option to add fiber-optic or Gigabit Ethernet uplink connectivity to the switch. With the ability to increase the connectivity range of the switches, you have more flexibility to design your network around your unique business environment, and to easily connect switches on different floors or across the business.
- **Multiple languages:** The Cisco 300 Series is available in seven languages: English, French, German, Italian, Spanish, Japanese, and simplified Chinese. All product user interfaces and documentation are translated, giving you the ability to select your preferred language.
- **Peace of mind and investment protection:** Cisco 300 Series Switches offer the reliable performance, investment protection, and peace of mind you expect from a Cisco switch. When you invest in the Cisco 300 Series, you gain the benefit of:
 - Cisco limited lifetime warranty with next business day advance replacement (where available)
 - Cisco Small Business Investment Protection program, which lets you upgrade your Cisco 300 Series to another Cisco Small Business or Cisco Catalyst® switch in the future and receive credit for the value of the switch (available only in the United States and Canada)
 - Rigorous testing to help ensure easy integration and compatibility with other Cisco networking and communications products, including the complete Cisco Small Business portfolio
- **Service and Support:** Cisco 300 Series Switches are backed by the Cisco Small Business Support Service, which provides affordable peace-of-mind coverage. This subscription-based service helps you protect your investment and derive maximum value from Cisco Small Business products. Delivered by Cisco and backed by your trusted partner, this comprehensive service includes software updates, access to the Cisco Small Business Support Center, and extends technical service to three years.

Cisco Small Business products are supported by professionals in Cisco Small Business Support Center locations worldwide who are specifically trained to understand your needs. The Cisco Small Business Support Community, an online forum, enables you to collaborate with your peers and reach Cisco technical experts for support information.

- **Cisco Limited Lifetime Hardware Warranty:** Cisco 300 Series Switches offer a limited lifetime hardware warranty with next business day advance replacement (where available, otherwise same day ship) and a limited lifetime warranty for fans and power supplies. In addition, Cisco offers software application updates for bug fixes for the warranty term, and telephone technical support at no charge for the first 12 months following the date of purchase. To download software updates, go to: www.cisco.com/cisco/web/download/index.html.

Product warranty terms and other information applicable to Cisco products are available at www.cisco.com/go/warranty.

Product Specifications

Table 1 gives the product specifications for the Cisco 300 Series Switches.

Table 1. Product Specifications

Feature	Description		
Performance			
Switching capacity and forwarding rate	Model Name	Capacity in Millions of Packets per Second (mpps) (64-byte packets)	Switching Capacity in Gigabits per Second (Gbps)
	SF300-08	1.19	1.6
	SF302-08	4.17	5.6
	SF302-08P	4.17	5.6
	SF302-08MP	4.17	5.6
	SF300-24	9.52	12.8
	SF300-24P	9.52	12.8
	SF300-48	13.10	17.6
	SF300-48P	13.10	17.6
	SG300-10	14.88	20.0
	SG300-10P	14.88	20.0
	SG300-10MP	14.88	20.0
	SG300-20	29.76	40.0
	SG300-28	41.67	56.0
	SG300-28P	41.67	56.0
	SG300-52	77.38	104.0
	Layer 2 Switching		
Spanning Tree Protocol (STP)	Standard 802.1d Spanning Tree support Fast convergence using 802.1w (Rapid Spanning Tree [RSTP]), enabled by default 16 instances are supported Multiple Spanning Tree instances using 802.1s (MSTP)		
Port grouping	Support for IEEE 802.3ad Link Aggregation Control Protocol (LACP) <ul style="list-style-type: none">• Up to 8 groups• Up to 8 ports per group with 16 candidate ports for each (dynamic) 802.3ad link aggregation		
VLAN	Support for up to 4096 VLANs simultaneously Port-based and 802.1Q tag-based VLANs MAC-based VLAN Management VLAN Private VLAN Edge (PVE), also known as protected ports, with multiple uplinks Guest VLAN Unauthenticated VLAN Dynamic VLAN assignment via Radius server along with 802.1x client authentication Protocol-based VLAN CPE VLAN		
Voice VLAN	Voice traffic is automatically assigned to a voice-specific VLAN and treated with appropriate levels of QoS Auto voice capabilities deliver network-wide zero touch deployment of voice endpoints and call control devices.		
Multicast TV VLAN	Multicast VLAN used for video applications (Also known as MVR)		
Q-in-Q VLAN	VLANs transparently cross a service provider network while isolating traffic among customers		
Generic VLAN Registration Protocol (GVRP)/Generic Attribute Registration Protocol (GARP)	Protocols for automatically propagating and configuring VLANs in a bridged domain		

Feature	Description
Dynamic Host Configuration Protocol (DHCP) Relay at Layer 2	Relay of DHCP traffic to DHCP server in different VLAN. Works with DHCP Option 82
Internet Group Management Protocol (IGMP) versions 1, 2, and 3 snooping	IGMP limits bandwidth-intensive multicast traffic to only the requesters; supports 1K multicast groups (source-specific multicasting is also supported)
IGMP Querier	IGMP querier is used to support a Layer 2 multicast domain of snooping switches in the absence of a multicast router.
Head-of-line (HOL) blocking	HOL blocking prevention
Jumbo Frames	Up to 10K in length
Layer 3	
IPv4 routing	Wirespeed routing of IPv4 packets Up to 32 static routes and up to 32 IP interfaces
Classless Inter-Domain Routing (CIDR)	Support for CIDR
DHCP relay at Layer 3	Relay of DHCP traffic across IP domains
User Datagram Protocol (UDP) relay	Relay of broadcast information across Layer 3 domains for application discovery or relaying of BootP/DHCP packets
Security	
Secure Shell (SSH) Protocol	SSH is a secure replacement for Telnet traffic. SCP also uses SSH. SSH v1 and v2 are supported
Secure Sockets Layer (SSL)	SSL support: Encrypts all HTTPS traffic, allowing highly secure access to the browser-based management GUI in the switch
IEEE 802.1X (Authenticator role)	802.1X: RADIUS authentication and accounting, MD5 hash; guest VLAN; unauthenticated VLAN, single/multiple host mode and single/multiple sessions Supports time-based 802.1X Dynamic VLAN assignment
STP Bridge Protocol Data Unit (BPDU) Guard	A security mechanism to protect the network from invalid configurations. A port enabled for BPDU Guard is shut down if a BPDU message is received on that port
STP Root Guard	Prevents a port from being selected as a root port, effectively preventing bridges in the LAN segment connected to the port from being a root bridge.
DHCP snooping	Filters out DHCP messages with unregistered IP addresses and/or from unexpected or untrusted interfaces. This prevents rogue devices from behaving as a DHCP Server.
IP Source Guard (IPSG)	When IP Source Guard is enabled at a port, the switch filters out IP packets received from the port if the source IP addresses of the packets have not been statically configured or dynamically learned from DHCP snooping. This prevents IP Address Spoofing.
Dynamic ARP Inspection (DAI)	The switch discards ARP packets from a port if there is no static or dynamic IP/MAC bindings or if there is a discrepancy between the source or destination address in the ARP packet. This prevents man-in-the-middle attacks.
IP/Mac/Port Binding (IPMB)	The features (DHCP Snooping, IP Source Guard, and Dynamic ARP Inspection) above work together to prevent DOS attacks in the network, thereby increasing network availability
Secure Core Technology (SCT)	Ensures that the switch will receive and process management and protocol traffic no matter how much traffic is received
Secure Sensitive Data (SSD)	A mechanism to manage sensitive data (such as passwords, keys, etc) securely on the switch, populating this data to other devices, and secure autoconfig. Access to view the sensitive data as plaintext or encrypted is provided according to the user configured access level and the access method of the user.
Layer 2 isolation Private VLAN Edge (PVE) with community VLAN	PVE (also known as protected ports) provides Layer 2 isolation between devices in the same VLAN, supports multiple uplinks
Port security	Locks MAC addresses to ports, and limits the number of learned MAC addresses
RADIUS/TACACS+	Supports RADIUS and TACACS authentication. Switch functions as a client
Storm control	Broadcast, multicast, and unknown unicast
RADIUS accounting	The RADIUS accounting functions allow data to be sent at the start and end of services, indicating the amount of resources (such as time, packets, bytes, and so on) used during the session.
DoS prevention	DoS attack prevention
Congestion avoidance	A TCP congestion avoidance algorithm is required to minimize and prevent global TCP loss synchronization.

Feature	Description
ACLs	Support for up to 512 rules Drop or rate limit based on source and destination MAC, VLAN ID or IP address, protocol, port, differentiated services code point (DSCP)/IP precedence, TCP/UDP source and destination ports, 802.1p priority, Ethernet type, Internet Control Message Protocol (ICMP) packets, IGMP packets, TCP flag, Time-based ACLs supported
Quality of Service	
Priority levels	4 hardware queues
Scheduling	Strict priority and weighted round-robin (WRR) Queue assignment based on DSCP and class of service (802.1p/CoS)
Class of service	Port based; 802.1p VLAN priority based; IPv4/v6 IP precedence/type of service (ToS)/DSCP based; Differentiated Services (DiffServ); classification and re-marking ACLs, trusted QoS
Rate limiting	Ingress policer; egress shaping and rate control; per VLAN, per port, and flow based
Standards	
Standards	IEEE 802.3 10BASE-T Ethernet, IEEE 802.3u 100BASE-TX Fast Ethernet, IEEE 802.3ab 1000BASE-T Gigabit Ethernet, IEEE 802.3ad LACP, IEEE 802.3z Gigabit Ethernet, IEEE 802.3x Flow Control, IEEE 802.1D (STP, GARP, and GVRP), IEEE 802.1Q/p VLAN, IEEE 802.1w RSTP, IEEE 802.1s Multiple STP, IEEE 802.1X Port Access Authentication, IEEE 802.3af, IEEE 802.3at, RFC 768, RFC 783, RFC 791, RFC 792, RFC 793, RFC 813, RFC 879, RFC 896, RFC 826, RFC 854, RFC 855, RFC 856, RFC 858, RFC 894, RFC 919, RFC 922, RFC 920, RFC 950, RFC 951, RFC 1042, RFC 1071, RFC 1123, RFC 1141, RFC 1155, RFC 1157, RFC 1350, RFC 1533, RFC 1541, RFC 1542, RFC 1624, RFC 1700, RFC 1867, RFC 2030, RFC 2616, RFC 2131, RFC 2132, RFC 3164, RFC 3411, RFC 3412, RFC 3413, RFC 3414, RFC 3415, RFC 2576, RFC 4330, RFC 1213, RFC 1215, RFC 1286, RFC 1442, RFC 1451, RFC 1493, RFC 1573, RFC 1643, RFC 1757, RFC 1907, RFC 2011, RFC 2012, RFC 2013, RFC 2233, RFC 2618, RFC 2665, RFC 2666, RFC 2674, RFC 2737, RFC 2819, RFC 2863, RFC 1157, RFC 1493, RFC 1215, RFC 3416
IPv6	
IPv6	IPv6 host mode IPv6 over Ethernet Dual IPv6/IPv4 stack IPv6 neighbor and router discovery (ND) IPv6 stateless address auto-configuration Path maximum transmission unit (MTU) discovery Duplicate address detection (DAD) ICMP version 6 IPv6 over IPv4 network with Intra-Site Automatic Tunnel Addressing Protocol (ISATAP) support USGv6 and IPv6 Gold Logo certified
IPv6 QoS	Prioritize IPv6 packets in hardware
IPv6 ACL	Drop or rate limit IPv6 packets in hardware
Multicast Listener Discovery (MLD) snooping	Deliver IPv6 multicast packets only to the required receivers
IPv6 applications	Web/SSL, Telnet server/SSH, ping, traceroute, Simple Network Time Protocol (SNTP), Trivial File Transfer Protocol (TFTP), SNMP, RADIUS, syslog, DNS client, protocol-based VLANs
IPv6 RFCs supported	RFC 2463 – ICMP version 6 RFC 3513 – IPv6 address architecture RFC 4291 – IPv6 addressing architecture RFC 2460 – IPv6 specification RFC 2461 – Neighbor discovery for IPv6 RFC 2462 – IPv6 stateless address auto-configuration RFC 1981 – Path MTU discovery RFC 4007 – IPv6 scoped address architecture RFC 3484 – Default address selection mechanism RFC 4214 – ISATAP tunneling RFC 4293 – MIB IPv6: Textual conventions and general group RFC 3595 – Textual conventions for IPv6 flow label

Feature	Description	
Management		
Web user interface	Built-in switch configuration utility for easy browser-based device configuration (HTTP/HTTPS). Supports configuration, system dashboard, system maintenance, and monitoring	
SNMP	SNMP versions 1, 2c, and 3 with support for traps, and SNMP version 3 user-based security model (USM)	
Standard MIBs	BRIDGE-MIB DIFFSERV-DSCP-TC DIFF-SERV-MIB DISMAN-NSLOOKUP-MIB DISMAN-PING-MIB DISMAN-TRACEROUTE-MIB DNS-RESOLVER-MIB DNS-SERVER-MIB DRAFT-IETF-SYSLOG-DEVICE-MIB ENTITY-MIB ENTITY-SENSOR-MIB EtherLike-MIB EtherLike-MIB IANA-ADDRESS-FAMILY-NUMBERS-MIB IANAIfType-MIB IANA-RTPROTO-MIB IEEE8021-PAE-MIB IEEE9023-LAG-MIB IF-MIB INET-ADDRESS-MIB IP-FORWARD-MIB IP-MIB IP-MIB LLDP-EXT-DCBX-MIB.mib LLDP-EXT-DOT1-MIB LLDP-EXT-DOT3-MIB LLDP-EXT-MED-MIB LLDP-MIB MAU-MIB OSPF-MIB OSPF-TRAP-MIB P-BRIDGE-MIB	POWER-ETHERNET-MIB Q-BRIDGE-MIB Q-BRIDGE-MIB RADIUS-ACC-CLIENT-MIB RADIUS-AUTH-CLIENT-MIB RFC1155-SMI RFC-1212 RFC1213-MIB RFC-1215 RFC1389-MIB RMON2-MIB RMON-MIB RSTP-MIB SMON-MIB SNMP-COMMUNITY-MIB SNMP-FRAMEWORK-MIB SNMP-MPD-MIB SNMP-NOTIFICATION-MIB SNMP-PROXY-MIB SNMP-TARGET-MIB SNMP-USER-BASED-SM-MIB SNMPv2-CONF SNMPv2-MIB SNMPv2-MIB SNMPv2-SMI SNMPv2-TC SNMPv2-TM SNMP-VIEW-BASED-ACM-MIB TCP-MIB TUNNEL-MIB UDP-MIB
Private MIBs	CISCO-CDP-MIB CISCO-SMI CISCO-TC CISCO-VTP-MIB CISCOSB-1-BONJOUR-SERVICE-MIB CISCOSB-3SW2SWTABLES-MIB CISCOSB-AAA CISCOSB-BANNER-MIB CISCOSB-BaudRate-MIB CISCOSB-BONJOUR-MIB CISCOSB-BRGMACSWITCH-MIB CISCOSB-BRIDGEMIBOBJECTS-MIB CISCOSB-BRIDGE-SECURITY CISCOSB-CDB-MIB CISCOSB-CDP-MIB CISCOSB-CLI-MIB CISCOSB-COPY-MIB CISCOSB-CPU-COUNTERS-MIB CISCOSB-DEBUGCAPABILITIES-MIB CISCOSB-DEVICEPARAMS-MIB	CISCOSB-MNGINF-MIB CISCOSB-MULTISESSIONTERMINAL-MIB CISCOSB-PHY-MIB CISCOSB-Physicaldescription-MIB CISCOSB-POE-MIB CISCOSB-POLICY-MIB CISCOSB-ProtectedPorts-MIB CISCOSB-QOS-CLI-MIB CISCOSB-rIBrgMcMngr-MIB CISCOSB-rIBrgMulticast-MIB CISCOSB-rIfft CISCOSB-rIInterfaces CISCOSB-rILcli-MIB CISCOSB-RMOB CISCOSB-rmdApplications CISCOSB-rmdMng CISCOSB-SCT-MIB CISCOSB-SECURITY-SUITE CISCOSB-SENSORENTMIB CISCOSB-SMARTPORTS-MIB

Feature	Description
	<div> <div> CISCOB-DHCPCL-MIB CISCOB-DHCP-MIB CISCOB-DIF-MIB CISCOB-DNSCL-MIB CISCOB-DOT1X-MIB CISCOB-EEE-MIB CISCOB-EMBWEB-MIB CISCOB-ENDOFMIB-MIB CISCOB-ERRDISABLE-RECOVERY-MIB CISCOB-EVENTS-MIB CISCOB-File CISCOB-GREEN-MIB CISCOB-GVRP-MIB CISCOB-HWENVIRONMENT CISCOB-IP CISCOB-IpRouter CISCOB-IPv6 CISCOB-JUMBOFRAMES-MIB CISCOB-LLDP-MIB CISCOB-LOCALIZATION-MIB CISCOB-MAC-BASE-PRIO CISCOB-MIB CISCOB-MIR-MIB </div> <div> CISCOB-SMON-MIB CISCOB-SNMP-MIB CISCOB-SOCKET-MIB CISCOB-SpecialBpdu-MIB CISCOB-SSH-MIB CISCOB-SSL CISCOB-STORMCTRL-MIB CISCOB-SYSLOG-MIB CISCOB-SYSMNG-MIB CISCOB-TBI-MIB CISCOB-TCPSESSIONS CISCOB-TELNET-MIB CISCOB-TIMESYNCHRONIZATION-MIB CISCOB-TRACEROUTE-MIB CISCOB-TRAPS-MIB CISCOB-TRUNK-MIB CISCOB-TUNNEL-MIB CISCOB-Tunneling CISCOB-UDP CISCOB-vlan-MIB CISCOB-vlanVoice-MIB CISCOB-WeightedRandomTailDrop-MIB CISCOB-MIB </div> </div>
Remote Monitoring (RMON)	Embedded RMON software agent supports 4 RMON groups (history, statistics, alarms, and events) for enhanced traffic management, monitoring, and analysis
IPv4 and IPv6 dual stack	Coexistence of both protocol stacks to ease migration
Firmware upgrade	<ul style="list-style-type: none"> Web browser upgrade (HTTP/HTTPS) and TFTP Upgrade can be initiated through console port as well Dual images for resilient firmware upgrades
Port mirroring	Traffic on a port can be mirrored to another port for analysis with a network analyzer or RMON probe. Up to 8 source ports can be mirrored to one destination port. A single session is supported.
VLAN mirroring	Traffic from a VLAN can be mirrored to a port for analysis with a network analyzer or RMON probe. Up to 8 source VLANs can be mirrored to one destination port. A single session is supported.
DHCP (Options 12, 66, 67, 82, 129, and 150)	DHCP Options facilitate tighter control from a central point (DHCP server) to obtain IP address, auto-configuration (with configuration file download), DHCP relay, and hostname
Secure Copy (SCP)	Securely transfer files to and from the switch.
Autoconfiguration with Secure Copy (SCP) file download	Enables secure mass deployment with protection of sensitive data.
Text-editable config files	Config files can be edited with a text editor and downloaded to another switch, facilitating easier mass deployment
Smartports	Simplified configuration of QoS and security capabilities
Auto Smartports	Applies the intelligence delivered through the Smartport roles and applies it automatically to the port based on the devices discovered over CDP or LLDP-MED. This facilitates zero touch deployments.
Textview CLI	Scriptable command-line interface. A full CLI as well as a menu-based CLI is supported
Cloud services	Support for Cisco Small Business FindIT Network and Cisco OnPlus
Localization	Localization of GUI and documentation into multiple languages
Other management	Traceroute; single IP management; HTTP/HTTPS; SSH; RADIUS; port mirroring; TFTP upgrade; DHCP client; BOOTP; SNMP; Xmodem upgrade; cable diagnostics; ping; syslog; Telnet client (SSH secure support)
Time-based port operation	Link up or down based on user-defined schedule (when the port is administratively up).
Login banner	Configurable login banners for web as well as CLI.

Feature	Description				
Power Efficiency					
EEE Compliant (802.3az)	Supports 802.3az on all copper ports (SG300 models).				
Energy Detect	Automatically turns off power off on Gigabit Ethernet and 10/100 RJ-45 port when detecting link down Active mode is resumed without loss of any packets when the switch detects the link up				
Cable length detection	Adjusts the signal strength based on the cable length for Gigabit Ethernet models. Reduces the power consumption for cables shorter than 10m.				
Disable port LEDs	LEDs can be manually turned off to save on Energy				
General					
Jumbo frames	Frame sizes up to 10 KB supported on 10/100 and Gigabit interfaces				
MAC table	Up to 16000 MAC addresses				
Discovery					
Bonjour	The switch advertises itself using the Bonjour protocol.				
Link Layer Discovery Protocol (LLDP) (802.1ab) with LLDP-MED extensions	LLDP allows the switch to advertise its identification, configuration, and capabilities to neighboring devices that store the data in a MIB. LLDP-MED is an enhancement to LLDP that adds the extensions needed for IP phones.				
Cisco Discovery Protocol	The switch advertises itself using the Cisco Discovery Protocol.				
Power over Ethernet (PoE)					
IEEE 802.3af PoE delivered over any of the RJ-45 ports within the listed power budgets	Maximum power of 15.4W to any 10/100 or Gigabit Ethernet base port. The total power available for PoE per switch is as follows:				
	Model Name	Power Dedicated to PoE	Number of Ports That Support PoE		
	SF302-08P	62W	8		
	SF302-08MP	124W	8		
	SF300-24P	180W	24		
	SF300-48P	375W	48		
	SG300-10P	62W	8		
	SG300-10MP	124W	8		
	SG300-28P	180W	24		
Power consumption	Model Name	Power Savings Mode	System Power Consumption	Power Consumption: Case (with POE)	Heat Dissipation Worst Case (BTU/hr)
	SF300-08	Energy Detect	110V=6.1W 220V=7.2W	N/A	24.57
	SF302-08	Energy Detect	110V=8.0W 220V=8.6W	N/A	29.34
	SF302-08P	Energy Detect	110V=10.3W 220V=11.5W	110V=81.3W 220V=82.1W	280.13
	SF302-08MP	Energy Detect	110V=9.5W 220V=10.3W	110V=150.1W 220V=149.9W	512.14
	SF300-24	Energy Detect	110V=16.4W 220V=17.1W	N/A	58.35
	SF300-24P	Energy Detect	110V=25.8W 220V=27.3W	110V=223W 220V=217.9W	760.88
	SF300-48	Energy Detect	110V=24W 220V=24.8W	N/A	84.62
	SF300-48P	Energy Detect	110V=46.4W 220V=46.3W	110V=465W 220V=449W	1531.99
	SG300-10	Energy Detect Short Reach	110V=10.33W 220V=10.27W	N/A	35.25
	SG300-10P	Energy Detect Short Reach	110V=13.13W 220V=13.48W	110V=81.44W 220V=81.16W	277.87

Feature	Description				
	SG300-10MP	Energy Detect Short Reach	110V=12.21W 220V=12.25W	110V=154.36W 220V=152.42W	526.68
	SG300-20	Energy Detect Short Reach	110V=16.05W 220V=16.26W	N/A	55.48
	SG300-28	Energy Detect Short Reach	110V=19.8W 220V=20.6W	N/A	70.29
	SG300-28P	Energy Detect Short Reach	110V=29.7W 220V=30.7W	110V=214.4W 220V=210W	731.53
	SG300-52	Energy Detect Short Reach	110V=45.9W 220V=45.3W	N/A	156.61
Ports	Model Name	Total System Ports		RJ-45 Ports	Combo Ports (RJ-45 + SFP)
	SG300-20	20 Gigabit Ethernet		18 Gigabit Ethernet	2 Gigabit Ethernet combo
	SG300-28	28 Gigabit Ethernet		26 Gigabit Ethernet	2 Gigabit Ethernet combo
	SG300-28P	28 Gigabit Ethernet		26 Gigabit Ethernet	2 Gigabit Ethernet combo
	SG300-52	52 Gigabit Ethernet		50 Gigabit Ethernet	2 Gigabit Ethernet combo
	SF300-24	24 Fast Ethernet + 4 Gigabit Ethernet		24 Fast Ethernet 2 Gigabit Ethernet	2 Gigabit Ethernet combo
	SF300-24P	24 Fast Ethernet + 4 Gigabit Ethernet		24 Fast Ethernet 2 Gigabit Ethernet	2 Gigabit Ethernet combo
	SF300-48	48 Fast Ethernet + 4 Gigabit Ethernet		48 Fast Ethernet 2 Gigabit Ethernet	2 Gigabit Ethernet combo
	SF300-48P	48 Fast Ethernet + 4 Gigabit Ethernet		48 Fast Ethernet 2 Gigabit Ethernet	2 Gigabit Ethernet combo
	SG300-10	10 Gigabit Ethernet		8 Gigabit Ethernet	2 Gigabit Ethernet combo
	SG300-10P	10 Gigabit Ethernet		8 Gigabit Ethernet	2 Gigabit Ethernet combo
	SG300-10MP	10 Gigabit Ethernet		8 Gigabit Ethernet	2 Gigabit Ethernet combo
	SF300-08	8 Fast Ethernet		8 Fast Ethernet	N/A
	SF302-08	8 Fast Ethernet + 2 Gigabit Ethernet		8 Fast Ethernet	2 Gigabit Ethernet combo
	SF302-08P	8 Fast Ethernet + 2 Gigabit Ethernet		8 Fast Ethernet	2 Gigabit Ethernet combo
	SF302-08MP	8 Fast Ethernet + 2Gigabit Ethernet		8 Fast Ethernet	2 Gigabit Ethernet combo
Buttons	Reset button				
Cabling type	Unshielded twisted pair (UTP) Category 5 or better for 10BASE-T/100BASE-TX; UTP Category 5 Ethernet or better for 1000BASE-T				
LEDs	System, Link/Act, PoE, Speed, LED power saving option				
Flash	16 MB				
CPU memory	128 MB				

Feature	Description			
Packet buffer	All numbers are aggregate across all ports as the buffers are dynamically shared:			
	Model Name	Packet Buffer		
	SG300-20	8 Mb		
	SG300-10	8 Mb		
	SG300-10P	8 Mb		
	SG300-10MP	8 Mb		
	SF300-08	8 Mb		
	SF302-08	8 Mb		
	SF302-08P	8 Mb		
	SF302-08MP	8 Mb		
	SG300-28	8 Mb		
	SG300-28P	8 Mb		
	SG300-52	8 Mb*2		
	SF300-24	8 Mb		
	SF300-24P	8 Mb		
	SF300-48	8 Mb*2		
	SF300-48P	8 Mb*2		
Supported SFP modules	SKU	Media	Speed	Typical Distance
	MFEXX1	Multimode fiber	100 Mbps	2 km
	MFELX1	Single-mode fiber	100 Mbps	10 km
	MFEBX1	Single-mode fiber	100 Mbps	20 km
	MGBBX1	Single-mode fiber	1000 Mbps	40 km
	MGBSX1	Multimode fiber	1000 Mbps	300 m
	MGBLH1	Single-mode fiber	1000 Mbps	40 km
	MGBLX1	Single-mode fiber	1000 Mbps	10 km
	MGBT1	UTP cat 5	1000 Mbps	100 m
Environmental				
Dimensions (W x H x D)	SF300-08, SF302-08, SF302-08P, SF302-08MP, SG300-10, SG300-10P, SG300-10MP 11 x 1.45 x 6.7 in. (279.4 x 44.45 x 170 mm)			
	SG300-20 17.3 x 1.45 x 7.97 in. (440 x 44.45 x 202.5 mm) SF300-24, SF300-24P, SF300-48, SG300-28, SG300-28P, SG300-52 17.3 x 1.45 x 10.1 in. (440 x 44.45 x 257 mm) SF300-48P 17.3 x 1.45 x 13.78 in. (440 x 44.45 x 350 mm)			
Unit weight	SF300-08: 2.56 lb (1.16 kg)			
	SF302-08: 2.6 lb (1.18 kg)			
	SF302-08P: 2.67 lb (1.21 kg)			
	SF302-08MP: 2.67 lb (1.21 kg)			
	SG300-10: 2.56 lb (1.16 kg)			
	SG300-10P: 2.73 lb (1.24 kg)			
	SG300-10MP: 2.73 lb (1.24 kg)			
	SG300-20: 4.78 lb (2.17 kg)			
	SF300-24: 6.81 lb (3.09 kg)			
	SF300-24P: 8.22 lb (3.73 kg)			
	SF300-48: 7.47 lb (3.39 kg)			
	SF300-48P: 12.94 lb (5.87 kg)			
	SG300-24: 7.23 lb (3.28 kg)			
	SG300-24P: 9.06 lb (4.11 kg)			
	SG300-52 : 8.62 lb (3.91 kg)			
Power	100-240V 47-63 Hz, internal, universal – SF300-24, SF300-24P, SG300-20, SG300-28, SG300-28P, SG300-52			
	100-240V 50-60 Hz, 0.5A, external – SF300-08, SF302-08, SG300-10			
	100-240V 50-60 Hz, 2A, external – SF302-08P, SG300-10P			
	100-240V 50-60 Hz, 2.5A, external – SF302-08MP, SG300-10MP			

Feature	Description			
Certification	UL (UL 60950), CSA (CSA 22.2), CE mark, FCC Part 15 (CFR 47) Class A			
Operating temperature	32° to 104°F (0° to 40°C)			
Storage temperature	-4° to 158°F (-20° to 70°C)			
Operating humidity	10% to 90%, relative, noncondensing			
Storage humidity	10% to 90%, relative, noncondensing			
Acoustic Noise and MTBF	Model Name	FAN (Number)	Acoustic Noise	MTBF @40C (hr)
	SG300-20	Fanless	N/A	144,237
	SG300-10	Fanless	N/A	74,294
	SG300-10P	Fanless	N/A	67,009
	SG300-10MP	Fanless	N/A	67,008
	SF300-08	Fanless	N/A	71,006
	SF302-08	Fanless	N/A	69,825
	SF302-08P	Fanless	N/A	65,527
	SF302-08MP	Fanless	N/A	63,569
	SG300-28	Fanless	N/A	179141.0
	SG300-28P	2 pcs	40.6 dB	187334.9
	SG300-52	2 pcs	40.1dB	206005.6
	SF300-24	Fanless	N/A	282775.3
	SF300-24P	2 pcs	41.0 dB	241995.9
	SF300-48	Fanless	N/A	199664.2
	SF300-48P	3 pcs w/ Fan speed control	43.1dB at 30C 54.3dB at 40C	182540.0
Warranty	Limited lifetime with next business day advance replacement (where available)			

Package Contents

- Cisco 300-series Ethernet Switch
- Power Cord (Power Adapter for 8-port SKUs)
- Mounting Hardware
- Serial Cable
- CD-ROM with user documentation (PDF) included
- Quick Start Guide

Minimum Requirements

- Web browser: Mozilla Firefox version 2.5 or later; Microsoft Internet Explorer version 6 or later
- Category 5 Ethernet network cable
- TCP/IP, network adapter, and network operating system (such as Microsoft Windows, Linux, or Mac OS X) installed on each computer in the network

Ordering Information

Table 2 provides ordering information for the Cisco 300 Series Switches.

Table 2. Cisco 300 Series Switches Ordering Information

Model Name	Order Product ID Number	Description
Fast Ethernet		
SF300-08	SRW208-K9	• 8 10/100 ports

Model Name	Order Product ID Number	Description
SF302-08	SRW208G-K9	<ul style="list-style-type: none"> • 8 10/100 ports • 2 combo* mini-GBIC ports
SF302-08P	SRW208P-K9	<ul style="list-style-type: none"> • 8/10/100 PoE ports • 2 combo mini-GBIC ports
SF302-08MP	SRW208MP-K9	<ul style="list-style-type: none"> • 8 10/100 Maximum PoE ports • 2 combo mini-GBIC ports
SF300-24	SRW224G4-K9	<ul style="list-style-type: none"> • 24 10/100 ports • 2 10/100/1000 ports • 2 combo mini-GBIC ports
SF300-24P	SRW224G4P-K9	<ul style="list-style-type: none"> • 24 10/100 PoE ports • 2 10/100/1000 ports • 2 combo mini-GBIC ports
SF300-48	SRW248G4-K9	<ul style="list-style-type: none"> • 48 10/100 ports • 2 10/100/1000 ports • 2 combo mini-GBIC
SF300-48P	SRW248G4P-K9	<ul style="list-style-type: none"> • 48 10/100 PoE ports • 2 10/100/1000 ports • 2 combo mini-GBIC ports
Gigabit Ethernet		
SG300-10	SRW2008-K9	<ul style="list-style-type: none"> • 8 10/100/1000 ports • 2 combo mini-GBIC ports
SG300-10P	SRW2008P-K9	<ul style="list-style-type: none"> • 8 10/100/1000 PoE ports • 2 Combo mini-GBIC ports
SG300-10MP	SRW2008MP-K9	<ul style="list-style-type: none"> • 8 10/100/1000 Maximum PoE ports • 2 combo mini-GBIC ports
SG300-20	SRW2016-K9	<ul style="list-style-type: none"> • 18 10/100/1000 ports • 2 combo mini-GBIC ports
SG300-28	SRW2024-K9	<ul style="list-style-type: none"> • 26 10/100/1000 ports • 2 combo mini-GBIC ports
SG300-28P	SRW2024P-K9	<ul style="list-style-type: none"> • 26 10/100/1000 PoE ports • 2 combo mini-GBIC ports
SG300-52	SRW2048-K9	<ul style="list-style-type: none"> • 50 10/100/1000 ports • 2 combo mini-GBIC ports

*Each combo mini-GBIC port has one 10/100/1000 Ethernet port and one mini-GBIC/SFP Gigabit Ethernet slot, with one port active at a time.

Table 3. Service and Support Ordering Information

Service Ordering Number	Description
CON-SBS-SVC2	3 years support, software updates, Small Business Support Center access via online, telephone, or community, next business day advanced replacement

Table 4. MFE and MGE Transceiver Ordering Information

MFE Transceivers	
MFEBX1	100BASE-BX-20U SFP transceiver for single-mode fiber, 1310 nm wavelength, support up to 20 km
MFELX1	100BASE-LX SFP transceiver, for single-mode fiber, 1310 nm wavelength, support up to 2 km
MFEFX1	100BASE-FX SFP transceiver, for multimode fiber, 1310 nm wavelength, support up to 10 km
MGE Transceivers	
MGBBX1	1000BASE-BX-20U SFP transceiver, for single-mode fiber, 1310 nm wavelength, support up to 40 km
MGBLH1	1000BASE-LH SFP transceiver, for single-mode fiber, 1310 nm wavelength, support up to 40 km
MGBLX1	1000BASE-LX SFP transceiver, for single-mode fiber, 1310 nm wavelength, support up to 10 km
MGBSX1	1000BASE-SX SFP transceiver, for multimode fiber, 850 nm wavelength, support up to 550 m

A Powerful, Affordable Foundation for Your Small Business Network

As you strive to make your employees as productive and effective as possible, your business applications and information – and the network that delivers them – become an ever more vital part of your business. You need a technology foundation that can meet your business's needs today and in the future, and that delivers the right feature set at the right price. The Cisco 300 Series portfolio of managed switches provides the reliability, performance, security, and capabilities you need to power your business.

For More Information

To find out more about the Cisco 300 Series, visit www.cisco.com/go/300switches.

To learn about other products and solutions in the Cisco Small Business portfolio, visit www.cisco.com/go/smallbusiness.



Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV Amsterdam,
The Netherlands

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at www.cisco.com/go/offices.

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: www.cisco.com/go/trademarks. Third party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)

Printed in USA

C78-610061-03 06/12

traxone^ecue



The e:bus system

User Manual

Published by Traxon Technologies Europe GmbH
Karl Schurz-Strasse 38
Paderborn, Germany

e:bus User Manual
Edition 03.06.2011
©2011 Traxon Technologies Europe
All rights reserved.

Download the latest version of this manual under

<http://www.ecue.com/download>

Comments and corrections:
please send to documentation@ecue.com

Table of Contents

Introduction.....	4
Advantages of the e:bus system.....	4
General information.....	4
Possible bus topologies.....	5
Wiring	5
Invalid configurations	6
Cable types and lengths	6
Cable types	6
General run lengths	7
Special cabling conditions	7
Glass Touchscreen	7
e:bus, DALI and DMX	8
DALI	8
DMX.....	8

Introduction

This document gives a short introduction to the e:bus system. e:bus is a bus system developed by Traxon Technologies Europe for secure, bi-directional and fast system link between e:bus enabled user terminals.

Advantages of the e:bus system

The e:bus networking platform offers several features for a simple installation and great reliability in real installations.

- e:bus is a self-organizing network. This simplifies configuration by a plug & play - like behaviour. The addressing happens automatically.
- Link power. User interfaces are directly powered over e:bus. Fewer wires make the hardware installation much easier.
- The connections are a very reliable and a stable communication basis with polarity-independent wiring.

At the end of this document, you can find a short comparison of e:bus with DALI and DMX based communication.

General information

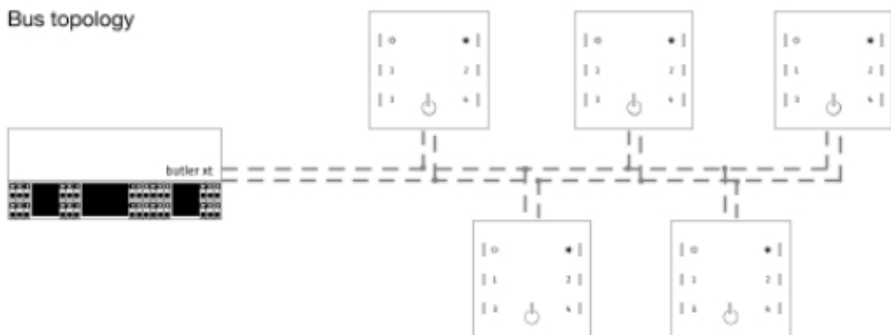
- Up to eight devices can be connected to the e:bus, organized by an additional master device.
- Free topology architecture allows the devices to be connected in combination of star, bus and tree structures.
- e:bus is designed for cable lengths of up to 400 meters, depending on cable type, topology and number of connected devices. A bus topology allows the largest cable length.
- Interfaces are powered via e:bus.
- Interfaces will be automatically registered and addressed.
- Defective units will not affect the communication between other devices.
- The maximum supply current of the Butler XT is 800 mA. All devices in one e:bus segment may not draw more than 800 mA in total.
- A maximum of two e:cue Glass Touchscreens is allowed.



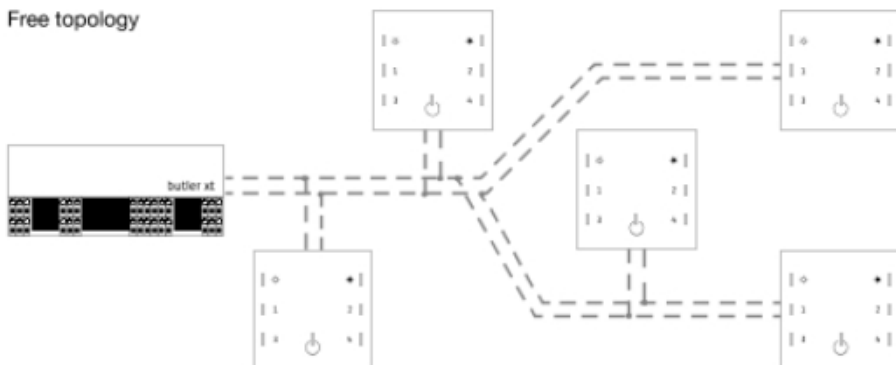
To remove an e:bus client it is not sufficient to just disconnect it. The Butler XT will try to poll it and ignores another device, connected in place. Instead, remove the client in the Programmer's Device Manager and run a Quick Update. Now the Butler XT will recognize another/new device.

Possible bus topologies

Bus topology



Free topology

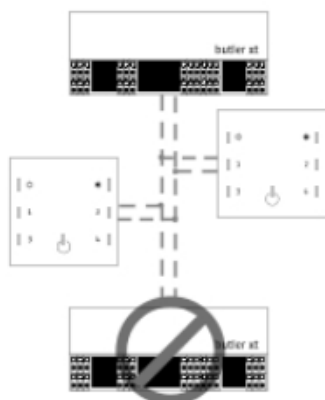


Wiring

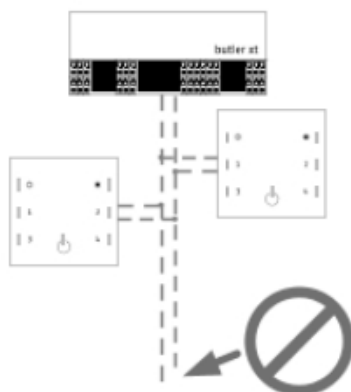
The e:bus is a 2-wire bus system using screw terminal connectors to attach the wires safely and robust. The wiring between the devices is extremely flexible. In addition to the free topology design, you do not need to pay attention to polarities. As long as the two e:bus connectors of a user terminal are connected to the master unit's connectors, regardless if a cable goes from + to + or from + to -, everything will work fine. The two e:bus connectors of a user terminal can be connected to the master unit's connectors either way. The terminal devices will recognize the polarity on their own and configure themselves the proper way.

Invalid configurations

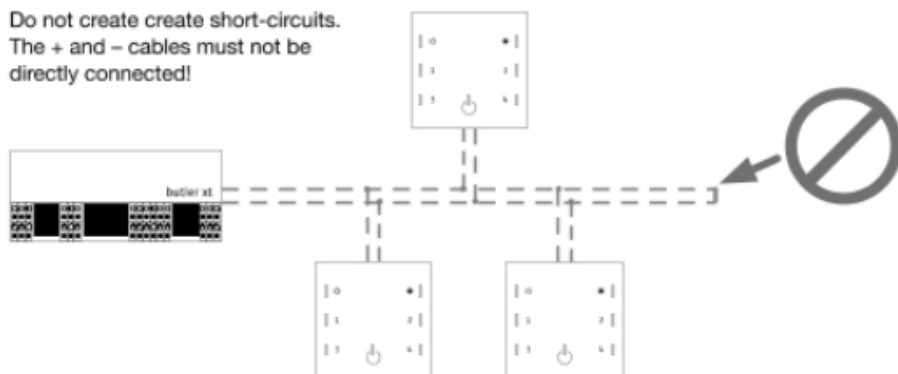
Do not add a second master to an e:bus network!



Do not leave any wires open! Open wires will cause signal reflections and therefore disrupt communication.



Do not create create short-circuits.
The + and - cables must not be directly connected!



Cable types and lengths

Cable types

The maximum cable length is greatly dependent on device count, topology and cable types as well. Approved cable types for e:bus are AWG 16 (1.3 mm/0.051") twisted pair and AWG 24 (0.511 mm/0.02") Cat5 cables. The following table shows valuable key facts:

General run lengths

device count	AWG 16 (1,3 mm / 0.051") Twisted-Pair Cable		AWG 24 (0,511 mm / 0.02") Cat5 Cable	
	bus topology	free topology	bus topology	free topology
1	400 m/1312 feet	100 m/328 feet	400 m/1312 feet	100 m/328 feet
2	400 m/1312 feet	100 m/328 feet	268 m/879 feet	100 m/328 feet
4	400 m/1312 feet	100 m/328 feet	133 m/436 feet	100 m/328 feet
6	400 m/1312 feet	100 m/328 feet	88 m/288 feet	82 m/269 feet
8	400 m/1312 feet	100 m/328 feet	66 m/216 feet	61 m/200 feet

Special cabling conditions

Glass Touchscreen

For the Glass Touchscreen the values above are not valid. Instead, watch these requirements:

- Use 2 x 0.5 sqmm
- Use a direct connection from Butler XT to Glass Touchscreen, no branching.
- Maximum cable length is 100 m.

e:bus, DALI and DMX

DALI

Digital Addressable Lighting Interface (DALI) is a standard for control lighting in buildings. It was established as a successor for 0 ... 10 V lighting control systems, and as an open standard alternative to Digital Signal Interface (DSI), on which it is based. The DALI standard, which is specified in the IEC 60929 standard for fluorescent lamp ballasts, encompasses the communications protocol and electrical interface for lighting control networks.

DMX

DMX512 (Digital Multiplex) is a standard for digital communication networks to control stage lighting and effects such as fog machines and moving lights. DMX512 employs EIA-485 differential signaling at its physical layer, in conjunction with a variable-size, packet based communication protocol at 250kBit/s. It is unidirectional and does not include automatic error checking and correction. DMX is the most used connection type in lighting control.

Feature	e:bus	DALI	DMX
Includes protocol	Y	Y	Y
Self-organizing network	Y	-	-
Free topology wiring	Y	Y	-
Link power	Y	-	-
Polarity-insensitive	Y	-	-
High-Speed signaling	Y	-	Y

Calendar Related Themes:

- MLK Day - (peace signs or people holding hands, MLK face, I have a dream)
- Presidents Day - (American flag)
- Valentine's Day - (hearts)
- Mardi Gras - (fleur de lis, hats, masks, balloons in purple, green and yellow)
- Daylight Saving Time Starts – (clock)
- St. Patrick's Day - (four leaf clover, Irish flag in orange, white, and green)
- First day of Spring – (leaves in green and flowers)
- Earth Hour – Saturday, (turn off lights for one hour. Prior to and before, use a globe)
- Easter - (bunnies, eggs, and chicks in pastel colors)
- Earth Day – (globe)
- Cinco de Mayo – (sombreros, Mexican flag in green, White, and red)
- Mother's Day – (flowers, hearts)
- Armed Forces Day – (American flag)
- Memorial Day – (American flag)
- Flag Day – (American flag)
- Father's Day – (bowtie, hearts, moustache)
- First Day of Summer – (sunshine, beach balls, flip flops)
- Independence Day – (American flag)
- Labor Day – (American flag)
- September 11 – (American flag)
- First Day of Fall – (leaves in red, brown, and orange)
- Columbus Day – (ship, ocean waves)
- Veterans Day – (American flag)
- Daylight Saving Time Ends – (clock)
- Halloween – (ghost, pumpkin, bats)
- Thanksgiving – (turkey, pumpkin, fall leaves)
- Pearl Harbor Day – (American flag)
- First Day of Winter – (snowflakes)
- Hanukah – (menorah, dreidel)
- Christmas – (Christmas tree, presents, Santa)
- Kwanza – (candles in red, black, and green)
- New Year's Eve – (fireworks)

Colors Themes:

- Red – World AIDS Day
- Orange
- Yellow
- Green
- Blue – World Autism Awareness Day (puzzle pieces)
- Indigo
- Violet / Purple
- Pink – October (Breast Cancer Awareness)
- Gray
- Black
- White

Annual Event Themes:

- Pride Event- (rainbow themes)
- Tortuga Music Festival- (sea turtles, palm trees, fish)
- Air Show (airplanes, stars)
- Great American Beach Party - (beach balls, sunshine, flip flops)
- Boat Show – (waves, boats, anchors)
- Light Up the Beach - (snow man, snow, holiday lights)
- Riptide – (octopus tentacles, mermaid, seashells)
- Winterfest Boat Parade – (boats, snowflakes, holiday lights)
- Fort Lauderdale A1A Marathon, ½ Marathon, 5K, and Kid’s Race - (running shoes, runners)
- Las Olas Triathlon – (running, swimming, biking)
- Winterfest Boat Parade – (boats, snowflakes, holiday lights)
- Exotic Car Events

Other Themes:

- Glitter, Sparkles
- Night Skyline (shooting stars, stars, moon)
- Day Skyline (sun, clouds)
- Abstract Patterns
- Sail boats
- Yachts
- City Logo
- Hurricane Evacuation
- Animals
- Transportation (cars, planes, etc)
- Exercise
- Welcome / Thanks for Visiting
- Nightlife
- Palm trees
- Bicycles
- Sun glasses
- Paddle boarding
- Parasailing
- Surfing
- Dolphin



