Henry Ford Community College
Technology Investment Fund
Project Funding Request

Fifteen copies of this application form must be received by the Vice President/Controller's office by 4:00 p.m. on either **the first Friday after Labor Day** (Fall semester) **or the third Friday in January** (Winter semester) in order to be eligible for funding. Applications will only be accepted on this form. Applications must include an Executive Summary which will be shared with the Campus Community. ***(Attach additional sheets for any section needed.)***

Date of Application: 1/19/2012	**Project Type: [X] New**	**[ ] Upgrade/Expansion**
Project Director: Eric Gackenbach **Department/Division: Hospitality/Technology**	**How many students will *directly* benefit from the project? 350-450**	**Total TIF Funds Requested:** $15,900.00

Problem Statement	
Define the problem/idea. *(What do you want to do? Why?)*	The demonstration kitchen in room C-123 is in the process of being developed into a Culinary Studio with TV production capabilities. The room has been outfitted with digital cameras, audio and video controls and video monitors. A key link in any TV production studio is lighting. Currently the demo kitchen has standard fluorescent classroom lighting that is not ideal for TV production. High contrast between dark skin tones and white chef coats is specifically problematic for the current system. Installation of an easy to use studio quality lighting system would eliminate the current production problems and enhance the authenticity and performance of the Culinary Studio. One critical aspect of a top tier Culinary Arts program is to prepare students to do live and recorded cooking demonstrations and culinary presentations. With the approval of this project and installation of the needed equipment, HFCC will exceed the competition in this area.
Evidence for Project Validity *(What is the current situation?)*	
What resources do you have/use now?	Demonstration kitchen with refrigeration, ovens, four gas burners, full digital TV production system with video scaler, audio mixer, remote control/AMX touch panel, monitors Ordered: New high end stainless steel appliances to replace current models. Approved for funding: cabinetry, counter tops, electrical/mechanical work to "upscale" studio look.
Why can't you use your existing resources to do this project?	A key link in any TV production studio is lighting. Currently the demo kitchen has standard fluorescent classroom lighting that is not ideal for TV production. High contrast between dark skin tones and white chef coats is specifically problematic for the current system.
What evidence do you have that this project will be successful? *(Cite specific information.)* • **Current research** • **Examples from other schools or teachers** • **Letters of support from experts in the field** • **Your own past experience.**	Equipment specifications were developed jointly by Richard Bohl, Architect, Eric Gackenbach and Drew Franklin from Vincent Lighting Systems. This is an easy to use, low cost alternative to more major infrastructure and theatre style lighting. The result will be effective, state of the art and attractive.

Relevance to Technology Investment Committee Guidelines *(Address only those that apply.)*	
INNOVATION: **Is the proposal innovative to the field of Instructional Technology?**	Very innovative. The ability to produce broadcast quality video and have it recorded or viewed in additional classrooms or labs puts us at or above regional or national competitors. Chefs and Hospitality professionals need to be trained in the art of presentation through demonstration and video production. The influence of cooking and lifestyle shows has raised the bar of expectations coming from our students and the community that supports the college.
Is the proposal innovative to HFCC?	Nothing like it exists on campus. Our demonstration kitchen has been used by Hospitality Studies, Foreign Language, Center for Life Long Learning and Student Activities. The project will benefit many interests at the college. Content produced in the Culinary Studio also has the potential to be viewed on the HFCC cable access channel.
Is the proposal innovative to the specific discipline?	The ability to record and view cooking or culinary demonstrations is not innovative but needs to exist based on the size of our Culinary Arts program and the special events in the department. The innovation comes with the ability to train students how to perform and produce broadcast quality presentations. The second innovation comes when our Culinary Studio can be used to produce programming for local cable TV.
NEED: **Is the proposal essential for the instructional design?**	Video production is adequate but sub standard based on the difficulty capturing high contrast subjects. The set design is also being revised to take into consideration aesthetics and on-camera production quality.
Does it create new programs or courses with the potential for increased student enrollment?	The technology is now integrated into current AAS programs as we are currently maxed out on the number of credits that can be required. Additional CL2 classes could be offered.
Is it necessary to remain competitive with post-secondary institutions?	Not only to be competitive but to lead. Other institutions currently have this technology in place, specifically Schoolcraft College in the Vista-Tech (Culinary Arts) center.
Does it provide skills that are transferable to the workplace?	Chefs and Hospitality Professionals need to have top notch presentation skills for training of staff. Skilled workers need to be familiar and comfortable with technology, specifically the increased use of video.

Does it prepare students for transfer to upper-level curriculum?	Transfer opportunities are currently in place through articulation agreements. Planning, organizing, research, presentation and familiarity with technology all increase preparation for upper level curriculum.

Relevance to Technology Investment Committee Guidelines (continued) *(Address only those that apply.)*	
Does it keep the course or program current in the related technology?	Yes. We're working toward full implementation of the concept and are on track to be complete by fall 2012.
NATURE OF PROPOSAL: **Is the proposal a component of curricular revision?**	Curriculum has been revised to include use of the Culinary Studio. Every student who completes an Associate Degree in either Culinary Arts or Hotel/Restaurant Management will have completed a ten minute culinary/cooking demonstration video.
Is it the next logical step in the evolution of the course/curriculum?	It is logical in the development of the program so that we can better serve the volume of students coming to the Hospitality Studies department. It is also logical that students are taught to give broadcast quality cooking and culinary demonstrations. This component increases the quality and professional look of the video presentations.
Will it help attract students to HFCC?	**As lifestyle and cooking shows have drawn students to our industry, teaching a chef how to "be on TV" confirms our involvement in the marketing and communications aspect of becoming a hospitality professional.** **The ability to broadcast our cooking and culinary demonstrations will directly affect customer awareness, both in house (discovery days, open house) and in their homes via cable TV.**
Will it support HFCC community outreach/public relations activities?	See above, It should be able to do so in a big way.
Will it support student retention activities at HFCC?	Retention in Hospitality Studies and Culinary Arts is all about the "Sizzle". We will continue to educate vigorously on "The basics" while package them in a creative and innovative way. Utilizing the proposed technology will be seen as innovative and valuable by students of all backgrounds.
Will it become an integral part of the course, program or curriculum?	Yes, video demonstrations are integrated into the A'la Carte and Buffet Cookery class and is required for all students receiving an associate degree.

Resources		
Where will the project hardware be installed?	C-123 Culinary Studio	
Who will do the job? • **List the personnel** • **List their duties**	The installation and work will go out for bid, initial estimates came from Vincent Lighting Systems.	
Who will use the hardware?	**Equipment will be available to all full & part time faculty in the Hospitality Studies & Culinary Arts department. Properly trained and supervised students and staff from other departments (Foreign Language, CL2) for example will also have access to the equipment.**	
Who will conduct any necessary project-hardware training?	Training and set up are included in the specification, after that lighting setups will be preset and simply selected based on the application in use in the studio. (regular lecture, demonstration, video presentation and video production/recording)	
Who will handle any spring and summer semester duties related to hardware installation?	Eric Gackenbach, Lead Instructor will be available from Hospitality Studies to facilitate installation with Buildings & Grounds & the selected contractor.	
Do you have commitment from your administration for personnel support? *(Be specific, include documentation.)*	Dr. Jeff Livermore, Associate Dean of Technology backs this proposal. The design of the equipment and layout allows current staff & students to operate and utilize the equipment for everyday purposes. Collaboration with Fine Arts/Broadcasting will occur when programming is set to go out on the cable channel.	
Is release time required to complete this project? **If yes, has it been approved at this time by your Associate Dean?**	**[ ] Yes [X] No** **[ ] Yes [ ] No**	*TIF does not fund release time. If you are requesting release time, it must be approved by the appropriate administrators prior to proposal submission.*

Evaluation *(How will you know if it worked?)*	
How will you demonstrate to the college that this was an effective use of funds? *(How will you evaluate the goals listed as Expected Outcomes?)*	The effectiveness will be demonstrated by the volume and quality of video produced by both for credit classes and special presentations and demonstrations. We look forward to hosting guest lecturers that can do demonstrations we record and make available for future classes and students.
How will you determine the success or shortcomings of the project?	We will view the video produced by the equipment, receive student and audience feedback and work with faculty to determine their satisfaction with the new equipment. So far we have had great success with the student projects produced in the Culinary Studio.
Budget **(You must also include an itemized budget statement.)**	
What do you need to complete this project? *(Be specific about equipment, software, and training.)*	Vincent Lighting Systems: 3 T-Series Center Mount Fixtures, @ lamp, 120v 3 T Series Wall Wash Fixture, 120v 3 SCREEN Broad Field T02 11 Lamp, Studioline 55W, 3200K 1 STN Environ 3 6 Preset WHITE 5 DIMMER Environ3 1x600VA Mark 10 Strap, 120V, W 1 Environ 3 Incan/Induc strap dimmer, 600VA, 1-gang, 120V 1 Environ 3 screwless strap faceplate, 3-gang 1 Environ 3 screwless strap faceplate, 4-gang 4 7" Lensed Downlights-(2) 18w DTT, Mark X Ballast-120v 10 PL-C18W/35/4P/ALTO, 18W, 3200 Supplier Services Installation
What is the TOTAL COST? *(You must attach an itemized cost analysis with this proposal.)*	Estimated Cost: $15,900.00
How recent is your quote?	December, 2011
Are changes to the college infrastructure necessary to support this project?	**[ ] Yes [X] No** *If "yes" provide an explanation from the Directors of Data & Voice and Buildings & Grounds, and from the Administrator in charge of the affected room(s).*
What other monetary commitments exist? *(Department/Division/ External) Please be specific; include documentation wherever possible.*	Perkins funding is approved for new, upscale Viking and Jen-Air cooking and refrigeration equipment. Institutional funding is being provided for upgrades of cabinets, countertops, flooring & paint. (design elements). Installation of proper lighting at this time makes sense because the room will be apart.

If other sources of funding are not available, why? • **Doesn't have the support?** • **Not viewed as feasible?** • **Not a priority?** • **Other?**	Two other funding sources are already allocated to the project, TIF is a portion specific to the technology needs.

Strategic Plan

Include with your application a document that indicates the ways in which your project addresses the goals and objectives of the Henry Ford Community College Strategic Plan. Also, indicate how your project addresses your Division or Department plan. Be as specific as possible.

Strategic goal 2: Promote excellence in teaching and learning in order to meet individual and societal goals, one of the points in the operational plan was to explore the expansion of the Hospitality program. This project enhances the Hospitality program and creates greater awareness to the college and program.

Strategic goal 6: Expand the use of technology to provide access to information, support communication and enhance learning. This project provides updated and new technology to support instruction.

If your proposal is Non-Instructional (Library Services, Learning Lab, Counseling, Placement Services), please skip this section and complete the information in the Non-Instructional section.

Instructional Proposals

Complete this section if this is an Instructional Proposal, directly impacting student teaching and learning.

Expected Outcomes *(Project Objectives)*	
What is your current teaching method? How will this project fit into your current plan?	Currently the department uses the room and equipment but the production quality is not yet high enough and we want to be able to provide a high quality experience for all students. Once the set design is complete and lighting installed we will be ready to provide content for the cable channel.
How will this improve student learning? *(List specific goals.)*	*As a result of this project students will:* 1. Produce broadcast quality video of food and culinary demonstrations that can be reviewed for critique and edited for packaging. 2. Provide adequate viewing space for guest speakers/special gatherings that require the culinary studio. 3. Looking to the future, create live cooking demonstrations or shows to be viewed on local cable.

Instructional Proposals (continued)

State how the project addresses the Seven Principles of Good Practice in Undergraduate Education. *(Address only the relevant criteria.)*	
Supports student-faculty contact	Recorded presentations allow better feedback to students. Students can critique themselves when a recording is available, something impossible if the presentation is not recorded. Remote video feed allows a single presenter to reach more students or attendees at once. Even by recorded message.
Supports cooperation among students	Student productions of cooking or culinary demonstrations are done as group projects, with students working in teams. The team concept is integrated in many ways into the Hospitality Studies & Culinary Arts programs.
Supports active learning	Live demonstrations, especially by students, encourages participation and complex planning and presentation of the subject matter.

Supports prompt feedback	See above, video recording allows multiple viewing of a presentation and also allows the students and their teams to critique themselves.
Supports time on task	Presentations and video taping require things to be done on time as well as in a compact way that does not exceed the maximum presentation time.
Supports high expectations	We have created expectations that Chefs and Cooks must not only know how to cook, but also how to behave in a professional manner, look good, speak well and merchandise themselves and their operation. Video presentations and demonstrations cement those expectations and document achievement.
Supports diverse talents and ways of learning	Team presentations show off both technical skills and people skills of the students. Within a group students can shine in their own way within the guidelines and expectations of the project.

SIGNATURES:

1/12/2012		01/13/2012		17 Jan 12	
**Project Director	Date	*Associate Dean/Department Head	Date	*Vice President	Date
1/19/12		1/18/2012			
**Director of Building & Grounds	Date	**Director of Data & Voice	Date		

* For notification purposes only
* * For project feasibility

Non-Instructional Proposals

Complete this section if this is a Non-Instructional Proposal, related to college areas that serve and support student instructional progress. ***(Non-Instructional areas include Library Services, the Learning Lab, Counseling, and Placement Services.)***

Expected Outcomes

(Project Objectives)

What will this project accomplish that you can't accomplish now?	
How does the project enrich or support the learning, teaching, or communication technology needs of students? *(List specific examples.)*	*As a result of this project, service to students will be improved through:*

SIGNATURES:

11/12/2012

**Project Director Date

*Associate Dean/Department Head Date

*Vice President Date

**Director of Building & Grounds Date

**Director of Data & Voice Date

* For notification purposes only
* * For project feasibility

Henry Ford Community College

Technology Investment Fund
Project Funding Request

Executive Summary

DATE OF APPLICATION	PROJECT TYPE
8/5/08	Upgrade/Expansion
NAME OF PROJECT DIRECTOR OR PRESENTER	**DEPARTMENT/DIVISION**
Eric Gackenbach, MBA, CEC, CHE	Hospitality Studies/Culinary Arts/Technology
COST OF PROPOSED PROJECT	**NUMBER OF STUDENTS SERVED ANNUALLY**
$15,900	350-450
SUMMARY	

The scope of this proposal is to create a Culinary Studio in the Demonstration Kitchen in the Hospitality Studies and Culinary Arts department. The technology requested would improve the broadcast quality audio and video recording capabilities. The capabilities are used to record cooking and culinary demonstrations by student teams. The deliverable of this project s production of something you might see at a lifestyle show or store all the way up to the trendy cooking shows on the food network. Additionally, the demonstrations given by our chefs and guest speakers & industry professionals would be able to be filmed and kept for future instructors and students to view.

The project is both practical and innovative- practical to increase capacity and exposure of the program and the college and innovative because it adds a new dimension to student learning. Additionally, this level of technology is on par with other top tier Culinary Arts programs both regionally and nationally.

(Attach additional sheets if needed.)

VINCENT
LIGHTING SYSTEMS

BILL OF MATERIALS
FOR
HENRY FORD COMMUNITY COLLEGE

DEARBORN, MICHIGAN

DEMO KITCHEN LIGHTING SYSTEM

1/4/2012

Quote #Q120104DF

PROJECT SALES
DREW FRANKLIN

(734) 660-8959
DFRANKLIN@VLS.COM

PROJECT MANAGER
ROBERT UHL

(216) 475-7600
BUHL@VLS.COM

36500 Ford Road #173
Westland, Michigan 48185-2211
T 734.660.8959

F 734.722.6079
info@vls.com

www.vincentlighting.com

Project: Henry Ford Community College - Demo Kitchen Lighting System
Doc #: Q120104DF
Date: 1/4/2012

BILL OF MATERIALS

Ln #	Qty	Part Number	Description
			STUDIO FIXTURES
1.	3	T02P1DISCM	T-Series Center Mount Fixture, 2-lamp, 120V
2.	3	T00P1WISOM	T-Series Wall Wash Fixture, 120V
3.	3	FIXT02CSBF	SCREEN Broad Field T02
4.	11	00955W32kSF	Lamp, Studioline, 55W, 3200K
			ENVIRON 3 CONTROL STATIONS
5.	1	61200W	STN Environ 3 6 Preset WHITE
6.	5	61224	DIMMER Environ 3 1x600VA Mark 10 Strap, 120V, W
7.	1	61220W	Environ 3 Incan/Induc strap dimmer, 600VA, 1-gang, 120V
8.	1	61273W	Environ 3 screwless strap faceplate, 3-gang
9.	1	61274W	Environ 3 screwless strap faceplate, 4-gang
			ADDITIONAL FIXTURES
10.	4	8096DCLW-S7218	7" Lensed Downlights - (2) 18w DTT, Mark X Ballast -120v
11.	10		PL-C18W/35/4P/ ALTO, 18W, 3200
14.	1		SUPPLIERS SERVICES
15.	1		Job site meeting with contractor prior to installation, to review system design and answer any installation questions.
16.	1		Seven-day-a-week, toll-free service line.
17.	8		Sets of submittals, including product data sheets and shop drawings.
18.	1		24-month limited warranty on the system from date of system commissioning. Commissioning by factory authorized personnel must occur within six months of shipment. Warranty excludes expendable items such as color media, lamps, or normal wear and tear.
19.	1		TERMS AND CONDITIONS
20.	1		The Bill of Materials and pricing are based on our interpretation of the drawings and/or meetings with the customer and represent a system using components that fulfill the design intent of the project. Orders placed for the above referenced project shall be "as per Vincent Lighting Bill of Materials".
21.	1		Submittal drawings normally require 30-45 days after receipt of written purchase order; lead time for fabrication after approval and proper release is 30-90 days.
22.	1		Release for manufacture and shipment of all equipment is required within 60 calendar days after drawing submittal. Orders not properly released within this period are subject to a 2% per month increase.

Project: **Henry Ford Community College - Demo Kitchen Lighting System**
Doc #: Q120104DF
Date: 1/4/2012

BILL OF MATERIALS

Ln #	Qty	Part Number	Description
23.	1		For possible warranty repair returns, we recommend you retain some manufacturers shipment cartons for larger or odd sized equipment.
24.	1		Unless otherwise stated the pricing does not include any applicable sales or use tax. All shipments are FOB factory, ground freight allowed to the jobsite. Freight claims must be filed directly with the shipper. Payment terms are net 30 days on approved accounts. All items will be shipped COD unless credit approval has been granted in advance.
25.	1		Orders placed and subsequently cancelled, where either as-built or submittal drawings have been started or the purchase of special materials is required, will be assessed a cancellation charge of 25% of the quoted price for the order or actual costs incurred, whichever is greater.
			END OF BILL OF MATERIALS

brightline
Evolutionary Lighting Systems

T-Series

Center-Mount Videoconference Fixture

Construction
Fixture housing is made of formed, cold-rolled sheet steel. Dome-shaped interior fixture housing. Perforated filler panels are optional.

Fixture Body Finish
Low-gloss, off-white finish (Tiger Drylac #44911704) is standard, with custom colors available.

Fixture Carriage and Reflector
Two sizes of lamp carriages are available, housing one or two 55-W lamps. Reflectors are of formed-aluminum specular-sheet-metal construction, featuring 95% reflectance. Direct/indirect task lights are available to provide for soft, glare-free room illumination. Wall Washer housing (one lamp) provided with reflective white finish.

Ballast
Ballasts are available in switched or in a variety of dimmable configurations. All ballasts are high-frequency electronic, with a Power Factor > .97, THD < 10%, and a Class A sound rating. Ballasts are housed in the fixture housing. Power and control inputs are from the side.

Lamps
All Brightline fixtures use 55-W compact fluorescent lamps, available in a variety of color temperatures and CRI ratings (see the Fixture Accessories and Lamps datasheet for details). Studioline and Cinema Series lamps are optimized specifically for video camera applications.

Shipping Information
Length: 28 in (711 mm)
Width: 25.5 in (648 mm)
Height: 14.5 in (368 mm)
Weight: 35 lb (15.9 kg)

Articulation
Rotate: Fixture carriage mounted on a sliding bracket allows for greater range of angular movement (+/- 50 degrees) on a single axis.

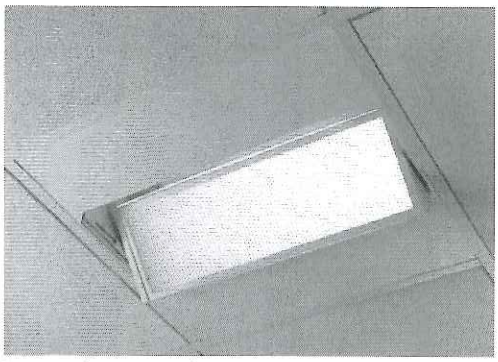
Drop-Pan-Tilt: Provides three axes of movement. DPT fixture carriages move up and down from the ceiling, revolve 360 degrees, and rotate angularly (+/- 70 degrees).

Motorized: Fixtures with motorized articulation are available in a configuration featuring a two-lamp carriage. Offers angular movement (+/- 50 degrees) on a single axis.

Accessories
A variety of control screens are available to shape the light-beam pattern (see the Fixture Accessory and Lamps datasheet for details). White-finish screens are standard, with black finish as an option. Prismatic lenses are available for one- and two-lamp carriages.

Fixture Dimensions
Inch Panel: 23.750 x 23.750 x 7.072 in
(603.25 x 603.25 x 179.62 mm)
Metric Panel: 595 x 595 x 179.62 mm
(23.43 x 23.43 x 7.072 in)
Fixture Weight: 22 lb (10 kg)

Electrical Certifications
UL, cUL, CE, and C-Tick



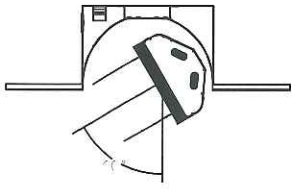
Fixture shown with Two-Lamp Rotate carriage.

US Patent No. 6,517,216. Other US and foreign patents pending.

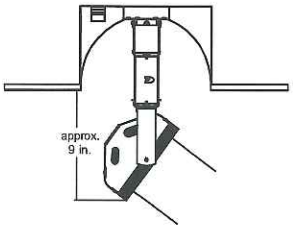
580 Mayer Street - Building #7 - Bridgeville, PA 15017 Phone: 1.412.206.0106 Fax: 1.412.206.0146
Los Angeles: 1.412.206.0106 ext 210 - Atlanta: 1.412.206.0106 ext 203 - www.brightlines.com

brightline

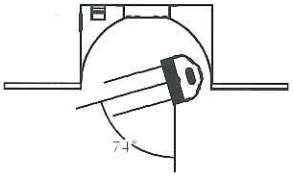
Sample Fixture Configurations



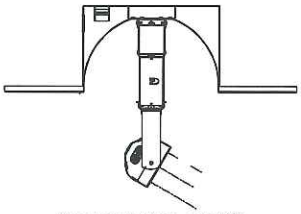
Two-Lamp with maximum right slide; includes contrast light.



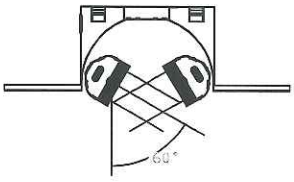
Two-Lamp Drop-Pan-Tilt (shown in dropped position and tilted).



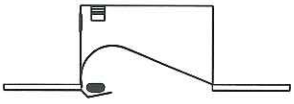
One-Lamp Rotate with maximum right slide; includes contrast light.



One-Lamp Drop-Pan-Tilt (shown in dropped position and tilted).



One-One-Lamp Rotate with maximum left and right slide; includes contrast light.



Wall Washer showing lamp and indirect reflector.

Task Light showing lamps and perforated diffusion screen.

T											
	Lamp Carriage		Ballast Type	Voltage		Articulation		Panel Size	Panel Style	Mounting Style	
T-Series	01= One 1-Lamp Carriage		E = EcoSystem	1 = 120V		R = Rotate & Contrast		I = Inch Panel	S = Solid Panel	MM = Mini T	
	11= Two 1-Lamp Carriages		L = Hi-Lume			D = Drop-Pan-Tilt		M = Metric Panel	P = Perforated Panel	CM = Center-Mount	
	02= One 2-Lamp Carriage		N = Non-Dim	2 = 230V		M = Motorized Rotate				OM = Offset Mount	
	OR		P = Phase	7 = 277V		OR				45 = 45-Degree Mount	
	00= No Lamp Carriage		X = DALI			T = Task					
						W = Wall Wash					

Note: EcoSystem Ballasts have a THD of 20%.
Note: Hi-Lume and Phase-Dim ballasts are not available in 230V.
Note: Custom Finish is available. Add a "-CF" to the end of the part number.
Note: Fixtures require Control Screens and Lamps; see Fixture Accessories and Lamps datasheet for options.

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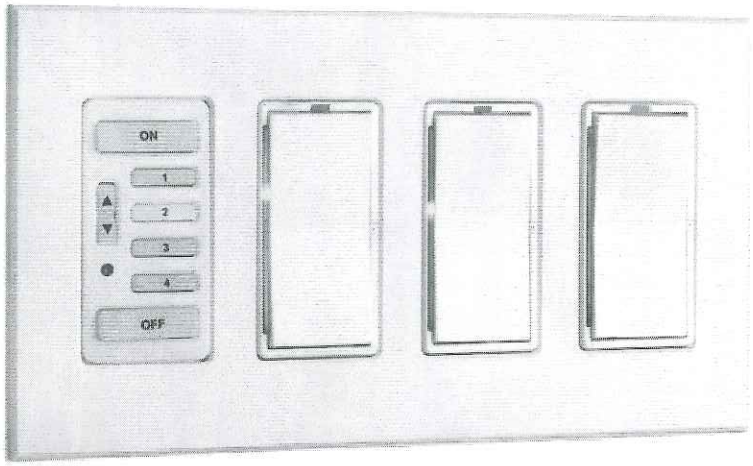
brightline

Environ3

Architectural Lighting Control System

Environ 3 architectural lighting control system is a revolutionary networked system of line voltage master keypads, wallbox dimmers, and infrared remotes that provide flexible multi-scene dimming capability at a remarkably affordable cost.

Environ 3 has been designed and engineered to be easy to install, easy to program, and easy to operate. By utilizing industry standard three-conductor wiring, the system is easy to install. Simply use the "purple wire" (line voltage communication) to connect the master control stations with the dimmers and Environ 3 is ready to provide an endless array of lighting scenes.



Environ3 Master Keypad and Three Dimmers Shown in a Four-Gang Configuration

Features

- Up to 12 presets & ON and OFF – Environ 3 accepts up to 12 different fade rates, ranging from 1.5 seconds to 1 hour - all fade rates are user-programmable by preset
- Two-way communication - an Environ 3 system knows if it has been activated from either the master keypad or an individual dimmer, so that status is known at all times
- Color options - Environ 3 dimmers and keypads are available in white, ivory, almond, gray, and black
- User-friendly control - Environ 3 master keypads feature illuminated push-buttons, each labeled with its designated preset or custom engraving
- Never-fail memory (no batteries required)
- Environ 3 dimmers control incandescent, magnetic low-voltage, neon, cold cathode, electronic low-voltage and fluorescent loads
- Up to thirty devices (dimmers, master keypads) can be incorporated into an Environ 3 network
- All dimmers can be raised or lowered simultaneously at any master keypad
- Environ 3 A/V master keypads allows the system to be connected to a Vision.net contact closure interface to make it part of a building-wide architectural control system
- UL and cUL listed

PHILIPS
Strand Lighting

SPECIFICATION SUBMITTAL

CONSULTANT:	PROJECT NAME:	MODEL NUMBER I QUANTITY:
DATE:	PROJECT NUMBER:	APPROVED BY:

Environ3 Control System

Each Environ 3 four-preset (four + ON and OFF) master control station has an integral infrared receiver that can be used in conjunction with an optional hand-held infrared transmitter.

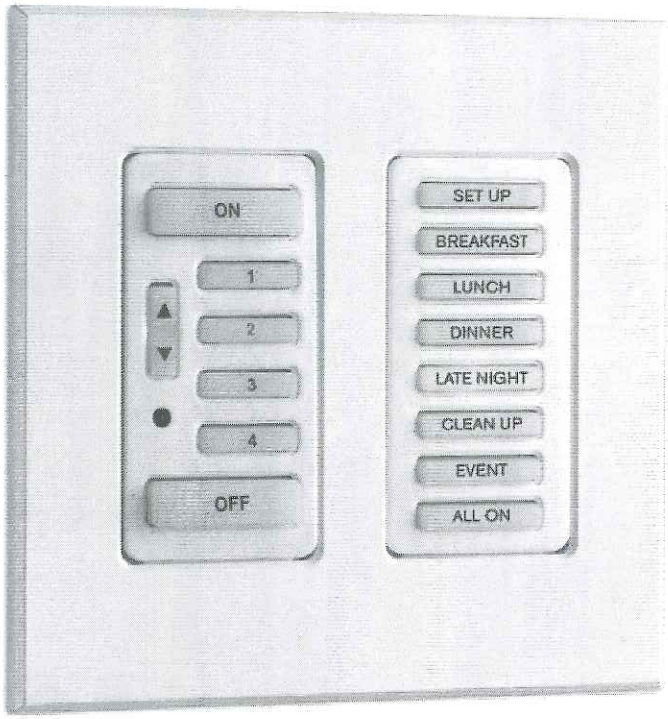
Many of the Environ 3 five and eight-preset master control station models are available with A/V inputs which allow any device generating a 50 millisecond dry contact closure to activate any of the preset scenes.

These devices include:

- Third party audio/visual equipment
- External time clocks

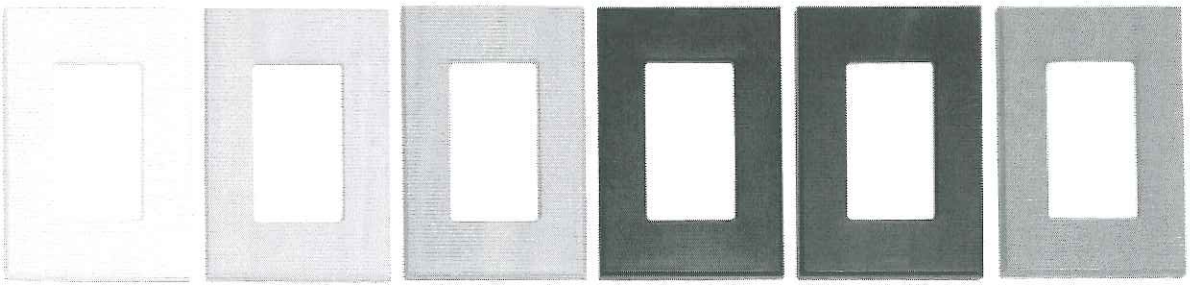
The Environ 3 dimmers and fan controls feature green LED bar graphs to assist in programming level and time settings. A recessed "SET" button allows the user to easily set a level when a preset is active. A single red LED is illuminated when the station is off.

Environ 3 faceplates accommodate from one to seven devices. Precise laser-etched engraving is finished with indelible ink. Robust ABS plastic faceplates feature sleek beveled edges and screwless snap-on installation. Environ3 faceplates lend an integrated look to all designer-style electrical wiring devices such as switches, dimmers, outlets, and telephone or video connectors.



Environ 3 5 Preset & 8 Preset Master Control Station installed in a 2-gang faceplate

Environ3 Faceplate Color Samples



White Almond Ivory Brown Black Grey

PHILIPS
Strand Lighting

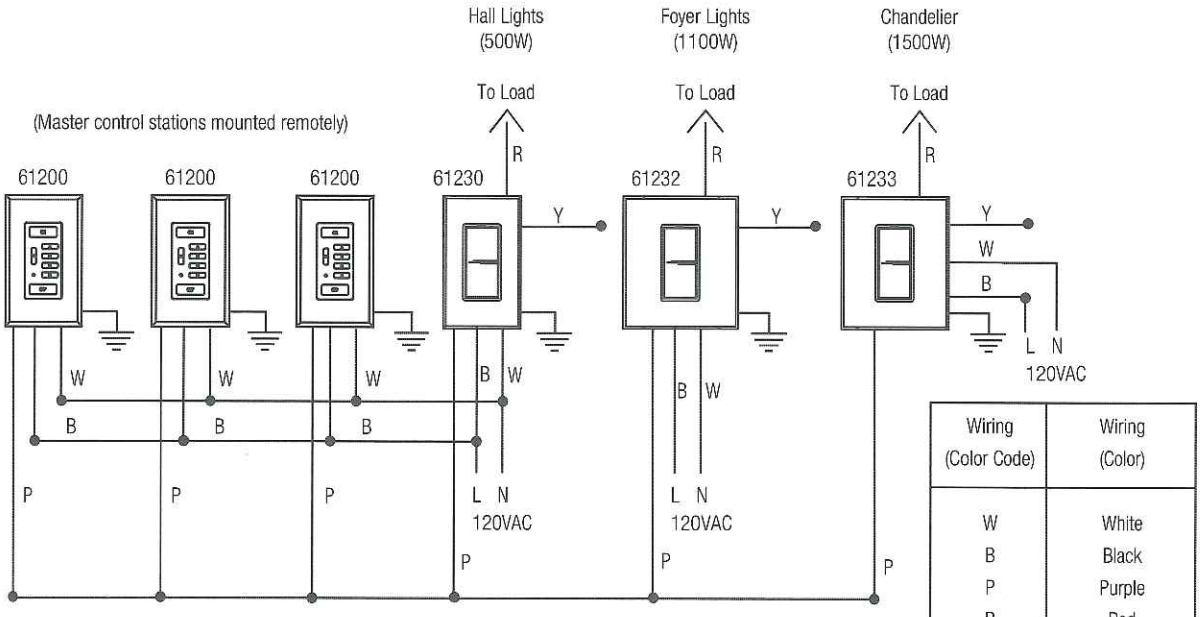
Environ3 Power Extenders

Environ 3 dimming amplifiers are solid-state units intended to control a separate lighting circuit regardless of phase. It provides a smooth dimming range using Environ 3 controls.

Environ 3 Power Extender
(2 x 2000W incandescent dimming amplifier)

Environ 3 Power Extender
(1 x 10 amp fluorescent HDF dimming amplifier)

Environ3 Sample Riser



Wiring (Color Code)	Wiring (Color)
W	White
B	Black
P	Purple
R	Red
Y	Yellow
G	Grey

Typical layout using high-wattage dimmer with master control stations

PHILIPS
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Ordering Information

Cat No. **Description**

Environ3 Master Control Stations

61204	Environ3 pushbutton station, 2 presets, strap, 1-gang, 120VAC
61204H	Environ3 pushbutton station, 2 presets, heatsink (S), 1-gang, 120VAC
61200	Environ3 pushbutton station, 4 presets & ON and OFF, raise/lower, IR rec, strap, 1-gang, 120VAC
61202	Environ3 pushbutton station, 4 presets & ON and OFF, raise/lower, IR rec, A/V In, strap, 1-gang, 120VAC
61200H	Environ3 pushbutton station, 4 presets & ON and OFF, raise/lower, IR rec, heatsink (S), 1-gang, 120VAC
61202H	Environ 3 pushbutton station, 4 presets & ON and OFF, raise/lower, IR rec, A/V In, heatsink (S), 1-gang, 120VAC
61201	Environ 3 pushbutton station, 8 presets, strap, 1-gang, 120VAC
61203	Environ3 pushbutton station, 8 presets, A/V in, strap, 1-gang, 120VAC
61201H	Environ3 pushbutton station, 8 presets, heatsink (S), 1-gang, 120VAC
61203H	Environ3 pushbutton station, 8 presets, A/V in, heatsink (S), 1-gang, 120VAC

Ordering Information / Notes:

(1) Color Suffix: -W (White), -I (Ivory), -AL (Almond), -GR (Gray), -BL (Black), or -BR (Brown)
(2) IR Rec: Integral Infrared Receiver
(3) A/V In: Audio/Visual contact closure input
(4) Strap style control stations do not ship with a faceplate.
(5) Heatsink style control stations ship with a matching 1-gang faceplate.
(6) S = Small Heatsink / L = Large Heatsink
(7) Order single-gang or multi-gang faceplates separately.

Environ3 IR Transmitter

61204	Environ3 Handheld Infrared Remote Transmitter

Environ3 Strap-Style Power Devices

61221	Environ3 electronic low-voltage strap dimmer 300VA, 1-gang, 120VAC
61220	Environ3 incandescent/inductive strap dimmer 600VA, 1-gang, 120VAC
61222	Environ3 non-dim strap switch 600VA, 1-gang, 120VAC
61223	Environ3 PowerSpec® HDF fluorescent strap dimmer 600VA, 1-gang, 120VAC
61224	Environ3 Advance Mark 10® strap dimmer 600VA, 1-gang, 120VAC
61225	Environ3 3-speed strap fan control 1.5 amp, 1-gang, 120VAC
61228	Environ3 dimmer/non-dim/fan strap channel remote, 1-gang, 120VAC
61208	Environ3 wall mounted occupancy sensor, 1-gang, 120VAC

Ordering Information / Notes:

(1) Color Suffix: -W (White), -I (Ivory), -AL (Almond), -GR (Gray), -BL (Black), or -BR (Brown)
(2) Strap-style devices do not ship with a faceplate.
(3) Order single-gang or multi-gang faceplates separately.

Environ3 Strap-Style Screwless Faceplates

61271	Environ3 screwless strap faceplate, 1-gang
61272	Environ3 screwless strap faceplate, 2-gang
61273	Environ3 screwless strap faceplate, 3-gang
61274	Environ3 screwless strap faceplate, 4-gang
61275	Environ3 screwless strap faceplate, 5-gang
61276	Environ3 screwless strap faceplate, 6-gang
61277	Environ3 screwless strap faceplate, 7-gang

Ordering Information / Notes:

(1) Color Suffix: -W (White), -I (Ivory), -AL (Almond), -GR (Gray), -BL (Black), or -BR (Brown)
(2) Strap-style devices do not ship with a faceplate.
(3) Order single-gang or multi-gang faceplates separately.

Ordering Information

Cat No.	Description

Environ3 Heatsink-Style Power Devices

61234	Environ3 electronic low-voltage heatsink (S) dimmer 500VA, 1-gang, 120VAC
61230	Environ3 incandescent/inductive heatsink (S) dimmer 600VA, 1-gang, 120VAC
61231	Environ3 incandescent/inductive heatsink (S) dimmer 1000VA, 1-gang, 120VAC
61232	Environ3 incandescent/inductive heatsink (L) dimmer 1500VA, 2-gang, 120VAC
61233	Environ3 incandescent/inductive heatsink (L) dimmer 2000VA, 2-gang, 120VAC
61235	Environ3 non-dim heatsink (S) switch, 1000VA, 1-gang, 120VAC
61236	Environ3 non-dim heatsink (L) switch, 2000VA, 2-gang, 120VAC
61237	Environ3 PowerSpec® HDF fluorescent heatsink (S) dimmer 600VA, 1-gang, 120VAC
61238	Environ3 PowerSpec® HDF fluorescent heatsink (L) dimmer 1500VA, 2-gang, 120VAC
61239	Environ3 Advance Mark 10® heatsink (S) dimmer 600VA, 1-gang, 120VAC
61240	Environ3 Advance Mark 10® heatsink (S) dimmer 1000VA, 1-gang, 120VAC
61241	Environ3 Advance Mark 10® heatsink (L) dimmer 1500VA, 2-gang, 120VAC
61242	Environ3 3-speed heatsink (S) fan control 1.5 amp, 1-gang, 120VAC
61245	Environ3 dimmer/non-dim/fan heatsink (S) channel Remote, 1-gang, 120VAC

Ordering Information / Notes:

(1) Color Suffix: -W (White), -I (Ivory), -AL (Almond), -GR (Gray), -BL (Black), or -BR (Brown)
(2) Heatsink style devices ship with a matching 1-gang faceplate.
(3) S = Small Heatsink / L = Large Heatsink
(4) Order multi-gang faceplates separately.

Environ3 Heatsink-Style Screwless Faceplates

61280	Environ3 screwless heatsink faceplate, 2S, 5-7/8 inches, 1+1-gang
61281	Environ3 screwless heatsink faceplate, 2SL, 7-5/8 inches, 3-gang
61282	Environ3 screwless heatsink faceplate, 2L, 9-15/16 inches, 4-gang
61283	Environ3 screwless heatsink faceplate, 3S, 8-1/2 inches, 4-gang
61284	Environ3 screwless heatsink faceplate, 3SSL, 10-1/4 inches, 5-gang
61285	Environ3 screwless heatsink faceplate, 3SLL, 12 inches, 6-gang
61286	Environ3 screwless heatsink faceplate, 3L, 13-7/8 inches, 6-gang
61287	Environ 3 screwless heatsink faceplate, 4S, 11-15/16 inches, 4+1-gang
61288	Environ 3 screwless heatsink faceplate, 4SSSL, 10-3/8 inches, 6-gang
61289	Environ3 screwless heatsink faceplate, 4SSLL 14-3/4 inches, 7-gang
61290	Environ3 screwless heatsink faceplate, 4SLLL 13 inches, 8-gang
61291	Environ3 screwless heatsink faceplate, 4L 11-1/4 inches, 9-gang
61292	Environ3 screwless heatsink faceplate, 5S 14 inches, 7-gang
61293	Environ3 screwless heatsink faceplate, 5SSSSL, 15-3/4 inches, 8-gang
61294	Environ3 screwless heatsink faceplate, 5SSSLL, 17-1/2 inches, 9-gang
61295	Environ3 screwless heatsink faceplate, 5SSLLL, 19-1/4 inches, 10-gang
61296	Environ3 screwless heatsink faceplate, 5L, 22-3/4 inches, 12-gang
61297	Environ3 screwless heatsink faceplate, 6S, 12-13/16 inches, 7+1-gang

Ordering Information / Notes:

(1) Color Suffix: -W (White) or -I (Ivory)
(2) Heatsink style devices ship with a matching 1-gang faceplate.
(3) S = Small Heatsink / L = Large Heatsink
(4) Order multi-gang faceplates separately.

Ordering Information
Cat No. Description

Environ3 Relay Modules and Power Extenders

Environ3 Power Extenders / Dimming Amplifiers

61259 Environ3 power extender 1 X 1000W electronic low-voltage, wall mount, 120VAC

61260 Environ3 power extender, 2 X 1000W electronic low-voltage, wall mount, 120VAC

61250 Environ3 power extender, 1 X 2400W incandescent, magnetic low-voltage, neon/cold cathode, wall mount, 120VAC

61251 Environ3 power extender, 2 X 2000W incandescent, magnetic low-voltage, neon/cold cathode, wall mount, 120VAC

61252 Environ3 power extender, 1 X 10A HDF fluorescent, 2-gang, 120/277VAC

61253 Environ3 power extender, 1 X 20A HDF fluorescent, 4-gang, 120VAC

61254 Environ3 power extender, 1 X 20A HDF fluorescent, 4-gang, 277VAC

61255 Environ3 power extender 1 X 2400W Mark 10®, wall mount, 120VAC

61256 Environ3 power extender 1 X 2400W Mark 10®, wall mount, 277VAC

61257 Environ 3 power extender 2 X 2000W Mark 10®, wall mount, 277VAC

Environ3 Relay Modules

61261 Environ3 relay module, 1 X 6 Amp, 2-gang, 120VAC

61262 Environ3 relay module, 2 X 6 Amp, 2-gang, 120VAC

61263 Environ3 relay module, 2 X 6 Amp, 2-gang with transformer, 277VAC

Ordering Information / Notes:

(1) Relay modules require a non-dim strap or heatsink switch device for control.

(2) Power extenders require an appropriate strap or heatsink dimmer device for control.

Environ3 Color Sample Kit

61279 Environ3 color sample kit

Note: Color sample kit contains one each of the following faceplate color samples: 61271–White, 61271–Ivory, 61271–Almond, 61271–Grey, 61271–Black and 61271–Brown)

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012711NA

PHILIPS
Strand Lighting

ENVIRON 3 PRESET DIMMING SYSTEM SPECIFICATION.

General.

A.) Overview.

1.) The lighting control system shall be a robust system of hi-voltage master control stations and wall box dimmers that provides up to 13 lighting scenes per area and up to 58,000 watts of total dimming capacity. The system shall use standard high-voltage wiring to connect all of the dimmer devices to a single dimming network.

B.) Environ 3 Dimmers.

1.) "Strap" devices shall be a designer style device and shall gang with any other designer style device.

2.) "Strap" devices shall fit in standard single gang contractor box (3.5 inch deep) without the need to be de-rated when ganging with other Environ 3 devices or other designer style devices.

3.) "Strap" devices shall be available in 300VA and 600VA. Loads to be controlled shall be incandescent, low voltage magnetic incandescent, neon/cold cathode, fluorescent, fan, and general inductive loads.

4.) "Heatsink" devices shall fit in standard single gang contractor box (3.5 inch deep) when mounted alone.

5.) "Heatsink" devices shall not exceed 3/8" in thickness.

6.) "Heatsink" devices shall be able to be mounted with other heatsink devices without the need to be de-rated. Heatsink devices shall be compatible with Multi-gang screwless faceplates or can be mounted in standard 4"x 4" wire way for ease of installation using faceplates provided.

7.) "Heatsink" devices are supplied with a single screwless faceplate.

8.) "Heatsink" devices shall be available in 500VA, 600VA, 1000VA, 1500VA & 2000VA universal load rated devices. Loads to be controlled shall include incandescent, low voltage magnetic incandescent, neon/cold cathode, fluorescent, fan, and general inductive loads.

9.) "Heatsink" devices shall have a model available in 500VA electronic low voltage (reverse-phase) incandescent. Device shall match other Environ 3 dimmers in fit and appearance.

10.) “Heatsink” devices shall be available in 600 or 1500 HDF direct drive for operation with PowerSpec HDF fluorescent Dimming Ballasts (120VAC applications). Device shall match other Environ 3 devices in fit and appearance.

11.) All Environ 3 devices shall communicate on a single line voltage wire interconnected between all electronic “Strap” and/or “Heatsink” devices, optional interface devices, and Master Control Stations completely independent of phase. This interconnect will occur within each unique control system consisting of up to thirty devices.

C.) Environ 3 Non-Dims.

1.) “Strap” device Non-Dim style switches shall be designer style devices and shall gang with any designer style device.

2.) "Strap" devices shall fit standard single gang contractor boxes (3.5 inch deep) without the need to be de-rated when ganging with other Environ 3 devices or other designer style devices.

3.) “Strap” devices shall be available in 600VA universal load rated devices. Loads to be controlled shall be any general resistive or inductive non-dim type load. A 300VA Electronic Low Voltage Strap device shall also be available.

4.) "Heatsink" devices shall fit in standard single gang contractor box (3.5 inch deep) when mounted alone.

5.) “Heatsink” devices shall be able to be mounted with other heatsink devices without the need to be de-rated. Heatsink devices shall be mounted in no fins broken configurations only. Heatsink devices shall be compatible with Environ 3 Multi-gang "NFB" or "FB" faceplates or can be mounted in standard 4"x 4" wire way for ease of installation using faceplates provided.

6.) “Heatsink” devices shall be available in 600VA, 1000VA and 2000VA universal load rated devices only. Loads to be controlled shall be any general resistive or inductive non-dim type load. A 500VA Electronic Low Voltage (reverse-phase) Heatsink device shall also be available.

7.) All Environ 3 devices shall communicate on a single line voltage wire interconnected between all electronic “Strap” and/or “Heatsink” devices, optional interface devices, and Master Control Stations completely independent of phase. This interconnect will occur within each unique control system consisting of up to thirty devices.

D.) Environ 3 Dimmer/Non-Dim Features.

1.) All devices shall be capable of "learning" thirteen (13) preset levels and recalling those presets with a touch of a button. Preset levels shall be set (learned) by using a non-extrusive set button located on each control device.

2.) Preset level shall not be learned until the set button is pressed. This feature shall allow manual setting, which will not affect preset levels (manual override).

3.) All devices will return to previous level after power failure.

4.) Dimming devices shall allow fade rates between presets to be selected. Fade rates shall include 1.5, 3, 4.5, 7.5, 15, 30 seconds or 1, 2, 5, 15, 30 minutes.

5.) Dimming devices shall fade to preset level with a single press of a button or by using the by-pass Fade Rate feature to quickly move to the preset level.

6.) All devices shall incorporate a red LED indicator to display current output level. Preset level shall be indicated by a single soft glow LED.

7.) All devices shall have a built in LED at the top of the trim ring for locating the device while in an Off state.

8.) All devices shall incorporate a positive air gap switch accessible without removal of the faceplate.

9.) Dimmer and fan devices shall have a built in green LED status bar at the left side of the dimmers trim to provide relative lighting level status.

10.) Devices shall be available in seven (7) colors: White, Ivory, Almond, Gray, Black or Brown.

11.) "Strap" Screwless faceplates shall be available in 1, 2, 3, 4, 5, 6 and 7-gang configurations. Available faceplate colors shall include White, Ivory, Almond, Gray, Black or Brown.

12.) "Heatsink" Screwless faceplates shall be available in 1, 2, 3, 4, 5, 6, and 7-gang configuration. 1-Gang available faceplate colors shall include White, Ivory, Almond, Gray, Black or Brown. 2, 3, 4, 5, 6 and 7-gang available faceplate colors shall include White and Ivory.

E.) Load Types.

1.) Environ 3 Dimmers shall be able to control the following load types with a smooth continuous Square Law-dimming curve:

a.) Incandescent.

b.) Low Voltage Magnetic Transformers.

c.) Neon/Cold Cathode.

2.) Dimmer shall contain circuitry to provide symmetrical waveforms to prevent DC offset voltage from being delivered to the load being controlled.

3.) Dimmers shall be compatible with diode type lamps.

4.) Dimmers shall be input voltage compensated to eliminate output sag during momentary input voltage fluctuations.

5.) Dimmers shall contain "soft start" circuitry to minimize turn on in-rush current.

6.) Dimming Amplifiers shall be available for channels/zones requiring multiple circuits dimmed together or larger loads. Dimming Amplifiers shall be compatible with HDF load rated dimmers.

7.) Environ 3 dimmers shall be available to control HDF or Mark 10 dimming ballasts.

8.) Environ 3 dimmers shall be available to control Neon or Cold Cathode Transformers.

F.) Eight, Five and Two Scene Master Control Station Keypad Controls.

1.) “Master Control Stations” shall be line voltage (120VAC) devices with Hot, Neutral, Communication and Ground. A single line voltage rated conductor (purple wire) shall be used as the control communication data conductor.

2.) “Master Control Station” keypads shall be a designer style device and shall gang with any designer style device.

3.) The two-scene keypad shall be capable of recalling the On scene and Off.

4.) The five-scene keypad shall be capable of recalling five (5) presets and Off.

5.) The eight-scene keypad shall be capable of recalling eight (8) presets.

6.) Keypads shall allow raise and lower of all dimmers on the network.

7.) Keypad buttons shall be backlighted for locating the station in a dark room.

8.) Keypads shall have removable membrane keycaps and be provided with a standard preprinted membrane. Optional custom keypads shall allow for factory custom engraving. Laser-etched engraving shall be finished with light grey indelible ink. The one-piece custom membrane easily replaces the factory supplied standard membrane even if the standard Master Control Station is currently installed. Replacement membrane installs to the Master Control Station with (2) screws and replacing the membrane is a non-electrical procedure.

10.) To provide system feedback, Five and Two scene keypads shall display the On button when the Environ 3 system is left in the Off scene and any dimmer or electronic switch is turned on.

G.) Interface Control Options.

1.) Isolated momentary dry switch closures. When indicated on the drawings momentary dry switch closures (by others) shall be connected between the function being controlled and system ground. When momentary inputs are required at least one Master Control Station keypad for each system being controlled must be specified as having the "AV In" feature.

2.) The Environ 3 Infrared Transmitter is capable of operating over an unobstructed range of 75 feet to any four preset master control station keypad. Within this range, ON-A-B-C-D-OFF scenes can be selected, raised and lowered using the handheld wireless remote transmitter. The hand held remote shall be able to be set to one of four addresses to facilitate control of up to 4 different groups.

H.) Dimming Amplifiers

1.) Dimming Amplifiers shall provide control of a separate lighting circuit regardless of the load phase.

2.) Control of the Dimming Amplifier shall be in conjunction with an Environ 3 VA-rated dimmer to provide input signaling.

3.) Dimming Amplifiers shall be based on the use of Silicon Controlled Rectifiers (SCR) to control the power furnished to the loads.

4.) The complete load current shall be carried by these devices.

5.) The Dimming Amplifier shall be designed to control incandescent, magnetic low voltage incandescent, neon, cold cathode, or general inductive loads.

6.) Dimmer Amplifier rise time shall be restricted by a suitable toroidal filter so that it shall meet 350 microseconds when measured from turn-on to 90% of

maximum amplitude and at 90 degrees conduction angle when a full load is applied to the dimmers.

7.) Fluorescent Dimming Amplifiers shall be used in conjunction with the appropriate electronic dimming ballast as listed by manufacturer.

8.) Dimmer Amplifier input voltage: 106 - 132 VAC, 60 Hz.

9.) Dimmer Amplifier output voltage: regulated to 0.5% per 10-volt line variation.

10.) Dimming Amplifiers shall be UL and cUL listed devices.

I.) "Strap" Screwless Single & Multi-Gang Faceplates.

1.) Faceplates shall have no visible screws and shall fit over all designer style control openings.

2.) Faceplates shall be compatible with Environ 3 devices as well as other designer style wiring devices such as switches, receptacles, jacks, and controls.

3.) Faceplates shall be capable of covering dimmers, switches, and other devices ganged with preset control stations.

4.) Faceplate shall fit standard contractor junction box.

5.) Faceplates shall "snap-on" securely to the supplied faceplate back plate.

6.) Back plate shall have "self-aligning" tabs that center all devices automatically upon installation. Back plate is installed between the wall and strap device.

7.) Faceplates shall be made of durable impact-resistant plastic material.

8.) Faceplates shall be available in one through seven (1-7) gang configurations.

9.) Faceplates shall be capable of being custom engraved.

10. Faceplates shall be available in the following colors:

a.) White.

J.) "Heatsink" Screwless Multi-Gang Faceplates.

1.) Faceplates shall have no visible screws and shall fit over all Environ 3 designer style control openings.

2.) Faceplate shall fit standard contractor junction boxes. Junction box configuration shall match the manufacturers required size.

3.) Faceplates shall "snap-on" securely to device heatsink fins.

4.) Faceplates shall be made of durable impact-resistant plastic material.

5. Faceplates shall be available in various configurations and accommodate up to five large devices or seven small devices under a one-piece screwless faceplate.

6.) Faceplates shall be capable of being custom engraved.

8.) Faceplates shall be available in the following colors:

a.) White.

COMMISSIONING/START UP SPECIFICATION.

A.) General.

1.). Upon completion of the Lighting Control System installation, the system shall be completely examined by a Strand Lighting factory authorized or trained field service technician.

2.) This Commissioning/Start Up shall be performed within 2 to 4 weeks of written notification to Strand Lighting that all load and control wires have been installed and tested, and all elements of the project are prepared and ready in accordance with supplied installation instruction.

3.) The purchaser shall be liable for any return visits by the factory technician as a result of incomplete or incorrect installation.

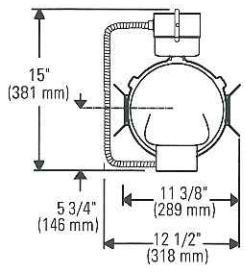
4.) Upon completion of the Commissioning/Start Up, the technician shall demonstrate the operation and maintenance of the system to the owner's representatives.

5.) Training, unless specifically written and outlined otherwise on the purchase order, shall not exceed four (4) hours.

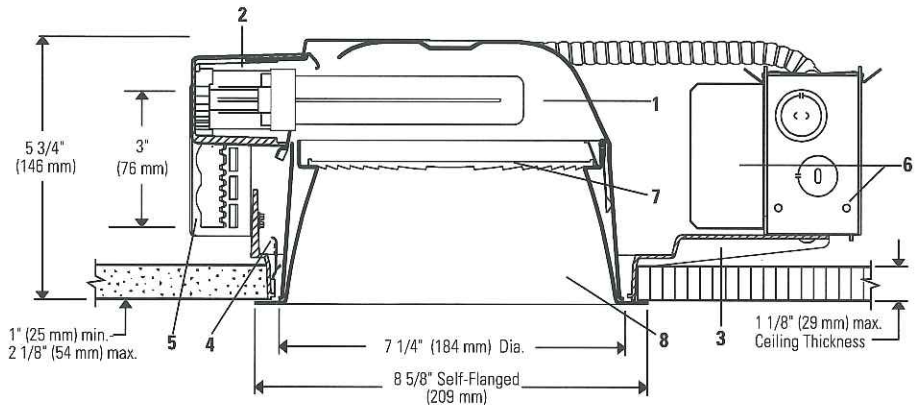
6.) Any request for services outside those normally performed in the Commissioning/Start Up must be submitted to Strand Lighting for authorization and such extra services may require a Purchase Order.

Calculite® CFL Lensed Downlight **8096**

7" Aperture (2) Quad Tube Horizontal Lamp



Top View



Reflector Trim

(Lens:)	Fresnel	Clear	Prismatic
Clear Cone, White Flange	**8096FCLW**	**8096CCLW**	**8096PCLW**
Clear Cone, Polished Flange	**8096FCLP**	**8096CCLP**	**8096PCLP**
White Cone, White Flange	**8096FWHW**	**8096CWHW**	**8096PWHW**

	Opal Diffuser
Clear Cone, White Flange	**8096DCLW**
Clear Cone, Polish Flange	**8096DCLP**
White Cone, White Flange	**8096DWHW***

Frame-In Kit

S7218HU 7" aperture, 2 lamp 18W Quad Tube CFL (120/277V) 4-pin
S7226HU 7" aperture, 2 lamp 26W Quad Tube CFL (120/277V) 4-pin

Dimming Options:

S7218H ☐ or **S7226H** ☐

CU3 Lightolier PowerSpec 3% Dimming (120/277V)
J1LD3 Lutron 5% Dimming (120V) **J2LD3** Lutron 5% Dimming (277V)
JUM7 Mark 7 Dimming (120/277V **J1MX** Mark 10 Dimming (120V)
J2MX Mark 10 Dimming (277V)
Other dimming product available, please consult factory

Features

1. **Reflector:** 16 ga. Die-formed aluminum, Anobrite finish.
2. **Socket Cup:** Snaps onto reflector neck to assure consistently correct optical alignment without tools.
4. **Retaining Springs:** Precision-tooled steel friction springs secure reflector to mounting frame for quick, tool-less installation.
5. **Mounting Brackets:** 16 ga. steel. Adjust from inside of fixture. Use 3/4" or 1 1/2" lathing channel, 1/2" EMT, or optional mounting bars.
6. **Ballast/J-Box:** Outboard mounted to reduce heat transfer and maintain lamp efficacy and life. Service from below without tools.
7. **Shielding Media:** Molded acrylic. Available in fresnel lens, clear lens, or opal diffuser. Secured to aperture cone.
8. **Cone:** 16 ga. Alzak aluminum. Clear Iridescence Free finish or Comfort Clear™ low iridescence finish. Retained by friction springs; no loose parts.

Electrical

Note: For ballast electrical data and latest lamp/ballast compatibility refer to **"Ballast"** specification sheet for complete electrical data.

UL listed for through branch circuit wiring with max of (8) No. 12 AWG, 90° C supply conductors.

Options and Accessories

Comfort Clear™ Finishes[1]		Other Finishes	
Clear	**CCL**	White	**WH**
Diffuse	**CCD**		
Champagne Bronze	**CCZ**		

[1]Specify desired flange
W White, **P** Polished

Emergency	Add suffix **EM***
Chicago Plenum	Add suffix **LC**

Options and Accessories (continued)

Existing/Thk. Ceiling	**FA EC7***
Emergency Lighting Kit	**FA EM3E* (4 pin)**
	FA EM4E* (4 pin)
Fuse (Slow Blow)	Add Suffix **F**

*See Spec. Sheets: FAEC, FAEM

Mounting Bars & Accessories; see Specification Sheet MBA.
Sloped Ceiling Adapters; see Specification Sheet SCA.

Labels

All units are UL listed for wet locations, Opal Diffuser is UL listed for damp locations, I.B.E.W.

Alzak® is a registered trademark of ALCOA.

Job Information	Type:
Job Name:	
Cat. No.:	
Lamp(s):	
Notes:	

631 Airport Road, Fall River, MA 02720 • (508) 679-8131 • Fax (508) 674-4710

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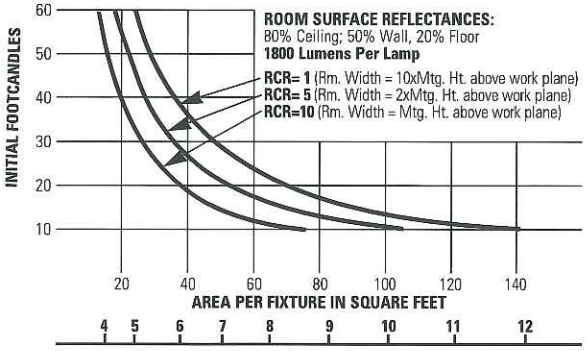
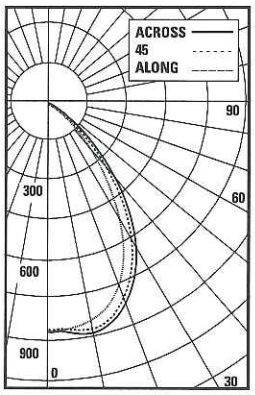
26W Fresnel Lens
Quick Calculator



This quick calculator chart determines the number and spacing of 2 Lt. 26 watt Quad Tube units with Fresnel Lens and clear cone, for any level of illumination.
Conversion Factors: 26W, Fresnel Lens with White Cone = F.C.x 0.9; 18W, Fresnel/Clear Cone = 0.8; 18W Fresnel/Clear Cone =0.7.

Spacing Ratio = 1.2

Certified Test Report Number: 2550
COMPUTED BY: LSI PROGRAM "TEST-LITE"
PREPARED FOR: LIGHTOLIER INC.
APERTURE: 7 1/4"
REFLECTOR: SPECULAR CLEAR ALZAK CONE WITH REGRESSED FRESNEL LENS
LAMPS: TWO 26W QUAD TUBE LENS EACH RATED AT 1800 LUMINES.



****EFFICIENCY = 37.5%****

DATE: NOVEMBER 18, 1992

CANDELPOWER SUMMARY

Angle	ALONG	22.5	45	67.5	ACROSS	LUMENS
0	864	864	864	864	864	
5	852	850	851	868	875	82
10	836	842	860	887	897	
15	806	818	849	881	888	238
20	750	774	812	835	842	
25	670	703	743	769	771	336
30	572	602	643	670	677	
35	453	495	533	556	556	328
40	350	388	416	433	438	
45	255	284	312	321	322	241
50	207	222	240	249	249	
55	70	82	93	103	105	102
60	29	31	38	42	41	
65	8	9	12	10	10	15
70	3	3	6	3	3	
75	2	2	3	2	2	3
80	1	1	4	2	1	
85	1	2	5	3	2	4
90	2	9	14	6	2	

ZONAL LUMENS AND PERCENTAGES

Zone	Lumens	% Lamp	% Luminaire
0–30	657	18.25	48.66
0–40	985	27.37	72.97
0–60	1328	36.90	98.37
0–90	1350	37.50	100.00
40–90	364	10.14	27.03
60–90	21	.61	1.63
90–180	0	.00	.00
0–180	1350	37.50	100.00

TESTED ACCORDING TO IES PROCEDURES. TEST DISTANCE EXCEEDS FIVE TIMES THE GREATEST LUMINOUS OPENING OF LUMINAIRE.

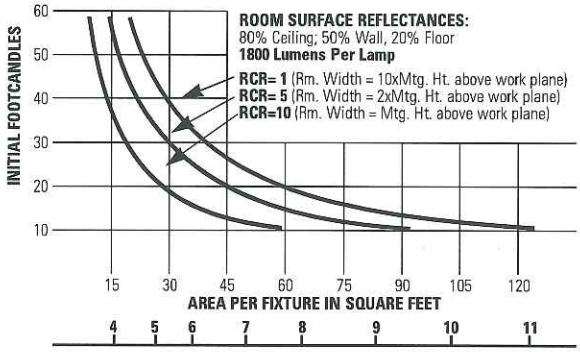
Coefficients of Utilization

ROOM CAVITY RATIO	% Effective Ceiling Cavity Reflectance: 80			70			50			30			10			0
	%Wall Reflectance: 50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
1	.41	.40	.39	.41	.40	.39	.39	.38	.38	.38	.37	.36	.36	.36	.35	.35
2	.38	.37	.35	.38	.36	.35	.38	.35	.34	.35	.34	.34	.34	.34	.33	.32
3	.35	.33	.32	.35	.33	.32	.34	.32	.31	.33	.32	.31	.32	.31	.30	.30
4	.33	.31	.29	.32	.31	.29	.32	.30	.29	.31	.29	.28	.30	.29	.28	.27
5	.30	.28	.26	.30	.28	.26	.29	.27	.26	.29	.27	.25	.28	.27	.25	.25
6	.28	.26	.24	.28	.26	.24	.27	.25	.24	.27	.25	.24	.26	.25	.23	.23
7	.26	.23	.22	.26	.23	.22	.25	.23	.22	.25	.23	.21	.24	.23	.21	.21
8	.24	.21	.20	.24	.21	.20	.23	.21	.20	.23	.21	.19	.22	.21	.19	.19
9	.22	.20	.18	.22	.20	.18	.21	.19	.18	.21	.19	.18	.21	.19	.18	.17
10	.20	.18	.16	.20	.18	.16	.20	.18	.16	.20	.18	.16	.19	.17	.16	.16

20% FLOOR CAVITY REFLECTANCE

Conversion Factors: 26W, Fresnel Lens with White Cone: C.U. x 0.9; 18W, Fresnel/Clear Cone = 1.1; 18W, Fresnel/White Cone = 1.0.

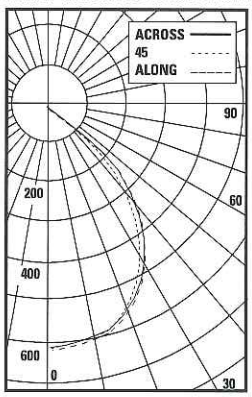
26W Opal Diffuser and Clear Lens
Quick Calculator



This quick calculator chart determines the number and spacing of 2 lt.-26 watt Quad Tube units with Opal Diffuser and Clear Cone for any level of illumination.
Conversion Factors: Opal Diffuser/White Cone = F.C. x 0.9. Clear Lens/Clear Cone = F.C. x 1.2. Clear Lens/White Cone = F.C. x 1.1; 18W, Opal Diffuser/Clear Lens = 0.8; Opal Diffuser/White Cone = 0.7; Clear Lens/Clear Cone = 0.9; Clear Lens/White Cone = 0.8.

Spacing Ratio = 1.2

Certified Test Report Number: 2551
COMPUTED BY: LSI PROGRAM "TEST-LITE"
PREPARED FOR: LIGHTOLIER INC.
APERTURE: 7 1/4"
REFLECTOR: SPECULAR CLEAR WITH REGRESSED OPAL DIFFUSER
LAMPS: TWO 26W QUAD TUBE EACH RATED AT 1800 LUMINES.



****EFFICIENCY = 31.1%****

DATE: NOVEMBER 19, 1992

CANDELPOWER SUMMARY

Angle	Along	22.5	45	67.5	Across	Lumens
0	634	634	634	634	634	
5	622	622	634	643	622	60
10	613	613	625	635	615	
15	594	595	608	620	601	171
20	565	567	582	594	576	
25	529	532	549	562	543	251
30	482	486	503	519	504	
35	430	433	449	464	454	279
40	370	374	386	401	392	
45	299	302	313	326	319	241
50	227	227	234	244	238	
55	87	91	96	104	102	104
60	30	32	37	41	40	
65	7	8	11	10	9	14
70	2	3	6	3	3	
75	2	2	3	2	1	2
80	1	1	4	2	1	
85	1	1	4	3	1	4
90	1	9	14	7	2	

ZONAL LUMENS AND PERCENTAGES

Zone	Lumens	% Lamp	% Luminaire
0–30	481	13.38	42.75
0–40	761	21.15	67.55
0–60	1106	30.73	98.15
0–90	1126	31.30	100.00
40–90	365	10.16	32.45
60–90	20	.58	1.85
90–180	0	.00	.00
0–180	1126	31.30	100.00

TESTED ACCORDING TO IES PROCEDURES. TEST DISTANCE EXCEEDS FIVE TIMES THE GREATEST LUMINOUS OPENING OF LUMINAIRE.

Coefficients of Utilization

ROOM CAVITY RATIO	% Effective Ceiling Cavity Reflectance: 80			70			50			30			10			0
	%Wall Reflectance: 50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
1	.34	.33	.33	.34	.33	.32	.32	.32	.31	.31	.31	.30	.30	.30	.29	.29
2	.32	.30	.29	.31	.30	.29	.30	.29	.28	.29	.28	.28	.28	.28	.27	.26
3	.29	.27	.26	.29	.27	.26	.28	.27	.25	.27	.26	.25	.26	.25	.25	.24
4	.27	.25	.23	.27	.25	.23	.26	.24	.23	.25	.24	.23	.25	.23	.22	.22
5	.25	.23	.21	.24	.22	.21	.24	.22	.21	.23	.22	.21	.23	.21	.20	.20
6	.23	.21	.19	.22	.20	.19	.22	.20	.19	.21	.20	.19	.21	.20	.18	.18
7	.21	.19	.17	.20	.18	.17	.20	.18	.17	.20	.18	.17	.19	.18	.17	.16
8	.19	.17	.15	.19	.17	.15	.18	.16	.15	.18	.16	.15	.18	.16	.15	.14
9	.17	.15	.14	.17	.15	.14	.17	.15	.14	.17	.15	.13	.16	.15	.13	.13
10	.16	.14	.12	.16	.14	.12	.15	.14	.12	.15	.13	.12	.15	.13	.12	.12

20% FLOOR CAVITY REFLECTANCE

Conversion Factors: 26W, Opal Diffuser/White Cone: C.U. x 0.9. Clear Lens/Clear Cone: C.U. x 1.2. Clear Lens/White Cone: C.U. x 1.1; Opal Diffuser/Clear Lens = 1.1; Opal Diffuser/White Cone = 1.0; Clear Lens/Clear Cone = 1.3; Clear Lens/White Cone = 1.2.

Job Information **Type:**

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