



**SUBMITTAL**

**June 20, 2022**

**Proposal Number:** 2022-4935A

**Project Name:** NeuPro

**Sold To:** NEMSI; Attn Matt Mullen

Tag	Quantity	Model Number	Description
DC 1 to 5	5	GFD 090.2D2x5/6SA-E355L/06P.M	Dry Coolers



- Guntner Dry Cooler
- Alum Fin / Copper Tubes
- Standard Galvanized Unit Construction
- ECM Fans
- Hinged Fan Panels
- Fan Repair switches – Allows fan or fan pairs to be isolated for maintenance will other remain operational
- BACnet MSTP
- Factory Start-up

Regards,

**Cary Mandeville**  
 Sales Engineer  
 40 L Street, Boston, MA 02127  
 P – 8602343898  
[cjmandeville@neappliedproducts.com](mailto:cjmandeville@neappliedproducts.com)  
[www.neappliedproducts.com](http://www.neappliedproducts.com)





Project Name: NeuPro 1200 GPM 100-115

Selection ID: 203153

Date: 06/20/2022

**Dry Fluid Cooler**

**GFD 090.2D2x5/6SA-E355L/06P.M**

Quantity: 4

<b>Design Working Fluid Flow/Capacity:</b>	1200.0 GPM / 8612 MBH	<b>Working Fluid:</b>	30% Propylene Glycol
<b>Rated Capacity vs. Design:</b>	102.2 %	<b>Entering Fluid Temperature:</b>	115.0 °F
<b>Air Flow per Unit:</b>	179046 CFM	<b>Leaving Fluid Temperature:</b>	100.0 °F
<b>Air Inlet Dry Bulb Temperature:</b>	95.0 °F	<b>Fluid Pres. Drop at Design Flow:</b>	9.47 psig
<b>Air Inlet Wet Bulb Temperature:</b>	80.0 °F	<b>Elevation:</b>	0 ft

**Detailed Unitary Data**

<b>Fans:</b>	10, suitable for 480V/3Ph/60Hz	<b>Sound Pressure @ 3ft:</b>	78 dB(A)
<b>Total Fan Power in/out:</b>	35.5 kW / 43.8 HP, nominal	<b>Sound Pressure @ 30ft:</b>	66 dB(A)
<b>FLA:</b>	54.0 A	<b>Sound Power Level:</b>	98.5 dB(A)
<b>MCA:</b>	55.4 A		
<b>MOCP:</b>	60.0 A		
<b>Angular Fan Velocity:</b>	1200 RPM		

<b>Casing:</b>	Galv. Powder coated	<b>Interior Coil Volume:</b>	24.5 ft³
<b>Coil:</b>	Copper	<b>Max Operating Pressure:</b>	232 psia
		<b>Number of Support Anchors:</b>	8
		<b>Fin Material:</b>	Aluminum
		<b>Fin Spacing:</b>	12.7 FPI

Dimensions		Headers and Connections (Diameters)		Reference Information
<b>Height:</b>	9.3 ft	<b>Coil</b>		S-GFDD 090.1D/2x5-U(2)1C/6P.M
<b>Width:</b>	8.5 ft	<b>Inlet Connections:</b>	2 x 3.625 in	
<b>Length, nominal:</b>	24.0 ft	<b>Outlet Connections:</b>	2 x 3.625 in	
Weights		<b>Headers:</b>		
<b>Shipping:</b>	9694 lbs	<b>Inlet:</b>	3.625 in	
<b>Operating:</b>	11889 lbs	<b>Outlet:</b>	3.625 in	

**Options**

- Hinged fan panels
- Fin and Pad guard
- Repair switches
- BACnet MSTP

Important Remarks / Explanatory Notes

**Service**

Unit start-up

Terms of Delivery:

Payment Cond:

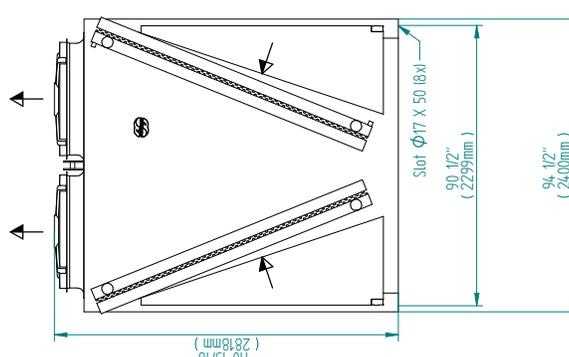
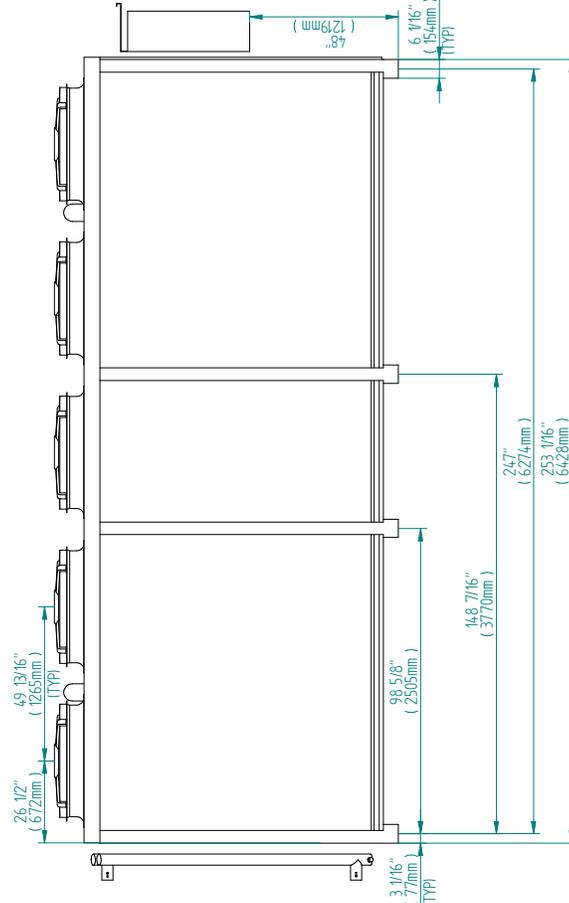
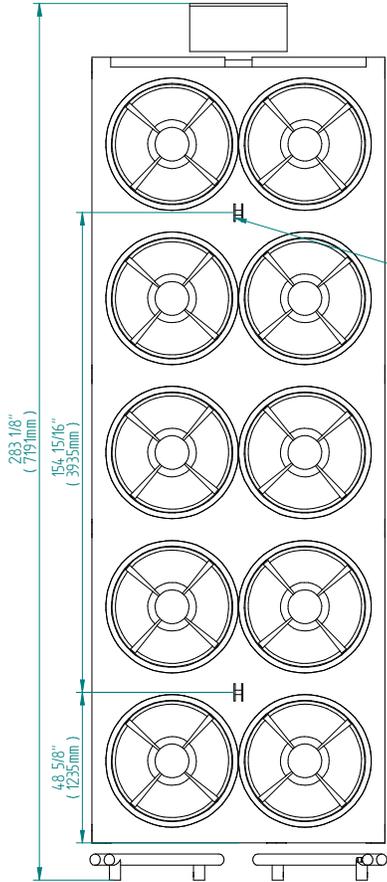
Delivery Time:

Validity: 08/19/2022

Our general terms of sales and delivery apply.

**Güntner is not liable for unit and system damage due to lack of freeze protection for coils installed in freezing climates**





Selection Data/datablett		Selection Data/datablett	
Capacity (MBH)	8612	Coil	2x G/6/48/2.00/6325/ACS/015036
Entering Fluid Temp. (F)	115	Surface Area (ft <sup>2</sup> )	43386
Leaving Fluid Temp. (F)	100	Coil Volume (ft <sup>3</sup> )	24.5
Fluid Pressure Drop (psi)	9.5	Dry Weight (lb)	10176
Medium	30% Propylene Glycol	Operational Weight (lb)	11889
Air Inlet Temp DB (F)	95	Inlet Diameter	3.5/8in
Air Inlet Temp WB (F)	80	Outlet Diameter	3.5/8in
Air Flow (cfm)	179046	Fin Spacing (FPI)	12.7
Altitude (ft)	0	Casing Material	Galv. Steel
Fans (Qty)	10	Finish	Powder coated, light gray
Voltage(V)/Phases(Ph)/Frequency(Hz)	480/3/60	Tube Material	Copper
Fan Power (KW)	35.5	Fin Material	Aluminium
Angular Fan Velocity (RPM)	1200	Number of Distributions (Qty)	48
FLA (A)	54		
MCA (A)	55.4		
MOCP (A)	60		
Fan Diameter (Type)	35.7/16"(EBM)		
Fan Velocity (RPM)	1200		

Reference #:		Project: NewPro	
202153		100116	
Surreiner U.S. Ref.#:		Scale	
Dimensions in inches (mm)		1:25	
sheet [1] of 1		sheet [1] of 1	
DIN A3		DIN A3	
weight (kg)		weight (kg)	
pieces		pieces	
type		type	
name		name	
Basen-No.		Basen-No.	
drawing number		drawing number	
620202214464		620202214464	
customer		customer	
Condenser/Coiler		Condenser/Coiler	
order position		order position	
order quantity		order quantity	
1		1	
date		date	
2020/2022		2020/2022	
revision		revision	
name		name	
carbon		carbon	
drawn by		drawn by	
checked		checked	
date		date	
2020/2022		2020/2022	
customer		customer	
order position		order position	
order quantity		order quantity	
1		1	

		Chem. No. 16 3007 Aluminol 16, 028 3007 Aluminol 16, 028 3007 Aluminol 16, 028 3007 Aluminol 16, 028 3007 Aluminol 16, 028 www.galvalume.com	
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DIN EN ISO 15920: tolerance class D  
 measuring without specification of tolerances  
 general tolerances  
 DIN ISO 2768-1: tolerance class component parts m / assembly  
 DIN ISO 2768-2: tolerance class component parts k / assembly  
 length <math>L</math> length <math>K</math> diameter <math>D</math> hole <math>d</math> hole <math>R</math> radius <math>r</math> chamfer <math>C</math> chamfer <math>S</math> straightness <math>F</math> flatness <math>0.002X</math> length  
 Project: NewPro  
 100116



## THEMAL PERFORMANCE GUARANTEE

Güntner dry fluid coolers and condensers, including V-style, horizontal and vertical meet the very stringent requirements of Independent Third Party Certification Agencies when operating in dry mode.

In addition, units operating in adiabatic mode have been tested in a state of the art, climate controlled laboratory, instrumented according to the best practices of CTI and ASHRAE.

The thermal performance of these units has been measured and proved to be accurately predicted by the Güntner selection software, which accounts for the effect of the pads using a model for their adiabatic efficiency.

**The thermal performance of the unit is guaranteed for both dry and adiabatic operation modes, provided the guidelines for unit operation and maintenance, are in strict compliance with the Güntner Installation and Operation Manual.**

A handwritten signature in blue ink, appearing to read "Ian Runsey", is written over a horizontal line.

Ian Runsey  
Vice President - Engineering

# Güntner Dry Cooler Specification

## 1.0 General

### 1.1 Summary

Furnish and install Güntner Model GFD 090.2D2x5/6SA-E355L/06P.M Air-Cooled Dry Coolers arranged for vertical flow (induced draft), conforming in all aspects to the specifications, schedules and as shown on the plans. Overall dimensions shall not exceed approximately 24.4 (7433) ft (mm) long X 8.5 (2580) ft (mm) wide X 9.3 (2821) ft (mm) high.

### 1.2 Quality

Quality Assurance: The cooler manufacturer shall have a Management System certified by an accredited registrar as complying with the requirements of ISO 9001:2015 to ensure consistent quality of products and services. Manufacturers that are not ISO 9001:2015 Certified shall not be acceptable.

### 1.3 Thermal Performance

Thermal performance shall be guaranteed by manufacturer. When operating in dry mode equipment shall be certified and meet stringent requirements of Independent Third Party Certification Agencies such as CTI or Eurovent. When operating in adiabatic mode equipment shall have been thoroughly analyzed for proper performance and have had similar units tested in climate controlled laboratory, instrumented according to best practices of CTI and ASHRAE.

## 2.0 Construction Details

### 2.1 Product

The dry cooler consists of a heat exchanger, consisting of pipe coils fitted with fins (copper pipe, aluminum fins), distribution and header pipes (copper) and pipe connections to the pipeline system, a casing consisting of galvanized sheet steel painted, and – depending on the version – with one or more low noise axial fans with maintenance-free motors with Güntner Motor Management (GMM) for fan speed control.

### 2.2 Coil

The dry cooler coil shall have a floating coil design that prevents any contact of the refrigerant-carrying tubes with the supporting frame allowing for thermal expansion and contraction of the tubes without risk of tube damage at the tube sheet. The coil shall use expanded support tubes to minimize flexing during installation. Coil shall be constructed of 0.47 inch diameter copper tubes. Fins shall be constructed of aluminum, full drawn collar with tubes expanded into collar. Coil tubes shall be connected to copper headers. Coils shall be pressure tested to 261 psig (18 bar) with dry air underwater and shipped with a 25 psig (1.7 bar) dry air holding charge. Coil shall be ETL listed.

### 2.3 Casing

The dry cooler casing shall be robust, self-supporting construction of powder coated galvanized steel, varnished with RAL 7035 (light grey). Within the casing, each fan chamber shall be separated by an internal baffle to prevent wind milling during off-cycle.

### 2.4 Fans

Fan sets shall consist of a system utilizing external rotor motor with die cast aluminum sickle bladed impeller and fan guard. Impeller and rotor shall form one complete unit to ensure proper balancing. Fan sets shall be supplied with full bell mouth fan plate, optimized for highest efficiency. Wire fan guards shall be of welded construction, coated in a weather proof durable synthetic finish for maximum corrosion protection and in compliance with safety standard EN294. Fans shall be subject to balance quality Q6.3 according to VDI 2060.

### 2.5 Fan Motors

Fan motors shall be furnished for operation on a 480 volt, 3 phase, 60 hertz power supply. Motors shall be sealed with a labyrinth seal impeding the ingress of splash water and include drain holes for condensation water drainage. Thermal contacts shall be integrated into the motor windings. Motors shall have protection class IP 54 and windings with thermal class F according to DIN EN 60 034-1.

## 3.0 Controls

### 3.1.1 Guntner Motor Management

Cooler shall be supplied with Guntner Motor Management (GMM) to create an intelligent fan motor system that optimizes operation of the cooler and simplifies maintenance. The controller adjusts fan motor speed based on temperature and regulating processes to provide reliability and information for the system. Systems that only allow steps of motors control or only motor cycling shall not be acceptable. GMM reduces sound emission due to no control-induced noise, especially in part-load operation.

GMM has various mode of operation for flexibility to meet demands of the system. Modes of operation include: Auto Internal for automatic control of fan speed based on factory supplied sensor; Auto External Analog for automatic control of fan speed based on externally supplied setpoint provided via analog input; Auto External BUS for automatic control of fan speed based on externally supplied setpoint provided via Modbus RTU communication/Modbus TCP/IP/ BACnet IP / BACnet MTSP / Ethernet IP; Slave External Analog for external control of fan speed sent via analog input; and Slave External BUS for external control of fan speed sent via Modbus RTU communication/Modbus TCP/IP/ BACnet IP / BACnet MTSP and Ethernet IP

- 3.1.1.1 GMM Controller shall have ability to measure energy.
- 3.1.1.2 Motors shall include Bypass mode. In the event of sensor fault, or loss of communication with control signal or fault in GMM, fan motors shall initiate emergency mode and run at a configurable fan speed. Factory default bypass mode fan speed shall be 100%.
- 3.1.1.3 GMM shall include freeze protection mode and will oscillate fans in increasing amounts of torque in the event an obstruction such as snow or ice is detected. GMM shall take fan out of operation and indicate alarm in the event oscillation does not free fan from obstruction.
- 3.1.1.4 Low Capacity Motor Management (LCMM) shall be available in order to provide more precise control during extreme low ambient or low load conditions. The GMM shall utilize LCMM to cycle fans while maintaining capacity and minimizing fan energy consumption.
- 3.1.1.5 GMM shall utilize cleaning function to help remove dirt and debris from coil by running the fans in reverse at configurable intervals.
- 3.1.1.6 Maintenance Run function shall be available to activate fan motors after configurable time of unit non-operation. Occasional use of fan motors is recommended during prolonged periods of non-operation.
- 3.1.1.7 GMM shall include digital outputs for alarms (Fault/Warning), operational signal and threshold met. Additionally, GMM shall include analog output (0-10V signal) to indicate fan speed.
- 3.1.1.8 GMM shall include digital inputs for enabling of unit, night limit activation signal (which limits the fan speed and hence noise during configurable times) and secondary set point.
- 3.1.1.9 Optional modes of communication with GMM available include Wi-Fi, Modbus RTU, Modbus TCP/IP, BACnet IP or BACnet MSTP.
- 3.1.1.10 With optional Modbus or BACnet communication the following points shall be available for communication to BMS: power consumption, alarms, individual motor run times, fan speed, motor circuit temperature, setpoint, operating mode, night set back status, night set back limit, and manual inverse operation.
- 3.1.1.11 The controller should have individual communication lines to each fan if communicating via Modbus to prevent bus failure during fan change-out. There is no need to specifically address the replacement fan with this method as the controller will address each fan individually upon connection to Modbus terminals. This prevents improper addressing for the service technician, as well as prevents the need for specialized

electronic tools to address and replace a fan. Improper addressing can take down the entire group of fans leaving the heat exchanger without cooling capability.

### 3.2 Optional Accessories

- 3.2.1 Hinged Fan Panels provided to allow access to fan or fan pairs as well as internal for coil cleaning.
- 3.2.2 BACnet Testing Laboratories (BTL) certified BACnet device shall be provided allowing communication from GMM and GHM controllers to Building Management System (BMS)..
- 3.2.3 Repair switches shall be provided to allow disconnect of fan motor (or pair of fan motors) without disconnecting main power from control panel.
- 3.2.4 Fin and Pad Guard to be provided



Catalog #: \_\_\_\_\_ Project: \_\_\_\_\_

Prepared By: \_\_\_\_\_ Date: \_\_\_\_\_ Type: \_\_\_\_\_

# Slice Medium (SLM)

## Outdoor LED Area Light



IP66



IK08



OVERVIEW	
Lumen Package	9,000 - 48,000
Wattage Range	63 - 401
Efficacy Range (LPW)	112 - 156
Weight lbs(kg)	30 (13.6)

### QUICK LINKS

[Ordering Guide](#)

[Performance](#)

[Photometrics](#)

[Dimensions](#)

### FEATURES & SPECIFICATIONS

#### Construction

- Rugged die-cast aluminum housing contains factory prewired driver and optical unit. Cast aluminum wiring access door located underneath.
- Fixtures are finished with LSI's DuraGrip® polyester powder coat finishing process. The DuraGrip finish withstands extreme weather changes without cracking or peeling. Other standard LSI finishes available. Consult factory.
- Shipping weight: 37 lbs in carton.

#### Optical System

- State-of-the-Art one piece silicone optic sheet delivers industry leading optical control with an integrated gasket to provide IP66 rated seal.
- Proprietary silicone refractor optics provide exceptional coverage and uniformity in distribution types 2, 3, 5W, FT, FTA and AM.
- Silicone optical material does not yellow or crack with age and provides a typical light transmittance of 93%.
- Zero uplight.
- Available in 5000K, 4000K, and 3000K color temperatures per ANSI C78.377. Also available in phosphor converted amber with peak intensity at 610nm.
- Minimum CRI of 70
- Integral louver (IL) and house-side shield (IH) options available for improved backlight control without sacrificing street side performance. See page 3 for more details.

#### Electrical

- High-performance driver features overvoltage, under-voltage, short-circuit and over temperature protection.
- 0-10V dimming (10% - 100%) standard.
- Standard Universal Voltage (120-277 VAC) Input 50/60 Hz or optional High Voltage (347-480 VAC).
- L80 Calculated Life: >100k Hours (See Lumen Maintenance on Page 5)
- Total harmonic distortion: <20%
- Operating temperature: -40°C to +50°C (-40°F to +122°F). 42L and 48L lumen packages rated to +40°C.
- Power factor: >.90
- Input power stays constant over life.
- Field replaceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).
- High-efficacy LEDs mounted to metal-core circuit board to maximize heat dissipation
- Driver is fully encased in potting material for moisture resistance and complies with FCC standards. Driver and key electronic components can easily be accessed.

#### Controls

- Optional integral passive infrared Bluetooth™ motion and photocell sensor. Fixtures operate independently and can be commissioned via iOS or Android configuration app.
- LSI's AirLink™ wireless control system options reduce energy and maintenance costs while optimizing light quality 24/7.

#### Installation

- A single fastener secures the hinged door, underneath the housing and provides quick & easy access to the electrical compartment.
- Included terminal block accepts up to 12 ga. wire.
- Utilizes LSI's traditional B3 drill pattern. (See drawing on page 9)

#### Warranty

- LSI luminaires carry a 5-year limited warranty. Refer to <https://www.lsiindustries.com/resources/terms-and-warranty.aspx> for more information.

#### Listings

- Listed to UL 1598 and UL 8750.
- Meets Buy American Act requirements.
- IDA compliant; with 3000K color temperature selection.
- Title 24 Compliant; see local ordinance for qualification information.
- Suitable for wet locations.
- IP66 rated Luminaire per IEC 60598-1.
- 3G rated for ANSI C136.31 high vibration applications applications are qualified.
- IK08 rated luminaire per IEC 66262 mechanical impact code.
- DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at [www.designlights.org/QPL](http://www.designlights.org/QPL) to confirm which versions are qualified.
- Patented Silicone Optics (US Patent NO. 10,816,165 B2)





Catalog # : \_\_\_\_\_ Project : \_\_\_\_\_

Prepared By : \_\_\_\_\_ Date : \_\_\_\_\_

# Medium Commercial Wall (SMW)

## LED Wall Light



OVERVIEW	
Lumen Output Range	6,000 - 10,000
Wattage Range	47 - 78
Efficacy Range (LPW)	122 - 131
Weight lbs(kg)	8 (3.6)

### QUICK LINKS

[Ordering Guide](#)

[Performance](#)

[Photometrics](#)

[Dimensions](#)

### FEATURES & SPECIFICATIONS

#### Construction

- Rugged die-cast aluminum housing for maximum durability and reliability.
- IP65 rated luminaire protects integral components from harsh environments.

#### Optical System

- Premium engineered IP65 rated polycarbonate optic assemblies deliver IES Type 3 or 4 (FT) distributions.
- Zero Uplight.
- Available in 5000K & 4000K color temperatures per ANSI C78.377.
- Minimum CRI of 70.

#### Electrical

- 0-10V dimming (10% - 100%) standard.
- Standard Universal Voltage (120-277 Vac) Input 50/60 Hz or optional High Voltage (347-480 Vac)

- L70 Calculated Life: >50K Hours

- Total harmonic distortion: <20%
- Operating temperature: -40°C to +40°C (-40°F to +104°F).
- Power factor: >.90

- Input power stays constant over life.
- High-efficacy LED circuit board mounted to cast housing to maximize heat dissipation.

#### Installation

- Universal wall mounting plate easily mounts directly to 4" octagonal or square junction box.
- 2 fasteners secure the hinged door underneath the housing and provide quick and easy access to the electrical compartment for installing/servicing.

#### Warranty

- LSI luminaires carry a 5-year limited warranty. Complete warranty terms are located on our website.

#### Listings

- Listed to UL 1598 and UL 8750.
- Suitable for wet Locations.
- IP65 rated Luminaire.
- DesignLights Consortium® (DLC®Premium) qualified product.





Catalog # : \_\_\_\_\_ Project : \_\_\_\_\_

Prepared By : \_\_\_\_\_ Date : \_\_\_\_\_

# Slim Wall Pack (WPSLL)

## Large LED Slim Wall Pack



OVERVIEW	
Lumen Range	4,000 - 8,000
Wattage Range	40 - 80
Efficacy Range (LPW)	106 - 130
Weight lbs(kg)	7.9 (3.6)

### QUICK LINKS

[Ordering Guide](#)[Performance](#)[Dimensions](#)[Photometrics](#)

### FEATURES & SPECIFICATIONS

#### Construction

- Rigid Precision Die cast-aluminum housing for durability and consistency.
- Vertical fins serve as a heat sink and resist accumulation of dust and debris.
- The Patent Pending thermal stacking heat removal technology extracts heat from within the housing moving it away from LEDs and integral components.
- Luminaire hinges open from the bottom to prevent leakage.
- Luminaire is proudly manufactured and tested in the U.S.
- Fixtures are finished with LSI's DuraGrip® polyester powder coat finishing process. The DuraGrip finish withstands extreme weather changes without cracking or peeling. Other standard LSI finishes available. Consult factory
- Add sux CWBB for Emergency Battery Back Up. Provides emergency illumination (1,580 lumens) for a minimum of 90 minutes. Requires deep back housing.
- Shipping weight: 7.9 lbs in carton.

#### Optical System

- High-performance Chip On Board (COB) LEDs behind clear tempered glass for maximum light output.
- 3000K | 4000K | 5000K color temperatures.

- Minimum CRI of 71.

- Zero uplift.

#### Electrical

- High-performance driver features over-voltage, under voltage, short-circuit and over temperature protection.
- 0-10 volt dimming (10% - 100%) standard.
- Standard Universal Voltage (120-277 Vac) Input 50/60 Hz or optional High Voltage (347-480 Vac).
- L70 Calculated Life: >100k Hours
- Total harmonic distortion: <20%
- Power factor: >.85
- Input power stays constant over life.
- Driver Off-State Power is 0 watts.
- Minimum Operating Temperature of -20°C
- Chip On Board (COB) LEDs with integrated circuit board mounted directly to the housing to maximize heat dissipation and promote long life.
- Components are fully encased in potting material for moisture resistance. Driver complies with FCC standards. Driver and key electronic components can easily be accessed.
- Minimum 2.5kV surge rating

#### Controls

- Optional 120V electronic button Photocontrol.
- Apertures for field or factory installed photocontrol.

#### Installation

- Surface mounts direct to J-box or wall.
- Features a bubble level and removable hinged face frame for ease of installation.

#### Warranty

- LSI LED Fixtures carry a 5-year warranty.
- 1 Year warranty on optional Button Photocell.

#### Listings

- Listed to UL 1598 and UL 8750.
- CSA Listed
- RoHS Compliant.
- DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at [www.designlights.org/QPL](http://www.designlights.org/QPL) to confirm which versions are qualified.
- American Recovery and Reinvestment Act Funding Compliant.
- Suitable For Wet Locations.

Specifications and dimensions subject to change without notice.

