

11/18

EI
ASSOCIATES
ARCHITECTURE
ENGINEERING
CONSTRUCTION

8 RIDGEDALE AVENUE
CEDAR KNOLLS, NJ 07927
www.eiassociates.com
TELEPHONE (973) 775-7777
FACSIMILE (973) 775-7770
E-MAIL: info@eiassociates.com

29 November 2017
ES8105.01

Via Email gbrennan@twpunionschools.com and US Mail

Gregory E. Brennan
School Business Administrator/Board Secretary
Township of Union Board of Education
2369 Morris Avenue
Union, NJ 07083

**Subject: Ceiling, Lighting and Fire Alarm Replacement at Union High School
Change Order #011**

Dear Mr. Brennan,

Enclosed are three- (3) copies of Change Order # 011 in the amount of \$37,339.54 as per the District request to furnish and install low voltage Dimming System for the Auditorium, as per GPC Inc. Proposed Change Order #13 dated 14 November 2017(copy attached)

They have been signed by the contractor and me. When approved, please distribute accordingly.

If you have any questions, please feel free to contact me.

Very truly yours,

EI ASSOCIATES
Architects &
Engineers, PA



Ralph Nashed,
Sr. Project Manager

Enclosures: 3 Copies Change Order #011

CC: Barry Loessel, Directors of Building and Grounds
GPC Inc.
EIA Distribution

AIA® Document G701™ – 2001

Change Order

PROJECT (Name and address):

Union Public Schools
 Union High School Ceiling,
 Lighting & Fire Alarm
 Replacement
 2350 N 3rd Street
 Union, NJ 07083

CHANGE ORDER NUMBER: 011

DATE: November 28, 2017

OWNER:

ARCHITECT:

CONTRACTOR:

FIELD:

OTHER:

TO CONTRACTOR (Name and address):

GPC, Inc.
 20 E Willow Street
 Millburn, NJ 07041

ARCHITECT'S PROJECT NUMBER: ES8105.01

CONTRACT DATE: 15 June 2017

CONTRACT FOR: General Construction

THE CONTRACT IS CHANGED AS FOLLOWS:

(Include, where applicable, any undisputed amount attributable to previously executed Construction Change Directives)
 As per the District's request to furnish and install low voltage dimming system for the auditorium utilizing the specific Type "J" Fixtures in accordance with the proposals from P.J. Smith and PRG Scenic Technologies attached. See attached GPC Inc. Proposed Change Order COR #13 in the amount of \$37,339.54, dated November 14, 2017.

The original Contract Sum was	\$	<u>3,617,500.00</u>
The net change by previously authorized Change Orders	\$	<u>266,479.00</u>
The Contract Sum prior to this Change Order was	\$	<u>3,883,979.00</u>
The Contract Sum will be increased by this Change Order in the amount of	\$	<u>37,339.54</u>
The new Contract Sum including this Change Order will be	\$	<u>3,921,318.54</u>

The Contract Time will be increased by Zero (0) days.

The date of Substantial Completion as of the date of this Change Order therefore is 30 August 2017.

NOTE: This Change Order does not include changes in the Contract Sum, Contract Time or Guaranteed Maximum Price which have been authorized by Construction Change Directive until the cost and time have been agreed upon by both the Owner and Contractor, in which case a Change Order is executed to supersede the Construction Change Directive.

NOT VALID UNTIL SIGNED BY THE ARCHITECT, CONTRACTOR AND OWNER.

 EI Associates
 ARCHITECT (Firm name)

8 Rdgedale Avenue
 Cedar Knolls, NJ 07927
 ADDRESS

 BY (Signature)

Ralph Nashed
 (Typed name)

11-29-2017
 DATE

 GPC, Inc.
 CONTRACTOR (Firm name)

20 E Willow Street
 Millburn, NJ 07041
 ADDRESS

 BY (Signature)

Michael Glander
 (Typed name)

11/28/17
 DATE

 Township of Union Public Schools
 OWNER (Firm name)

2369 Morris Avenue
 Union, NJ 07083
 ADDRESS

 BY (Signature)

Gregory Brennan
 (Typed name)

1/22/18
 DATE



WBE/SBE

GPC, Inc.

20 East Willow Street ~ Millburn, NJ 07041
Phone: 973-376-6116 ~ Fax: 973-376-0599
Email: info@grafas.net

November 14, 2017

El Associates Architecture
8 Ridgedale Avenue
Cedar Knolls, NJ 07927

Attention: Ralph Nashed

Re: **COR #13 - Ceiling, Lighting, Fire Alarm
Replacement at Union HS
Proj No. 2350
North Third Street, Union, NJ 07083**

Gentlemen:

Furnish and install low voltage dimming system for the auditorium utilizing the specified Type "J" Fixtures in accordance with the proposals from P.J. Smith and PRG Scenic Technologies, attached.

Acceptance of this proposal constitutes acceptance of the system outlined by PRG who designed and installed the original auditorium system. This proposal is not lump sum all inclusive and any variation in scope as a result of unanticipated circumstances will be submitted accordingly.

P.J. Smith (attached):	\$ 34,957.00
GPC (OH&P @ 5%):	\$ 1,747.85
SUB-TOTAL:	\$ 36,704.85

NOTE: Bond Premium 2% for all work above the remaining allowance balances.

ADD:	\$ 634.69
TOTAL:	\$ 37,339.54

EXCLUSIONS:

- Additional permit fees and cost for application.
- Overtime & premium time.
- Cutting & patching as a result of this work, if required.

Very truly yours,

GPC, Inc.

By: 

Michael Glander

RMG/ah
Enclosures
Email: Ralph_Nashed@elassociates.com

cc: Greg Brennan
Email: Gbrennan@twpunionschools.org



P. J. Smith Electrical Contractors, Inc.
 3651 State Route 23
 Hamburg NJ 07419
 873-827-7347

Change Order Request

Order # 3

Order Date: 11/13/2017

License: 6061

Attention:

To: GPC, Inc.
 20 East Willow Street
 Millburn, NJ 07041

Project: 397
 Union High School
 2350 North 3rd Street
 Union NJ 07083

Description of Work: Low Voltage Dimmer Wiring

The contractor agrees to perform and the owner agrees to pay for the following changes to this contract.

Internal # 1950

Ordered By: _____

Customer Order: _____

Plans Attached

Specifications Attached

Description of Work

Amount

Material	
Labor	9,566.00
Equipment	19,772.00
OH&P	936.00
	4,683.00

Notes

PER ATTACHED NARRATIVE

Negative changes will lower the overall contract price requiring no additional payment by owner.

Requested Amount of Change

34,957.00

Owner: _____

Date: _____

Contractor: _____

Date: _____

UNION HIGH SCHOOL
ETC DIMMING & CONTROL SYSTEM

Drawings E-20.8 & E-21.8

1. Survey Existing System.
2. Reconfigure Circuits at Dimming Rack.
- 3 Replace Relay Module at Dimming Rack.
- 4 Furnish and Install Gateway/Power Supply Enclosure.
- 5 Furnish and Install 120V Circuit to Enclosure.
6. 120V Termination at Power Panel.
- 7 Ethernet Connection between Rack and Gateway.
8. Low Voltage wiring To Downlight Fixtures.
- 9 Low Voltage wiring terminations at Fixtures.
10. Test and Check Out.

Bid Summary Report

UNION HS LIGHTING & FIRE ALARM Estimator: ME1

Job #266

Job Name: UNION HS LIGHTING & FIRE ALARM

Contractor: PJ SMITH ELECTRICAL CONTRACTORS

Estimator: ME1

Notes:

Bid Date: 5/6/17

Summary Description	Material			Labor		
	Extended	%	Adjusted	Extended	%	Adjusted
LV DIMMING	\$874.87	100.00%	\$874.87	192.38	100.00%	192.38

Top Sheet

Raw Cost	\$30,213.09	Sales per Month	\$0.00
Tax	\$61.25	Return per Month	\$0.00
Raw Cost with Tax	\$30,274.34	Price per Square Foot	\$0.00
Overhead	\$3,021.31	Hours per Square Foot	0.00
Profit	\$1,661.72	Square Feet	0.00
Total Return Amount	\$4,683.03	Job Months	0.00
Total Return %	13.40%	Hours per Week	40.00
Price	\$34,957.36	Workers per Day	0.00
Bond	\$0.00	Total Hours	192.38
Sell Price	\$34,957.36	Mark Up Sales Tax	No
Adjusted Sell ()	\$0.00	Use Bond Table	No
Adjusted Sell Return 0.00 %	\$0.00		

Labor

Class Description	Percent of Total	Hours Distributed	Hourly		Burden		Labor Cost
			Rate	Rate	Percent		
Foreman	50.00%	96.19	\$108.59	\$0.00	0.00%		\$10,445.46
J/Mn Wir	50.00%	96.19	\$98.98	\$0.00	0.00%		\$9,326.75
Totals	100.00%	192.38	\$102.78	\$0.00	0.00%		\$19,772.21

Mark Ups

	OVERHEAD		PROFIT	
	Total	%	Amount	%
Materials	\$874.87	+ 10.00%	\$962.36	+ 5.00%
Labor	\$19,772.21	+ 10.00%	\$21,749.44	+ 5.00%
Supplier Quotes	\$8,691.00	+ 10.00%	\$9,580.10	+ 5.00%
SubContractors	\$0.00	+ 10.00%	\$0.00	+ 5.00%
Direct Job Expense	\$0.00	+ 10.00%	\$0.00	+ 5.00%
			\$10,038.11	
			\$0.00	

Bid Summary Report

UNION HS LIGHTING & FIRE ALARM Estimator: ME1

Job #266

Equipment Rental	\$875.00	+	10.00%	\$962.50	+	5.00%		
Totals	\$30,213.09		10.00%	\$33,234.39		5.00%		\$1,010.63
								\$34,896.11

Tax Report

	Taxed Amount	Tax Rate %	Tax Amount
Materials	\$874.87	0.00%	\$0.00
Labor	\$19,772.21	0.00%	\$0.00
Supplier Quotes	\$8,691.00	0.00%	\$0.00
SubContractors	\$0.00	0.00%	\$0.00
Direct Job Expense	\$0.00	0.00%	\$0.00
Equipment Rental	\$875.00	7.00%	\$61.25
		Total Tax:	\$61.25

Supplier Quotes

Name	Supplier	Tax (0.0 %)	Unit Cost	Multiplier	Amount
DIMMING EQUIPMENT	PRG	No	\$8,691.00	1.00	\$8,691.00
				Total:	\$8,691.00

Equipment Rental

Name	Supplier	Tax (7.0 %)	Unit Cost	Multiplier	Amount
SCAFFOLD	PJ SMITH	Yes	\$875.00	1.00	\$875.00
				Total:	\$875.00

Job Name: UNION HS LIGHTING & FIRE ALARM
 Job Number: 266
 Extension Name: LV DIMMING

[Items and By-Products]

Material Filter: <None>
 Report Book Price, Vendor Price & Bid Labor

Item #	Item Name	Quantity	Book Price	Ext Book Price	Graybar	Bid Lbr	Bid Lbr Ext	Extended Price
37	12 THHN CU SOLID	120.00	\$80.42 M	\$905.02				
1006	3/4 EMT	30.00	\$35.00 C	\$10.50	\$83.42 M	5.50 M	192.38	\$874.87
1009	1 EMT	80.00	\$76.26 C	\$61.01	\$43.54 C	6.00 C	0.66	\$10.01
1097	3/4 EMT CONN S/S	2.00	\$26.32 C	\$0.53	\$0.00	6.50 C	1.80	\$13.05
1098	1 EMT CONN S/S	4.00	\$52.92 C	\$2.12	\$89.34 C	0.10 E	0.20	\$1.79
1159	3/4 EMT COUP S/S	3.00	\$27.08 C	\$0.81	\$0.00	0.12 E	0.48	\$2.12
1170	1 EMT COUP S/S	8.00	\$42.20 C	\$3.38	\$0.00	0.10 E	0.30	\$0.81
2820	3/4 BUSH PLASTIC	2.60	\$10.00 C	\$0.26	\$37.90 C	0.15 E	1.20	\$3.38
2821	1 BUSH PLASTIC	5.60	\$106.60 C	\$5.97	\$0.00	0.00 X	0.00	\$0.99
3325	1/4-20 X 3/8 RH MACH SCREW	13.75	\$4.84 C	\$0.67	\$0.00	0.00 X	0.00	\$5.97
4586	1/4-20 APP BEAM CLAMP	13.75	\$210.43 C	\$28.93	\$5.59 C	0.00 X	0.00	\$0.77
4611	3/4 STL COND HGR W/BOLT	3.75	\$83.10 C	\$3.12	\$67.72 C	0.30 E	4.13	\$6.56
4612	1-IN COND HGR W/BOLT	10.00	\$97.20 C	\$9.72	\$51.93 C	0.00 X	0.00	\$1.95
15630	4/5 BOX 2-1/8" DEEP	5.10	\$314.00 C	\$16.01	\$164.41 C	0.12 E	1.20	\$9.72
15646	4/5 BLANK COVER	5.10	\$110.00 C	\$5.61	\$31.82 C	0.40 E	2.04	\$8.38
100084	20A 1P CB TERMINATION	1.00	\$0.00 E	\$0.00	\$0.00	0.40 E	0.40	\$1.62
100325	CAT-5E PATCH CORD 25FT	1.00	\$6.29 E	\$6.29	\$0.00	0.30 E	0.30	\$0.00
100460	ETHERNET CONNECTION @ CONTROL R	1.00	\$0.00 X	\$0.00	\$0.00	0.60 E	0.50	\$6.29
100461	GATEWAY/PS PANEL	1.00	\$0.00 Q	\$0.00	\$0.00	10.00 E	10.00	\$0.00
100462	RECONFIGURE CIRCUITS @ DIMMER RAC	1.00	\$0.00 X	\$0.00	\$0.00	8.00 E	8.00	\$0.00
100463	TESTING	1.00	\$0.00 X	\$0.00	\$0.00	8.00 E	8.00	\$0.00
100464	LV CONNECTION @ FIXTURE	49.00	\$0.00 X	\$0.00	\$0.00	8.00 E	8.00	\$0.00
100465	SITE SURVEY	1.00	\$0.00 X	\$0.00	\$0.00	0.30 E	14.70	\$0.00
100816	CABLE SUPPORT	5,000.00	\$3.00 C	\$150.00	\$0.00	8.00 E	8.00	\$0.00
100826	18/2 PLENUM RATED CABLE	5,000.00	\$118.09 M	\$590.45	\$0.00	0.00 X	0.00	\$150.00
				\$8905.02	\$0.00	25.00 M	192.38	\$590.45
								\$874.87



PRODUCTION RESOURCE GROUP
 6050 S. VALLEY VIEW BLVD
 LAS VEGAS, NV 89118
 PHONE: 702-942-4608
 FAX: 702-942-4893

PRICE QUOTATION

NAME: Mike Glander	QUOTATION #: JR20171103B.0.0
COMPANY: GPC, Inc.	DATE OF QUOTATION: November 03, 2017
ADDRESS: 20 East Willow Street	QUOTED BY: Jim Holladay
CITY/STATE/ZIP: Millburn, New Jersey 07041	PHONE: 702-942-4608
PHONE: (973) 378-8116	MOBILE: 562-261-1986
CELL: (973) 270-7252	EMAIL: jholladay@prg.com
EMAIL: mike@grafas.net	QUOTE VALID UNTIL: For 30 Days

TO ENSURE ACCURACY WITH YOUR ORDER, PLEASE ATTACH A COPY OF THIS QUOTE TO YOUR PURCHASE REQUEST

***PURCHASING DEPARTMENT; PLEASE DIRECT YOUR PURCHASE ORDER TO THE ATTENTION OF *** *Jim Holladay*

QTY	PN	DESCRIPTION	PRICE	AMOUNT
		Additional Control Equipment		
1	4287A1002	Response 0-10V Gateway		
1	PG495	24V Power Supply Module		
1	7180A1019	Din Rail enclosure 14"x14"		
		Dimmer Module Replacement		
9	7050A1085	Dual 20A Relay Module (2 20A Circuits per Module) <i>(Will require swapping 2 circuits inside dimmer rack)</i>		
EQUIPMENT TOTAL:				\$ 4,288.00
1		Day Paradigm Config Writing		
1		Day Drawing / CAD Operator		
1		On-Site Field Service Technician for Programming and Testing		

Freight and Handling:	\$ 219.00
SUBTOTAL:	\$ 4,511.00
Tax (7.0%):	\$ 315.77
Labor:	\$ 4,180.00
TOTAL:	\$ 9,006.77

LESS TAX (315.77)
8691.00

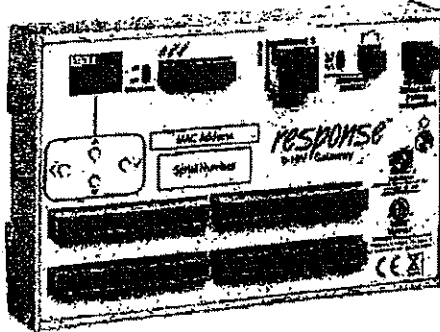
- NOTES:**
- 1 This quotation is valid for thirty (30) days.
 - 2 All other equipment and services not specifically listed within this Bill of Materials is not included in the quotation.
 - 3 Price includes estimated sales, use or similar tax imposed on the material or labor required to perform the work covered by this bid. Customer will pay or reimburse PRG for all such taxes.
 - 4 Please note that PRG specifically excludes prevailing wage reporting. Such reporting is the responsibility of the contractor, not PRG.
 - 5 Please note that quote does not include participation in workers' compensation insurance which shall be provided by others.
 - 6 This quotation excludes all installed cabling, interconnecting cables, and back boxes unless specifically listed.
 - 7 Delivery lead times will be advised at date of order.
 - 8 Pipe, rigging, multi-conductor cable and all other distribution accessories not specifically listed herein are to be provided by others.
- Manufacturer's Services:**
- A Four (4) sets of B size drawings for approval submitted within 6-8 weeks of receipt of order.
 - B Two (2) year limited warranty on parts and workmanship.
 - C The services of (1) day of a factory engineer to startup system and instruct user personnel. Such services to be supplied on 21 day notice.
 - D Production requires 1-6 weeks for delivery of equipment after receipt of written approval and release.

ETC®

Response™ 0-10V Gateway



Response Series



GENERAL INFORMATION

The Response 0-10V Gateway accepts streaming ACN (sACN) or DMX control input to provide 24 outputs of 0-10V control. It is ideal for both retrofit and new power-control system installations that require four-wire LED drivers and fluorescent ballasts. The Gateway also accepts a contact input to set each channel's output to a programed level for use in UL924 emergency lighting applications.

APPLICATIONS

- Houses of worship
- Hotels
- Convention centers
- Meeting rooms
- House lighting
- Museums
- Themed environments

FEATURES

- 24 independent 0-10V control outputs
- DMX or sACN control input
- Configurable dimming curve per output
- Configurable high-end trim
- Contact input for emergency lighting
- Onboard configuration using four-button interface.
- Onboard display for status and configuration
- Power and network status indicators
- 18-24vDC power input
- UL 924 LISTED for emergency lighting applications

ORDERING INFORMATION

0-10V Gateway

MODEL	DESCRIPTION
RSN-LV	Response 0-10V Gateway

0-10V Gateway Accessories

MODEL	DESCRIPTION
PS-DIN24	24vDC DIN-Rail Gateway Power Supply

Related Products

MODEL	DESCRIPTION
N31G-DIN	One-Port DMX/RDM Gateway - DIN-rail Mount
N34G-DIN	Four-Port DMX/RDM Gateway - DIN-rail Mount
N31G-F	One-Port DMX/RDM Output Gateway
N31G-M	One-Port DMX/RDM Input Gateway
N32G-2F	Two-Port DMX/RDM Output Gateway
N32G-2M	Two-Port DMX/RDM Input Gateway



SPECIFICATIONS

FUNCTIONAL

- Supports sACN control input (ANSI E1.31)
- Supports USITT DMX512-A control input (ANSI E1.11)
- Supports 0-10V sink control (IEC60929 Annex E) and 0-10V source control (ANSI E1.3)
- Supports per-address- or per-universe-level priority
- Configurable dimming curve per channel
 - Linear
 - Mod-Square
 - Custom (Future)

MECHANICAL

- Intuitive four-button interface
- Onboard display for identification, status and configuration
- Extruded aluminium enclosure
- Network and power activity indicators
 - Blue power indicator
 - Green and orange network activity indicator
- Female RJ45 for connection to lighting network
- Pluggable terminals provided for all wiring connections
- Selection switch for emergency input configuration
 - Normally Open, Normally Closed or Off
- Trim pot for configuration of 0-10V maximum voltage, +/- 1V
- 10 unit DIN enclosure
- Mounting complies with DIN43880 (35/7.5 rail)

ENVIRONMENTAL

- Ambient operating temperature: 0° to 40°C (32° to 104°F)
- Operating humidity: 5% - 95% non-condensing
- Storage temperature: -40° to 70°C (-40° to 158°F)

ELECTRICAL

- Compliant with IEEE 802.3i for 10BASE-T, 802.3u for 100BASE-TX
- 18-24VDC power input using two-pin pluggable connection
- Maximum 18W current draw at 18-24V
- 24 0-10V outputs, each supporting voltage source or sink connections, 50mA maximum current per output
- RoHS compliant (lead-free)
- CE compliant and ETL LISTED
- UL 924 LISTED

DMX INPUT PORT

- Optically-isolated input from the Gateway electronics
- Withstands fault voltages of up to 250VAC
- Integrated DMX/RDM termination

CONFIGURATION

- Onboard configuration using intuitive four-button interface
- Configuration provided using Net3 Concert software (Future)
- Configurable starting address
- Up to four sources may be combined to the network with each source or address allowed an independent priority

ADDITIONAL INFORMATION

DMX512

Often shortened to DMX (Digital Multiplex), this communication protocol is used mainly to control dimmers and multi-parameter fixtures. A universe of DMX is defined as 512 channels. DMX sends a nearly continuous stream of level information for each control channel. It is a form of RS-485 digital serial communication.

sACN

Streaming ACN (ANSI E1.31), sends DMX-style control over TCP/IP networks. It provides a fast and efficient mechanism to transport the well-understood DMX protocol over Ethernet using an industry-standard protocol.

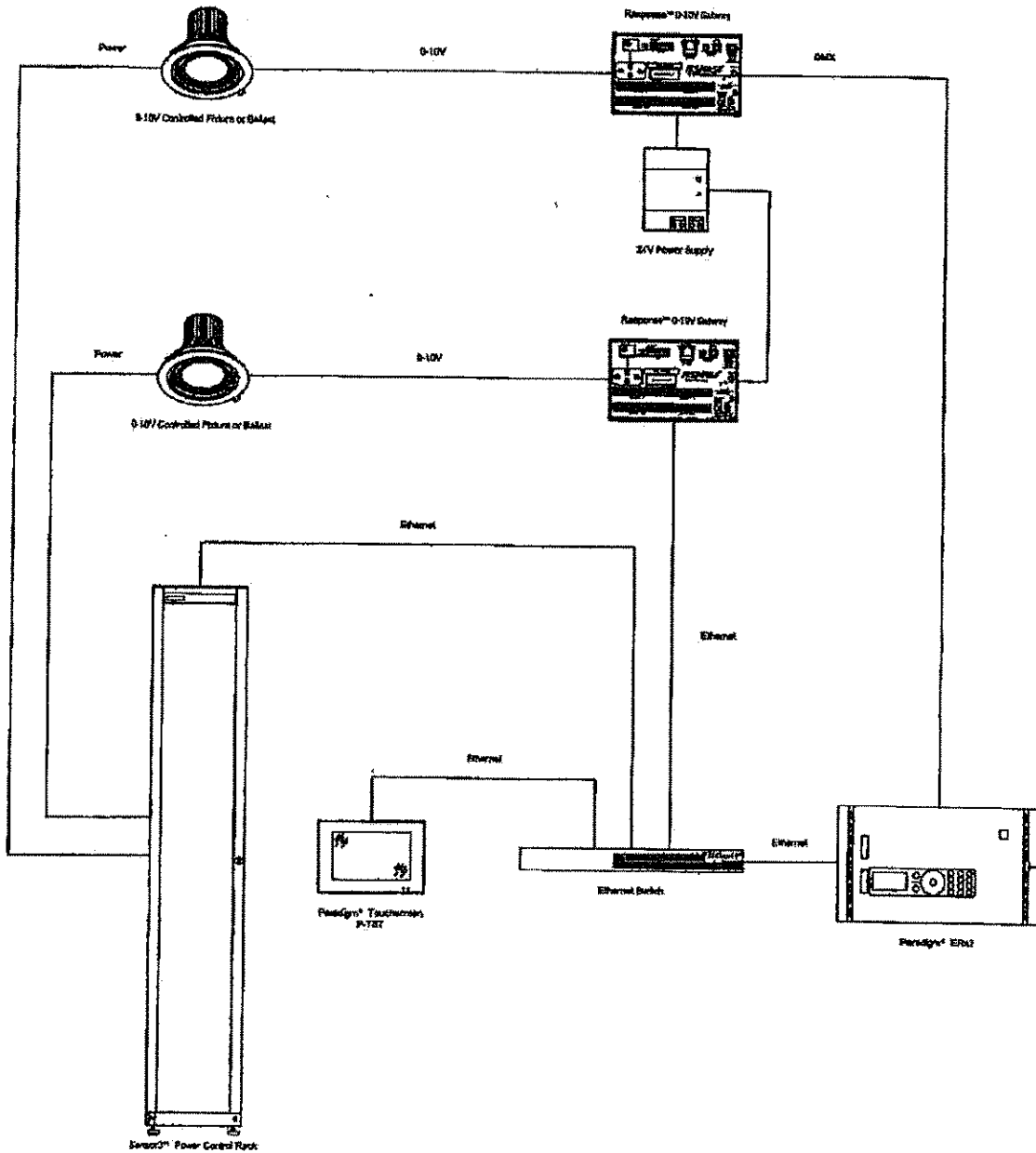
ACN

Architecture for Control Networks (ANSI E1.17) is a standard for high-speed bidirectional communication over TCP/IP on Ethernet network infrastructure. ACN is an open suite of protocols used between network devices for the purposes of greater and more adaptive control.

NET3

ETC's enhanced implementation of the standard ACN Protocol Suite (ANSI E1.17 and E1.31) including additional communication protocols for specialized applications and support of legacy systems.

RISER DIAGRAM



Response 0-10V Gateway

Response Series

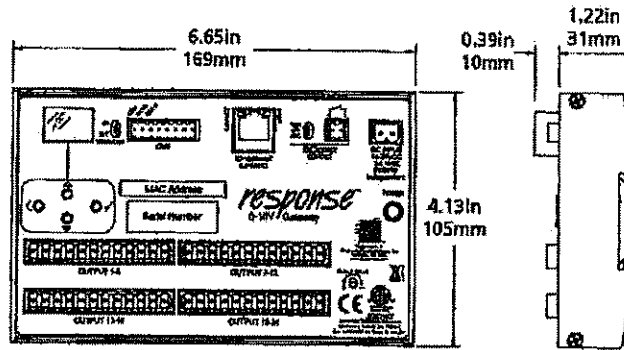
PHYSICAL

0-10V Gateway Dimensions

MODEL	HEIGHT		WIDTH		DEPTH	
	inches	mm	inches	mm	inches	mm
RSN-LV	1.22	31	6.65	169	4.13	105

0-10V Gateway Weights

MODEL	WEIGHT		SHIPPING WEIGHT	
	lbs	kgs	lbs	kgs
RSN-LV	1.0	.45	1.5	.68



Corporate Headquarters • 3031 Pleasant View Rd, PO Box 620979, Middleton WI 53562 0979 USA • Tel +1 608 821 4116 • Fax +1 608 836 1736
 London, UK • Unit 26-28, Victoria Industrial Estate, Victoria Road, London W3 6UU, UK • Tel +44 (0)20 8896 1000 • Fax +44 (0)20 8896 2000
 Rome, IT • Via Pieve Torina, 4B, 00156 Rome, Italy • Tel +39 (06) 32 111 583 • Fax +44 (0)20 8752 8486
 Hatzekirchen, DE • Ohmstrasse 3, 83697 Hatzekirchen, Germany • Tel +49 (80 24) 47 00-0 • Fax +49 (80 24) 47 00-3 00
 Hong Kong • Room 1801, 18/F, Tower 1 Phase 1, Enterprise Square, 9 Sheung Yuet Road, Kowloon Bay, Kowloon, Hong Kong • Tel +852 2799 1228 • Fax +852 2799 9925
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Mike Glander

From: Ralph Nashed <Ralph_Nashed@eassociates.com>
Sent: Monday, November 06, 2017 10:08 AM
To: Mike Glander
Cc: Loessel, Barry; Ken Smith Jr
Subject: Re: Union HS Auditorium low voltage dimming

Mike

Per our telephone conversation this morning please be advised that the engineering of the dimming system at Union High School was not on EIA Scope of design.

The school drama teacher requested to upgrade the existing system to work with the new LED light fixture at the auditorium, therefore the new dimming system must be reviewed and approved by school staff before the installation of the new system

Thanks

Ralph Nashed

Sent from my iPhone

On Nov 6, 2017, at 9:28 AM, Mike Glander <mike@grafas.net> wrote:

Ralph

PJ Smith will be putting together a proposal to include the wiring and coordination of the low voltage dimming system based on the proposal as submitted by PRG Group attached.

Please have your engineer start reviewing the proposal & equipment as our proposal will be based upon exactly what is described by PRG. All final "engineering" responsibilities will remain with EI Assoc. as GPC is not licensed nor pretend to assume any "engineering".

Thanks

Mike Glander
GPC, Inc.
20 East Willow Street
Millburn, New Jersey 07041
Phone-(973) 376-6116
Fax-(973) 376-0599
Cell-(973) 270-7252

-----Original Message-----

From: Jim Holladay [<mailto:JHolladay@prg.com>]
Sent: Friday, November 03, 2017 8:00 PM
To: Mike Glander
Cc: 'Ralph Nashed'; Loessel, Barry
Subject: RE:

Mike,

Please find our quote for adding the low voltage control system to ETC dimming and control system at Union HS. This will require the installation of a ETC Response device that will need a 120VAC circuit for power and an Ethernet connection to the existing control rack. All the 0-10VDC control wiring will terminate inside this box. The Response unit provides for a maximum of 24 control circuits @50mA per circuit. We are also including replacement of the dimmer modules with relay modules for powering the new fixtures. Based on the house circuit list below, two of the house circuits may need to swap so that all LED fixtures are on relays.

The quote also includes (1) day of on-site service technician for the final programming and testing of the system.

Please let me know if you have any questions

Jim Holladay
Sr. Project Manager

Production Resource Group, LLC
Phone +1 (702) 942-4606
Mobile +1 (562) 201-1988
Email jholladay@prg.com
Web www.prg.com

6050 S. Valley View Blvd
Las Vegas, NV 89118

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-----Original Message-----

From: Mike Glander [<mailto:mike@grafas.net>]
Sent: Friday, November 03, 2017 10:57 AM
To: Jim Holladay <JHolladay@prg.com>
Cc: 'Ralph Nashed' <Ralph_Nashed@eiassociates.com>; Loessel, Barry <bloessel@twpunionschools.org>
Subject: FW:

Jim I received this from the HS.

See below

The wall sconces & the fixtures under the overhang do not apply.

There is a total of 49 fixtures

Mike Glander

GPC, Inc.
20 East Willow Street
Millburn, New Jersey 07041
Phone-(973) 376-6116
Fax-(973) 376-0599
Cell-(973) 270-7252

-----Original Message-----

From: Mike Glander [mailto:baldyglander7895@icloud.com]
Sent: Friday, November 03, 2017 12:58 PM
To: Glander Mike
Subject:

Hi Mike! It's James from Union HS Theatre. Here is the circuit info. Let me know if you need anything else:

House Light Circuits

- 133- wall sconces LED
- 137- ceiling house right drop ceiling 3 fixtures
- 138- ceiling house right over goal white plaster 2 fixtures
- 139- ceiling house left over goal post 2 fixtures (1 LED)
- 140- ceiling house left drop ceiling 3 fixtures
- 141- ceiling house left 2nd row in 3 fixtures
- 142- ceiling house right 2nd row in 3 fixtures
- 143- plaster ceiling center over projector LED
- 144- plaster ceiling house left 2nd row 2 fixtures 1 LED
- 145- drop ceiling house left 3rd row 3 fixtures
- 146- plaster ceiling house right 3rd row 2 fixtures
- 147- plaster ceiling house left 3rd row 2 fixtures 1 LED
- 148- drop ceiling house right 3rd row 3 fixtures
- 149- drop ceiling back house left 3 fixtures
- 150- drop ceiling back house right 3 fixtures
- 151- drop ceiling back house center 2 fixtures
- 152- drop ceiling house center 3 fixtures
- 153- plaster ceiling house right 2nd row 2 fixtures
- 154- under overhang rear house left
- 155- under overhang rear house right
- 156- both alcoves onstage

Mike=

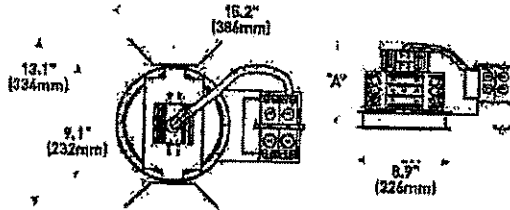
<Union High School 0-10V 2017-1103.pdf>

<4267L1100_Response_0-10V_Gateway_Datasheet_revB.pdf>

ESSENTIA® | by **CREE** ⇄

8" ROUND DOWNLIGHT

3,610-6,790 INITIAL DELIVERED LUMENS



INITIAL DELIVERED LUMENS	DIM "A"
42L	8.5" (202mm)
50L, 63L, 75L	10.6" (263mm)
84L	11.1" (283mm)

PRODUCT DESCRIPTION

The Essentia® by Cree downlights deliver beautiful 90+ CRI light, with efficacy up to 90 lumens per watt. Available in a variety of lumen packages, color temperatures and beam angles, each downlight is rated at 50,000 hours and features a premium quality self-flanged reflector finish supported by a range of color trim options. Essentia® by Cree downlights are engineered to provide outstanding value and performance. It's your essential, comprehensive downlight portfolio for new construction and renovation applications.

Applications: New construction and renovation applications with non-insulated ceilings or where insulation can be kept 3" (76mm) from housing

PRODUCT SPECIFICATIONS

OVERVIEW

- Initial Delivered Lumens: 3,610-6,790 lumens
- Input Power: 42-86 Watts
- CCT: 2700K, 3000K, 3500K, 4000K
- Beam Angles: Narrow, Medium and Wide
- Emergency Performance: 90 Minutes minimum
- CRI: 90
- Controls: 0/1-10V dimming down to 1% and Triac dimming down to 10%
- Limited Warranty*: 5 years on luminaire
- Limited Warranty Emergency Back Up (EB) Battery: 1 Year Battery Back Up. Test regularly in accordance with local codes
- EnergyStar® certified

ORDERING INFORMATION

Fully assembled luminaire is composed of two components that must be ordered separately:
 Example: Housing: S-DLB-42L-27K + Trim: S-DLBT-N-SSC

HOUSING (TRIM MUST BE ORDERED SEPARATELY)						
S-DLB						
PRODUCT	SIZE	INITIAL DELIVERED LUMENS*	CCT	VOLTAGE	CONTROLS	OPTIONS
S-DL Essentia® by Cree Downlight	8"	42L 42W, 3,610 lumens	27K 2700K	Blank Universal 120-277 Volt	Blank 0/1-10V and Triac Dimming	EB Emergency Backup
	8" (203mm)	50L 49W, 4,220 lumens	30K 3000K			
		63L 67W, 5,120 lumens	35K 3500K			
		75L 72W, 6,300 lumens	40K 4000K			
	84L 86W, 6,790 lumens					

TRIM (HOUSING MUST BE ORDERED SEPARATELY)						
S-DLBT						
PRODUCT	BEAM	FINISH	REFLECTOR COLOR	FLANGE COLOR		
S-DLBT	N Narrow	SS Metallic Stainless Steel	C Clear	BR Bronze	Blank Matching Flange	
	M Medium	P Painted (For White Color)	CG Champagne Gold	PE Pewter	WF*** White Flange	
	W Wide		W** White	WH Wheat		
			B Black			

* See <http://lighting.cree.com/warranty> for warranty terms
 * Initial delivered lumens at 4000K. Actual production yield may vary between -10 and +10% of initial delivered lumens
 ** Requires "P" Painted finish
 *** Required when "W" Reflector is ordered, example: S-DLBT-N-PW-WF available with all reflectors



8" ROUND DOWNLIGHT

3,610-6,790 INITIAL DELIVERED LUMENS

PRODUCT SPECIFICATIONS

CONSTRUCTION & MATERIALS

- Semi-specular clear reflector/flange finish, standard
- Multiple reflector/flange colors available
- Light engine, optics and driver accessible from below ceiling
- Heavy-gauge formed steel housing
- Mounting brackets are adjustable from above or below the ceiling
- Ten 1/2" (13mm) and two 3/4" (19mm) knockouts with pry-outs
- Eight knockouts with Romex® cable clamp
- Max. Ceiling Thickness: 1-3/8" (35mm)

ELECTRICAL SYSTEM

- Power Factor: > 0.9
- Total Harmonic Distortion: < 20% at full load
- Input Voltage: 120-277V, 50/60Hz
- Operating Temperature Range: 0°C - +35°C (32°F - +95°F); 0°C - +30°C (32°F - +86°F) w/EB option
- 10V Source Current: 1.00mA

ACCESSORIES

C-CHANNEL HANGER BARS

RBH30C

- Pair of 30" (762mm) rigid 3/4" x 1/2" (19mm x 13mm) c-channel bars

RBH24C-1

- Pair of 24" (610mm) x 1-1/2" (38mm) x 1/2" (13mm) standard c-channel bars

REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for damp locations
- Suitable for thru-wiring 8#12AWG-90°C
- Thermally protected Type NON-IC in accordance with Article 410 of the NEC and UL1599
- Designed for indoor use
- Meets FCC Part 15, Subpart B, Class A standards for conducted and radiated emissions
- RoHS compliant. Consult factory for additional details
- EnergyStar® certified. Please refer to <https://www.energystar.gov/productfinder/product/certified-light-fixtures/results> for most current information
- UL924 (EB option). Maximum mounting height: 42L - 40.2' (12.2m); 50L - 31.6' (9.6m); 63L - 34.5' (10.5m); 75L - 32.4' (9.8m); 84L - 34.8' (10.6m)

T-BAR CLIPS

RARC7

- Set of four
- For use with RBH24C-1 hanger bars

ELECTRICAL DATA*

Initial Delivered Lumens	System Watts 120-277V	Total Current (A)			
		120V	208V	240V	277V
42L	42	0.35	0.20	0.18	0.15
60L	49	0.40	0.23	0.20	0.17
63L	57	0.47	0.27	0.23	0.20
75L	72	0.60	0.35	0.30	0.26
84L	86	0.70	0.40	0.35	0.30

* Electrical data at 26°C (77°F). Actual voltage may differ by +/- 10% when operating between 120-277V +/- 10%

BEAM ANGLES

Initial Delivered Lumens	Beam Angle		
	N	M	W
42L-84L	25°	40°	55°

CCT MULTIPLIERS (90 CRI)

CCT			
2700K	3000K	3500K	4000K
0.87	0.93	0.93	1.00

RECOMMENDED ESSENTIA BY CREE DOWNLIGHT LUMEN MAINTENANCE FACTORS (LMF)

Ambient	Initial LMF	25K hr Projected ² LMF	50K hr Calculated ³ LMF	76K hr Calculated ³ LMF	100K hr Calculated ⁴ LMF
25°C	1.00	0.94	0.89	0.84	0.80

¹ Lumen maintenance values at 25°C are calculated per TM-21 based on LM-80 data and in-situ luminaire testing.

² In accordance with IESNA TM-27-11, Projected Values represent interpolated value based on time durations that are within six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing (DUT) i.e. the packaged LED chip.

³ In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing (DUT) i.e. the packaged LED chip.

ESSENTIA
by CREE

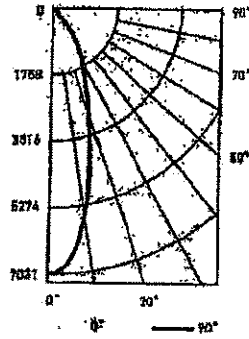
8" ROUND DOWNLIGHT

3,610-6,790 INITIAL DELIVERED LUMENS

PHOTOMETRY

S-DL8-42L-40K + S-DL8T-M-SSC BASED ON CBSTL REPORT TEST #: PL08048-001

Luminance photometry has been conducted in accordance with IESNA LM-79-08. IESNA LM-79-08 specifies the entire luminaire as the source resulting in a luminance efficiency of 100%.



Initial Delivered Lumens: 3,511
Efficacy: 81.0 LPW
S/M: 0.58
Beam Angle: 34.8°

RC %:	80			
RW %:	70	50	30	10
RCR: 0	119	119	119	119
1	114	111	109	107
2	109	106	101	98
3	104	98	94	90
4	99	93	88	84
5	95	87	82	78
6	91	83	77	73
7	87	79	73	69
8	83	75	69	65
9	80	71	66	62
10	77	68	62	59

Effective Floor Cavity Reflectance: 20%

		Horizontal Angle		
		0°	45°	90°
Vertical Angle	45°	3,984	3,984	3,984
	55°	606	606	606
	65°	210	210	210
	75°	220	220	220
	85°	258	258	258

Zone	Lumens	% Lamp	Luminaire
0-30	2,723	N/A	77.6%
0-40	3,394	N/A	96.7%
0-50	3,505	N/A	99.8%
0-90	3,511	N/A	100%
0-180	3,511	N/A	100%

Distance from Workplane	Footcandles	Beam Diameter
6' (1.8m)	201	3.4' (1.0m)
8' (2.4m)	113	4.5' (1.4m)
10' (3.0m)	72	5.7' (1.7m)
12' (3.7m)	50	6.7' (2.0m)
14' (4.3m)	37	7.8' (2.4m)

APPLICATION REFERENCE

Spacing	Lumens	Wattage	LPW	w/ft²	Average FC
4 x 4	3,610	42	86	2.59	230
6 x 6				1.21	107
8 x 8				0.65	58
10 x 10				0.43	38

10' Ceiling, 80/50/20 Reflectances, 2.5' Workplane, Open Room, LLP: 1.0 Initial, Open Space: 50' x 40'

Spacing	Lumens	Wattage	LPW	w/ft²	Average FC
4' on Center	3,610	42	86	1.80	120
6' on Center				1.22	82
8' on Center				0.86	58
10' on Center				0.72	48

10' Ceiling, 80/50/20 Reflectances, 2.5' Workplane, Corridor, LLP: 1.0 Initial, Open Space: 6' x 100'

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US: lighting.cree.com

T (800) 236-6800 F (262) 504-5415

Canada: www.cree.com/canada

T (800) 473-1234 F (800) 810-7507

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