

University of South Carolina
School of Medicine Biomedical Production Studio
Building 3, 6311 Garners Ferry Road, Columbia, South Carolina
State Project Number: H27-Z259

August 23, 2016

ADDENDUM NO. 2

This addendum forms a part of the Contract documents and modifies the original Bidding Documents and any previous Addenda as noted below. Acknowledge receipt of this Addendum in the space provided in the Bid Form. Failure to do so may subject Bidder to disqualification.

MODIFICATIONS TO PREVIOUS ADDENDA:

None

MODIFICATIONS TO PROJECT MANUAL:

1. Reference USC Supplemental General Conditions for Construction Projects: **DELETE** USC Supplemental General Conditions for Construction Projects in its entirety. **ADD** USC Supplemental General Conditions for Construction Projects dated 4/2015 attached to this addendum.
2. Reference Specification section 23 0923 – DIRECT DIGITAL CONTROL SYSTEM FOR HVAC, PART 2 PRODUCTS, 2.01 MANUFACTURERS, **DELETE** the following acceptable manufacturers:
“B. Siemens AG, Building Technologies Division: www.siemens.com.
C. Alerton.
D. Substitutions: See Section 01 6000 - Product Requirements.”
ADD “No substitutions accepted.”

MODIFICATIONS TO DRAWINGS:

None

REQUESTED PRODUCT APPROVALS:

1. See attached letter dated August 19, 2016 from Thermal Resource Sales, Inc. with a list of manufacturers that are approved for use on the project.
2. See attached prior approval from James G. Murphy dated August 19, 2016.
3. See attached prior approval from Carolina Architectural Lighting and Design dated August 22, 2016.
4. Section 23 7313 – Modular Central-Station Air Handlers
2.02 Modular Air Handler Manufacturers: Johnson Controls/York

QUESTIONS FROM CONTRACTORS:

None

END OF ADDENDUM NO. 2

USC SUPPLEMENTAL GENERAL CONDITIONS FOR CONSTRUCTION PROJECTS

WORK AREAS

1. The Contractor shall maintain the job site in a safe manner at all times. This includes (but is not limited to) the provision and/or maintenance of lighting, fencing, barricades around obstructions, and safety and directional signage.
2. Contractor's employees shall take all reasonable means not to interrupt the flow of student traffic in building corridors, lobbies, stairs and exterior walks. All necessary and reasonable safety precautions shall be taken to prevent injury to building occupants while transporting materials and equipment through the work area. Providing safe, accessible, plywood-shielded pedestrian ways around construction may be required if a suitable alternative route is not available.
3. At the beginning of the project, the USC Project Manager will establish the Contractor's lay-down area. This area will also be used for the Contractor's work vehicles. The lay-down area will be clearly identified to the contractor by the Project Manager, with a sketch or drawing provided to USC Parking Services. In turn, Parking Services will mark off this area with a sign containing the project name, Project Manager's name, Contractor name and contact number, and end date. Where this area is subject to foot traffic, protective barriers will be provided as specified by the Project Manager. The area will be maintained in a neat and orderly fashion.
4. Work vehicles parked in the lay down area (or designated parking areas) will be clearly marked and display a USC-furnished placard for identification. No personal vehicles will be allowed in this area, or in any areas surrounding the construction site. Personal vehicles must be parked in the perimeter parking lots or garages. Temporary parking permits can be obtained at the Contractor's expense at the USC Parking Office located in the Pendleton Street parking garage. Refer to the CAMPUS VEHICLE EXPECTATIONS (below) for additional information.
5. Contractor is responsible for removal of all debris from the site, and is required to provide the necessary dumpsters which will be emptied on a regular basis. Construction waste must not be placed in University dumpsters. The construction site must be thoroughly cleaned with all trash picked up and properly disposed of on a daily basis and the site must be left in a safe and sanitary condition each day. The University will inspect job sites regularly and will fine any contractor found to be in violation of this requirement an amount of up to \$1,000 per violation.
6. Where it is necessary to jump curbs, dimensional lumber and plywood must be built up to appropriate curb elevation to protect curbs from damage. Contractor will be responsible for any project related damage.
7. The Contractor shall be responsible for erosion and sediment control measures where ground disturbances are made.

PROJECT FENCING

8. All construction projects with exterior impacts shall have construction fencing at the perimeter. Fencing shall be 6' chain link with black or green privacy fabric (80-90% blockage). For fence panels with footed stands, sandbag weights shall be placed on the inside of the fence. Ripped sandbags shall be replaced immediately.
9. For projects with long fencing runs and/or high profile locations, decorative USC banners shall be used on top of privacy fabric; banners should be used at a ratio of one banner for every five fence

panels. USC Project Manager will make arrangements for banner delivery for Contractor to hang.

10. The use of plastic safety fencing is discouraged and shall only be used on a temporary basis (less than four weeks) where absolutely necessary. Safety fencing shall be a neon yellow-green, high-visibility fencing equal to 'Kryptonight' by Tenax. Safety fencing shall be erected and maintained in a neat and orderly fashion throughout the project.
11. Vehicles and all other equipment shall be contained within a fenced area if they are on site for more than 3 consecutive calendar days.

BEHAVIOR

12. Fraternalization between Contractor's employees and USC students, faculty or staff is strictly prohibited.
13. USC will not tolerate rude, abusive or degrading behavior on the job site. Heckling and cat-calling directed toward students, faculty or staff or any other person on USC property is strictly prohibited. Any contractor whose employees violate this requirement will be assessed a fine of up to \$500 per violation.
14. Contractor's employees must adhere to the University's policy of maintaining a drug-free and tobacco-free campus. Tobacco product trash that is found on the jobsite may result in a \$25/piece fee.

HAZARDOUS MATERIALS & SAFETY COMPLIANCE

15. A USC Permit to Work must be signed prior to any work being performed by the general contractor or sub-contractor(s).
16. The contractor will comply with all regulations set forth by OSHA, EPA and SCDHEC. Contractor must also adhere to USC's internal policies and procedures (available by request). Upon request, the contractor will submit all Safety Programs and Certificates of Insurance to the University for review.
17. Contractor must notify the University immediately upon the discovery of suspect material which may contain asbestos or other such hazardous materials. These materials must not be disturbed until approved by the USC Project Manager.
18. In the event of an OSHA inspection, the Contractor shall immediately call the Facilities Call Center, 803-777-4217, and report that an OSHA inspector is on site. An employee from USC's Safety Unit will arrive to assist in the inspection.

LANDSCAPE & TREE PROTECTION

19. In conjunction with the construction documents, the USC Arborist shall direct methods to minimize damage to campus trees. Tree protection fencing is required to protect existing trees and other landscape features to be affected by a construction project. The location of this fence will be evaluated for each situation with the USC Arborist, Landscape Architect and Project Manager. Tree protection fencing may be required along access routes as well as within the project area itself. Fence locations may have to be reset throughout the course of the project.
20. The tree protection fence shall be 6' high chain link fence with 80-90% privacy screening unless otherwise approved by USC Arborist and/or Landscape Architect. If the tree protection fence is completely within a screened jobsite fence perimeter, privacy fabric is not required. In-ground

fence posts are preferred in most situations for greater protection. If utility or pavement conflicts are present, fence panels in footed stands are acceptable. See attached detail for typical tree protection fencing.

21. No entry, vehicle parking, or materials storage will be allowed inside the tree protection zone. A 4" layer of mulch shall be placed over the tree protection area to maintain moisture in the root zone.
22. Where it is necessary to cross walks, tree root zones (i.e., under canopy) or lawns the following protective measures shall be taken:
 - a. For single loads up to 9,000 lbs., a 3/4" minimum plywood base shall be placed over 4" of mulch.
 - b. For single loads over 9,000 lbs., two layers of 3/4" plywood shall be placed over 4" of mulch.
 - c. Plywood sheets shall be replaced as they deteriorate or delaminate with exposure.
 - d. For projects requiring heavier loads, a construction entry road consisting of 10' X 16' oak logging mats on 12" coarse, chipped, hardwood base. Mulch and logging mats shall be supplemented throughout the project to keep matting structurally functional.
23. Damage to any trees during construction shall be assessed by the USC Arborist, who will stipulate what action will be taken for remediation of damage. The cost of any and all remediation will be assumed by the contractor at no additional cost to the project. Compensation for damages may be assessed up to \$500 per caliper inch of tree (up to 8") and \$500 per inch of diameter at breast height (for trees over 8").
24. Damage to trunks and limbs, as well as disturbance of the root zone under the dripline of tree, including compaction of soil, cutting or filling, or storage of materials, shall qualify as damage and subject to remediation.
25. Any damage to existing pavements or landscaping (including lawn areas and irrigation) will be remediated before final payment is made.

TEMPORARY FACILITIES

26. Contractor will be responsible for providing its own temporary toilet facilities, unless prior arrangements are made with the USC Project Manager.
27. Contractor must provide its own electrical power supply. Water may be available to the extent of existing sources. Any needed or desired taps, connections, or metering devices, shall be at the sole expense of the contractor.
28. Use of USC communications facilities (telephones, computers, etc.) by the Contractor is prohibited, unless prior arrangements are made with the USC Project Manager.

CAMPUS KEYS

29. Contractor must sign a Contractor Key Receipt/Return form before any keys are issued. Keys must be returned immediately upon the completion of the work. The Contractor will bear the cost of any re-keying necessary due to the loss of or failure to return keys.

WELDING

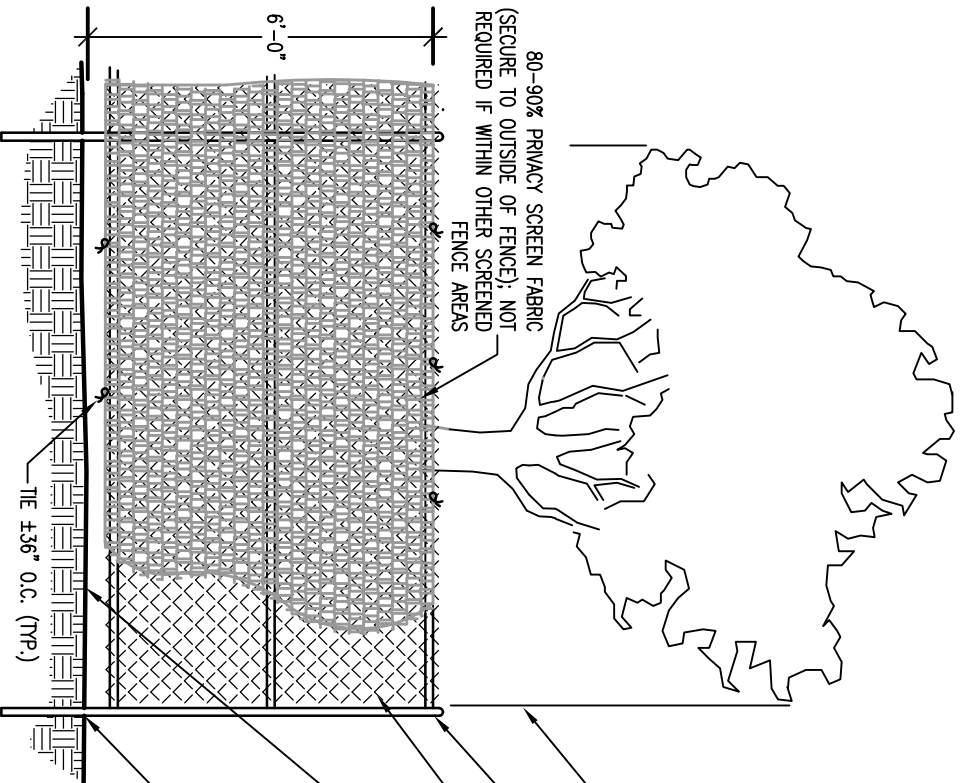
30. A welding (hot work) permit must be issued by the University Fire Marshall before any welding can begin inside a building. The USC Project Manager will coordinate.

PROJECT EVALUATION & CLOSE-OUT

31. For all projects over \$100,000, including IDCs, a Contractor Performance Evaluation (SE 397) will be reviewed with the GC at the beginning of the project and a copy given to the GC. At the end of the project the form will be completed by the USC Project Manager and a Construction Performance rating will be established.
32. Contractor must provide all O&M manuals, as-built drawings, and training of USC personnel on new equipment, controls, etc. prior to Substantial Completion. Final payment will not be made until this is completed.

CAMPUS VEHICLE EXPECTATIONS

33. Personal vehicles must be parked in the perimeter parking lots or garages. Temporary parking permits can be obtained at the Contractor's expense at the USC Parking Office located in the Pendleton Street parking garage.
34. All motorized vehicle traffic on USC walkways and landscape areas must be approved by the USC Project Manager and Parking Division, have a USC parking placard, and be parked within the approved laydown area. Violators may be subject to ticketing, towing and fines.
35. All motorized vehicles that leak or drip liquids are prohibited from traveling or parking on walks or landscaped areas.
36. Drivers of equipment or motor vehicles that damage university hardscape or landscape will be held responsible for damages and restoration expense.
37. All vehicles parked on landscape, hardscape, or in the process of service delivery, must display adequate safety devices, i.e. flashing lights, cones, signage, etc.
38. All drivers of equipment and vehicles shall be respectful of University landscape, equipment, structures, fixtures and signage.
39. All incidents of property damage shall be reported to Parking Services or the Work Management Center.



TREE CANOPY DRIPLINE:
SEE NOTE #2.

2 1/2" O.D. GALV. FENCEPOST

CHAIN LINK FENCE PANEL

PROVIDE 4" HARDWOOD MULCH AT TREE PROTECTION AREA UPON RECOMMENDATION OF USC ARBORIST

FENCE POSTS TO BE SET INTO GROUND; MARK POST LOCATIONS FOR REVIEW AND APPROVAL BY USC ARBORIST PRIOR TO INSTALLATION. SEE NOTE #4.

NOTES:

1. PROVIDE PROTECTION FENCING FOR ALL TREES WITHIN AREA OF DISTURBANCE AND CONSTRUCTION ACCESS.
2. PROTECTION FENCING SHALL BE IN PLACE PRIOR TO BEGINNING CONSTRUCTION.
3. PROTECTION FENCING TO BE PLACED AT THE OUTSIDE OF THE CANOPY DRIPLINE, OR AT A DISTANCE OF ONE FOOT PER ONE INCH OF TREE DIAMETER, MEASURED AT BREAST HEIGHT, WHICHEVER IS LARGER, UNLESS OTHERWISE INDICATED ON LANDSCAPE PLAN OR APPROVED BY UNIVERSITY ARBORIST.
4. IN-GROUND POSTS ARE STANDARD. IF EXISTING ROOTS, UTILITIES OR PAVEMENT PRECLUDE USE OF IN-GROUND POSTS, FOOTED STANDS ARE ACCEPTABLE. SAND BAGS SHALL BE PLACED ON THE INSIDE OF FENCE.
5. DAMAGE TO ANY TREES DURING CONSTRUCTION SHALL BE ASSESSED BY UNIVERSITY ARBORIST AND THE UNIVERSITY ARBORIST SHALL STIPULATE WHAT ACTION WILL BE TAKEN FOR REMEDIATION OF DAMAGE. THE COST OF ANY AND ALL REMEDIATION WILL BE ASSUMED BY CONTRACTOR AT NO ADDITIONAL COST TO THE PROJECT.
6. DISTURBANCE OF ROOT ZONE UNDER DRIPLINE OF TREE, INCLUDING COMPACTION OF SOIL, CUTTING OR FILLING OR STORAGE OF MATERIALS SHALL QUALIFY AS DAMAGE AND SUBJECT TO REMEDIATION.

TREE PROTECTION FENCING (IN-GROUND) WITH SCREENING

NO SCALE REVISED 8.28.14

Thermal Resource Sales, Inc. 7499 Parklane Road Suite 100 Columbia, SC 29223		PH: 803-419-6401 Fax: 803-419-6402 www.trs-sesco.com
PRIOR APPROVAL REQUEST		

August 19, 2016

GMK Engineering
 1201 Main Street, Suite 2100
 Columbia, SC 29201

RE: USC SOM Biomedical Production Studio
 6311 Garners Ferry Road
 Columbia, SC 29209

Dear Mr. Bernagozzi,

For your consideration, we are requesting prior approval to bid the following mechanical equipment for use on this project. We have many references and installations throughout the construction markets in the Southeast, including the Carolinas.

We are requesting permission to bid these specific manufacturers according to the plans and specifications.

<u>Manufacturer</u>	<u>Product</u>	<u>Spec. Section</u>
Temtrol	Air Handling Unit	M701
Rittling	Unit Heater	M701
Nexus Valve	Valve Packages	M701
Metalaire	Variable Air Volume Terminal	M701
Metalaire	Air Distribution	M701
National Controlled Air (NCA)	Dampers	M701

These companies' lines of equipment have each been in manufacturing for many years and are nationally recognized. If you require additional information on these companies or performance data on their products, we would be happy to provide you with that data.

Thank you for your consideration. We look forward to the opportunity to prepare a bid on this project and await your response.

Regards,

Bill Brook

Bill Brook
 Branch Manager



Date: Aug 19, 2016

James G. Murphy Co., Inc.
PO Box 568
Greenville SC 29602
Phone: (864) 271-4470
Fax: (864) 271-4956

Job Name
USC SOM BIOMDEICAL PRODUCTIONS STUDIO - TERRITORY 3
316-35536
COLUMBIA SC

Bid Date
Sep 1, 2016

Submittal Date
Aug 19, 2016

Architect:
STUDIO 2LR ARCHITECTS-22

Engineer:
GMK ASSOCIATES-22



Transmittal

James G. Murphy Co., Inc.
 PO Box 568
 Greenville SC 29602
 Phone: (864) 271-4470
From: Deanna Mccarson

Project USC SOM BIOMDEICAL PRODUCTIONS
STUDIO - TERRITORY 3
Quote# 316-35536
Location COLUMBIA SC
 Contact:

ATTACHED WE ARE SENDING YOU 1 COPY OF THE FOLLOWING ITEM:

- | | | |
|-----------------------------------|---|--------|
| <input type="checkbox"/> Drawings | <input type="checkbox"/> Specifications | Other: |
| <input type="checkbox"/> Prints | <input type="checkbox"/> Information | |
| <input type="checkbox"/> Plans | <input type="checkbox"/> Submittals | |

THESE ARE TRANSMITTED FOR:

- | | | |
|--|---|---------------------------------|
| <input type="checkbox"/> Prior Approval | <input type="checkbox"/> Resubmittal for Approval | <input type="checkbox"/> Record |
| <input type="checkbox"/> Approval | <input type="checkbox"/> Corrections | Bids due on: |
| <input type="checkbox"/> Approval as Submitted | <input type="checkbox"/> Your Use | Other: |
| <input type="checkbox"/> Approval as Noted | <input type="checkbox"/> Review and Comment | |

Type	MFG	Part
A2	LITHONIA-FLUORESCENT DIVISIO	2SP G 2 32 FW A12125 MVOLT GEB10IS PAF
A2E	LITHONIA-FLUORESCENT DIVISIO	2SP G 2 32 FW A12125 MVOLT 2/1 GEB10IS PAF
B	LITHONIA-FLUORESCENT DIVISIO	2VTL4 60L ADP EZ1 LP840 DWAM
BE	LITHONIA-FLUORESCENT DIVISIO	2VTL4 60L ADP EZ1 LP840 BGTD DWAM
D	LITHONIA-FLUORESCENT DIVISIO	2GTL 4 60L EZ1 LP840 PAF
D1	LITHONIA-FLUORESCENT DIVISIO	2GTL 4 72L EZ1 LP840 PAF
D2	LITHONIA-FLUORESCENT DIVISIO	2GTL 4 60L EZ1 LP840 PAF
C	LITHONIA-FLUORESCENT DIVISIO	C 2 32 MVOLT GEB10IS WGCUN NST PAF
U2	BRUCK LIGHTING SYSTEMS	138540 24 40K 95 120 WH / 138529- WH-120
EXIT	LITHONIA-EMERGENCY DIVISION	LRP 1 RC 120/277 EL N



Job Name:
 USC SOM BIOMDEICAL PRODUCTIONS
 STUDIO - TERRITORY 3
 Architect: STUDIO 2LR ARCHITECTS-22
 Engineer: GMK ASSOCIATES-22

Catalog Number:
 2SP G 2 32 FW A12125 MVOLT
 GEB10IS PAF

Notes:

Type:

A2

316-35536



FEATURES & SPECIFICATIONS

INTENDED USE — Specification premium, high performance static T8 luminaires provide general illumination for recessed applications; ideal for schools, hospitals and other applications where fixture depth is a requirement.

ATTRIBUTES — Designed exclusively for use with T8 lamps, electronic ballasts and sockets.

CONSTRUCTION — Smooth hemmed fixture sides and ends for easy handling. Integral T-bar clips secure fixture to T-bar system. Housing formed from cold-rolled steel. Acrylic shielding material 100% UV stabilized. Steel door frame has superior structural integrity with premium extruded appearance and precision flush mitered corners. Steel door allows easy lens replacement without frame disassembly (for lenses up to .156" thick). Door frame assemblies hinge or latch from either side of fixture. Powder-painted steel latches provide easy, secure door closure. Spring-loaded cam latches standard.

No asbestos is used in this product.

FINISH — Five-stage iron-phosphate pre-treatment ensures superior paint adhesion. Painted parts finished with high-gloss, baked white enamel.

OPTICAL — Broad range of lens options available to meet specific performance requirements.

ELECTRICAL — Thermally-protected, resetting, Class P, HPF, non-PCB, UL Listed, CSA certified ballast is standard. Energy-saving and electronic ballasts sound rated A.

Luminaire is suitable for damp locations. AWM, TFN or THHN wire used throughout, rated for required temperatures.

LISTINGS — UL Listed (standard). Optional: Canada CSA or C-UL. Mexico NOM.

WARRANTY — 1-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

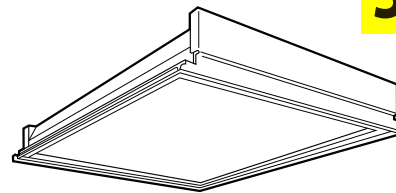
Actual performance may differ as a result of end-user environment and application.

Note: Specifications subject to change without notice.

Catalog Number
Notes
Type

Specification Premium T8 Troffer

SP 2' x 4'



2, 3 or 4-Lamps

Specifications

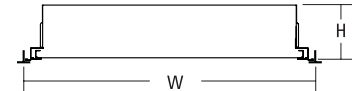
Length: 48 (121.9)

Width: 24 (61.0)

Depth: 4-1/2 (11.4)

Weight: 23 lbs (10.4 kg)

All dimensions are inches (centimeters) unless otherwise noted.



ORDERING INFORMATION

For shortest lead times, configure product using **bolded** options.

Example: 2SP G 2 U316 A12125 MVOLT GEB10IS

2SP	G	2	32	FW	A12125
Series	Trim type	Number of lamps	Lamp type	Door frame	Diffuser type
2SP 2'Wide	G Grid	2	32 32W T8 (48")	(blank) Flush steel, white	A12 #12 pattern acrylic
	F Overlapping flanged	3		FN Flush aluminum, natural	A12125 #12 pattern acrylic, 0.125" thick
	MT Modular fit-in	4		FW Flush aluminum, white	A19 #19 pattern acrylic, 0.125" thick
		6		RN Regressed aluminum, natural	A15 #15 pattern acrylic, 0.2" thick
		Not included.		RW Regressed aluminum, white	PC15 1/2" x 1/2" x 1/2" plastic cube louver, silver with flange
					PC25 1-1/2" x 1-1/2" x 1" plastic cube louver, silver with flange
					PC35 3/4" x 3/4" x 1/2" plastic cube louver, silver with flange
MVOLT	GEB10IS PAF				
Voltage ¹	Options				
120	1/4	One, four-lamp ballast	EL14	Emergency battery pack (nominal 1400 lumens)	PAF Painted after fabrication (white enamel)
277	1/3	One, three-lamp ballast	GLR	Internal fast-blow fuse ³	LASC LA school safety cable
347	2/3	Two, three-lamp ballast ²	GMF	Internal slow-blow fuse ³	JP Palletized and stretch-wrapped, (G trim only)
MVOLT	GEB10IS	Electronic ballast, ≤10% THD, instant Start	LST	Tandem-wired fixture pairs (shared ballasts)	CSA CSA Certified
Others available	GEB10RS	Electronic ballast, ≤ 10% THD, rapid start	PWS1836	6' pre-wire, 3/8" dia., 18-gauge, 1 circuit	NOM NOM Certified
	EL	Emergency battery pack (nominal 300 lumens)	LP__	Lamped, specify lamp type and color	

Notes

- 1 MVOLT standard for 120V and 277V applications. Some options require voltage specified.
- 2 Six-lamp configuration only.
- 3 Must specify voltage.



Job Name:
 USC SOM BIOMDEICAL PRODUCTIONS
 STUDIO - TERRITORY 3
 Architect: STUDIO 2LR ARCHITECTS-22
 Engineer: GMK ASSOCIATES-22

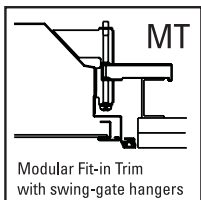
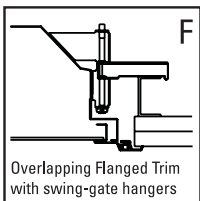
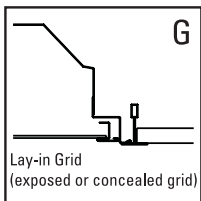
Catalog Number:
 2SP G 2 32 FW A12125 MVOLT
 GEB10IS PAF
 Notes:

Type:
A2
 316-35536

SP 2'X2' Troffer T8 Troffer

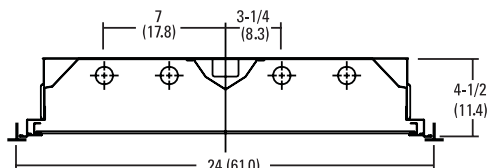
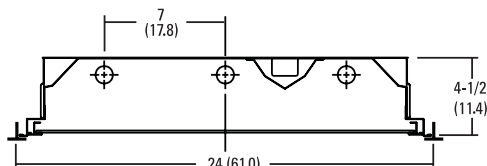
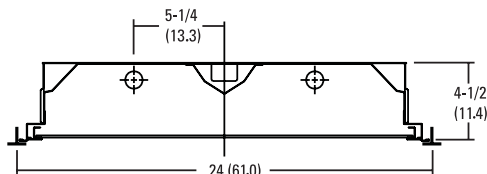
MOUNTING DATA

Continuous row mounting of flanged units requires CRE and CRM trim options (see Options).



DIMENSIONS

All dimensions are inches (centimeters). Specifications subject to change without notice.



Notes

- 1 Recommended rough-in dimensions for F trim fixtures 24" x 48" (Tolerance is +1/4", -0").
 Swing-gate range 1-5/8" to 3-3/4". Swing-gate span 23-3/8" to 26-11/16".

PHOTOMETRICS

Calculated using the zonal cavity method in accordance with IESNA LM41 procedure. Floor reflectances are 20%. Lamp configurations shown are typical. Full photometric data on these and other configurations available upon request.

2SP 3 32 A12125

Report: **LTL13408**
 LUMENS PER LAMP: **2850**
 Luminaire Efficiency: 81.5%

pc	Coefficients of Utilization								
	20%			30%			30%		
	80%	50%	10%	80%	50%	10%	80%	50%	10%
0	97	97	97	91	91	91	87	87	87
1	89	86	83	80	78	76	77	75	74
2	82	76	71	71	67	64	69	65	63
3	75	67	61	64	59	55	61	57	54
4	69	60	53	57	52	47	55	50	47
5	64	54	47	51	46	41	50	45	41
6	59	49	42	47	41	37	45	40	36
7	55	45	38	43	37	33	42	36	32
8	51	41	34	39	33	29	38	33	29
9	48	37	31	36	30	26	35	30	26
10	45	35	28	33	28	24	33	28	24

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0° - 30°	2217	25.9	31.8
0° - 40°	3626	42.4	52.0
0° - 60°	5947	69.6	85.4
0° - 90°	6968	81.5	100.0
90° - 180°	0	0.0	0.0
0° - 180°	6968	81.5	100.0

2SP 3 32 A12

Report: **LTL13410**
 LUMENS PER LAMP: **2850**
 Luminaire Efficiency: 81.9%

pc	Coefficients of Utilization								
	20%			30%			30%		
	80%	50%	10%	80%	50%	10%	80%	50%	10%
0	98	98	98	91	91	91	87	87	87
1	90	86	83	81	78	76	78	76	74
2	82	76	71	72	68	64	69	66	63
3	76	67	61	64	59	55	62	57	54
4	70	60	53	57	52	47	55	51	47
5	64	54	47	52	46	41	50	45	41
6	59	49	42	47	41	37	45	40	36
7	55	45	38	43	37	33	42	36	32
8	52	41	34	39	33	29	38	33	29
9	48	38	31	36	30	26	35	30	26
10	45	35	28	33	28	24	33	28	24

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0° - 30°	2219	25.9	31.7
0° - 40°	3621	42.3	51.7
0° - 60°	5944	69.5	84.9
0° - 90°	7005	81.9	100.0
90° - 180°	0	0.0	0.0
0° - 180°	7005	81.9	100.0

2SP 3 32 A19

Report: **LTL13472**
 LUMENS PER LAMP: **2850**
 Luminaire Efficiency: 76.9%

pc	Coefficients of Utilization								
	20%			30%			30%		
	80%	50%	10%	80%	50%	10%	80%	50%	10%
0	92	92	92	85	85	85	82	82	82
1	85	82	79	77	75	73	74	73	71
2	79	73	69	69	66	63	67	64	62
3	73	66	61	63	58	55	60	57	54
4	67	59	54	57	52	48	55	51	47
5	63	54	48	51	46	43	50	46	42
6	58	49	43	47	42	38	46	41	38
7	54	45	39	43	38	34	42	37	34
8	51	41	35	40	34	31	39	34	31
9	47	38	32	37	32	28	36	31	28
10	45	35	29	34	29	26	33	29	25

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0° - 30°	2413	28.2	36.7
0° - 40°	3949	46.2	60.0
0° - 60°	5947	69.6	90.4
0° - 90°	6578	76.9	100.0
90° - 180°	0	0.0	0.0
0° - 180°	6578	76.9	100.0



SP-2X4



Job Name:
 USC SOM BIOMDEICAL PRODUCTIONS
 STUDIO - TERRITORY 3
 Architect: STUDIO 2LR ARCHITECTS-22
 Engineer: GMK ASSOCIATES-22

Catalog Number:
 2SP G 2 32 FW A12125 MVOLT 2/1
 GEB10IS PAF
 Notes:

Type:
A2E

316-35536



FEATURES & SPECIFICATIONS

INTENDED USE — Specification premium, high performance static T8 luminaires provide general illumination for recessed applications; ideal for schools, hospitals and other applications where fixture depth is a requirement.

ATTRIBUTES — Designed exclusively for use with T8 lamps, electronic ballasts and sockets.

CONSTRUCTION — Smooth hemmed fixture sides and ends for easy handling. Integral T-bar clips secure fixture to T-bar system. Housing formed from cold-rolled steel. Acrylic shielding material 100% UV stabilized. Steel door frame has superior structural integrity with premium extruded appearance and precision flush mitered corners. Steel door allows easy lens replacement without frame disassembly (for lenses up to .156" thick). Door frame assemblies hinge or latch from either side of fixture. Powder-painted steel latches provide easy, secure door closure. Spring-loaded cam latches standard.

No asbestos is used in this product.

FINISH — Five-stage iron-phosphate pre-treatment ensures superior paint adhesion. Painted parts finished with high-gloss, baked white enamel.

OPTICAL — Broad range of lens options available to meet specific performance requirements.

ELECTRICAL — Thermally-protected, resetting, Class P, HPF, non-PCB, UL Listed, CSA certified ballast is standard. Energy-saving and electronic ballasts sound rated A.

Luminaire is suitable for damp locations. AWM, TFN or THHN wire used throughout, rated for required temperatures.

LISTINGS — UL Listed (standard). Optional: Canada CSA or C-UL. Mexico NOM.

WARRANTY — 1-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

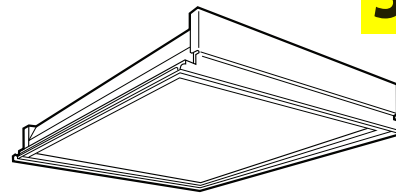
Actual performance may differ as a result of end-user environment and application.

Note: Specifications subject to change without notice.

Catalog Number
Notes
Type

Specification Premium T8 Troffer

SP 2' x 4'



2, 3 or 4-Lamps

Specifications

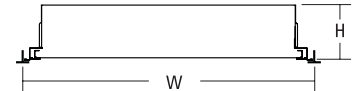
Length: 48 (121.9)

Width: 24 (61.0)

Depth: 4-1/2 (11.4)

Weight: 23 lbs (10.4 kg)

All dimensions are inches (centimeters) unless otherwise noted.



ORDERING INFORMATION

For shortest lead times, configure product using **bolded** options.

Example: 2SP G 2 U316 A12125 MVOLT GEB10IS

2SP	G	2	32	FW	A12125
Series	Trim type	Number of lamps	Lamp type	Door frame	Diffuser type
2SP 2'Wide	G Grid	2	32 32W T8 (48")	(blank) Flush steel, white	A12 #12 pattern acrylic
	F Overlapping flanged	3		FN Flush aluminum, natural	A12125 #12 pattern acrylic, 0.125" thick
	MT Modular fit-in	4		FW Flush aluminum, white	A19 #19 pattern acrylic, 0.125" thick
		6		RN Regressed aluminum, natural	A15 #15 pattern acrylic, 0.2" thick
		Not included.		RW Regressed aluminum, white	PC15 1/2" x 1/2" x 1/2" plastic cube louver, silver with flange
					PC25 1-1/2" x 1-1/2" x 1" plastic cube louver, silver with flange
					PC35 3/4" x 3/4" x 1/2" plastic cube louver, silver with flange
MVOLT	2/1 GEB10IS PAF				
Voltage ¹	Options				
120	1/4	One, four-lamp ballast	2/1	EL14	Emergency battery pack (nominal 1400 lumens)
277	1/3	One, three-lamp ballast		GLR	Internal fast-blow fuse ³
347	2/3	Two, three-lamp ballast ²		GMF	Internal slow-blow fuse ³
MVOLT	GEB10IS	Electronic ballast, ≤10% THD, instant Start		LST	Tandem-wired fixture pairs (shared ballasts)
Others available	GEB10RS	Electronic ballast, ≤ 10% THD, rapid start		PWS1836	6' pre-wire, 3/8" dia., 18-gauge, 1 circuit
	EL	Emergency battery pack (nominal 300 lumens)		LP__	Lamped, specify lamp type and color
					PAF Painted after fabrication (white enamel)
					LASC LA school safety cable
					JP Palletized and stretch-wrapped, (G trim only)
					CSA CSA Certified
					NOM NOM Certified

Notes

- 1 MVOLT standard for 120V and 277V applications. Some options require voltage specified.
- 2 Six-lamp configuration only.
- 3 Must specify voltage.



Job Name:
 USC SOM BIOMDEICAL PRODUCTIONS
 STUDIO - TERRITORY 3
 Architect: STUDIO 2LR ARCHITECTS-22
 Engineer: GMK ASSOCIATES-22

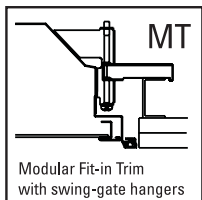
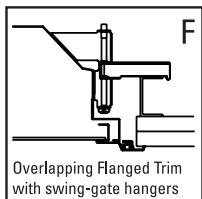
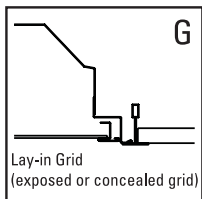
Catalog Number:
 2SP G 2 32 FW A12125 MVOLT 2/1
 GEB10IS PAF
 Notes:

Type:
A2E
 316-35536

SP 2'X2' Troffer T8 Troffer

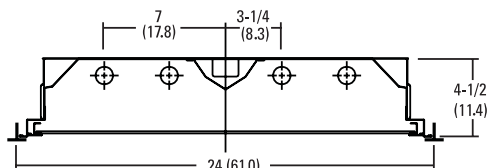
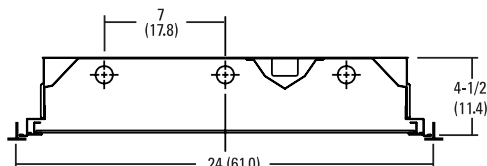
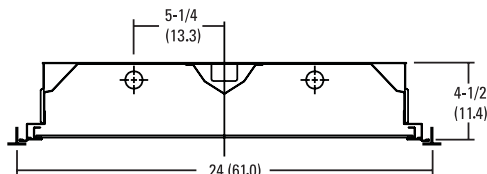
MOUNTING DATA

Continuous row mounting of flanged units requires CRE and CRM trim options (see Options).



DIMENSIONS

All dimensions are inches (centimeters). Specifications subject to change without notice.



Notes

- 1 Recommended rough-in dimensions for F trim fixtures 24" x 48" (Tolerance is +1/4", -0"). Swing-gate range 1-5/8" to 3-3/4". Swing-gate span 23-3/8" to 26-11/16".

PHOTOMETRICS

Calculated using the zonal cavity method in accordance with IESNA LM41 procedure. Floor reflectances are 20%. Lamp configurations shown are typical. Full photometric data on these and other configurations available upon request.

2SP 3 32 A12125

Report: **LTL13408**
 LUMENS PER LAMP: **2850**
 Luminaire Efficiency: 81.5%

pc	Coefficients of Utilization								
	20%			30%			30%		
	80%	50%	10%	80%	50%	10%	80%	50%	10%
0	97	97	97	91	91	91	87	87	87
1	89	86	83	80	78	76	77	75	74
2	82	76	71	71	67	64	69	65	63
3	75	67	61	64	59	55	61	57	54
4	69	60	53	57	52	47	55	50	47
5	64	54	47	51	46	41	50	45	41
6	59	49	42	47	41	37	45	40	36
7	55	45	38	43	37	33	42	36	32
8	51	41	34	39	33	29	38	33	29
9	48	37	31	36	30	26	35	30	26
10	45	35	28	33	28	24	33	28	24

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0° - 30°	2217	25.9	31.8
0° - 40°	3626	42.4	52.0
0° - 60°	5947	69.6	85.4
0° - 90°	6968	81.5	100.0
90° - 180°	0	0.0	0.0
0° - 180°	6968	81.5	100.0

2SP 3 32 A12

Report: **LTL13410**
 LUMENS PER LAMP: **2850**
 Luminaire Efficiency: 81.9%

pc	Coefficients of Utilization								
	20%			30%			30%		
	80%	50%	10%	80%	50%	10%	80%	50%	10%
0	98	98	98	91	91	91	87	87	87
1	90	86	83	81	78	76	78	76	74
2	82	76	71	72	68	64	69	66	63
3	76	67	61	64	59	55	62	57	54
4	70	60	53	57	52	47	55	51	47
5	64	54	47	52	46	41	50	45	41
6	59	49	42	47	41	37	45	40	36
7	55	45	38	43	37	33	42	36	32
8	52	41	34	39	33	29	38	33	29
9	48	38	31	36	30	26	35	30	26
10	45	35	28	33	28	24	33	28	24

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0° - 30°	2219	25.9	31.7
0° - 40°	3621	42.3	51.7
0° - 60°	5944	69.5	84.9
0° - 90°	7005	81.9	100.0
90° - 180°	0	0.0	0.0
0° - 180°	7005	81.9	100.0

2SP 3 32 A19

Report: **LTL13472**
 LUMENS PER LAMP: **2850**
 Luminaire Efficiency: 76.9%

pc	Coefficients of Utilization								
	20%			30%			30%		
	80%	50%	10%	80%	50%	10%	80%	50%	10%
0	92	92	92	85	85	85	82	82	82
1	85	82	79	77	75	73	74	73	71
2	79	73	69	69	66	63	67	64	62
3	73	66	61	63	58	55	60	57	54
4	67	59	54	57	52	48	55	51	47
5	63	54	48	51	46	43	50	46	42
6	58	49	43	47	42	38	46	41	38
7	54	45	39	43	38	34	42	37	34
8	51	41	35	40	34	31	39	34	31
9	47	38	32	37	32	28	36	31	28
10	45	35	29	34	29	26	33	29	25

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0° - 30°	2413	28.2	36.7
0° - 40°	3949	46.2	60.0
0° - 60°	5947	69.6	90.4
0° - 90°	6578	76.9	100.0
90° - 180°	0	0.0	0.0
0° - 180°	6578	76.9	100.0



SP-2X4



Job Name:
USC SOM BIOMDEICAL PRODUCTIONS
STUDIO - TERRITORY 3
Architect: STUDIO 2LR ARCHITECTS-22
Engineer: GMK ASSOCIATES-22

Catalog Number:
2VTL4 60L ADP EZ1 LP840 DWAM

Type:
B

Notes:

316-35536



FEATURES & SPECIFICATIONS

INTENDED USE — The VT Series Volumetric LED Troffer (VTL) combines the aesthetics and high performance with intelligent LED engines for applications such as offices, schools, retail locations and hospitals. High-efficacy light engines deliver long life and excellent color, ensuring a superior quality lighting installation that is highly efficient and sustainable. Multiple lumen packages and driver options provide solutions for all your lighting applications. Featured nLight control system provides design flexibility and ease of installation and optimum energy savings.

CONSTRUCTION — Rugged, one-piece cold-rolled steel coated polyester, painted after fabrication with embossed facets. Impact-modified, single clear acrylic diffuser provides excellent shielding and wide distribution. End plates include integral T-bar clips. Fixture may be mounted and wired in continuous rows. Total fixture height is only 4-3/8".

OPTICS — Volumetric illumination is achieved by creating an optimal mix of light to walls, partitions, vertical and horizontal work surfaces — rendering the interior space, objects and occupants in a more balanced, complementary luminous environment. Linear faceted reflector cavity softens and distributes light into the space while minimizing luminous contrast between the fixture and ceiling. Sloped end plates provide a smooth, luminous transition between fixture and ceiling while enhancing the perception of fixture depth. High-performance diffuser provides LED concealment, even illumination across the diffuser and improved lumen-per-watt performance.

Now available with two different aesthetics including the standard Acrylic Linear Prismatic Diffuser (ADP) and the Acrylic Linear Prismatic Diffuser with Diffuser Trim Rings (ADPT).

ELECTRICAL — Long-life LEDs, coupled with high-efficiency drivers, provide superior quantity and quality of illumination for extended service life. 90% LED lumen maintenance at 60,000 hours (L90/60,000). eldoLED driver options deliver choice of dimming range, and choices for control, while assuring flicker-free, low-current inrush, 89% efficiency and low EMI.

Optional integrated nLight® controls make each luminaire addressable - allowing it to digitally communicate with other nLight enabled controls such as dimmers, switches, occupancy sensors and photocontrols. Simply connect all the nLight enabled control devices and the VTL luminaires using standard Cat-5 cabling. Unique plug-and-play convenience as devices and luminaires automatically discover each other and self-commission. Lumen Management: Unique lumen management system (option N80) provides onboard intelligence that actively manages the LED light source so that constant lumen output is maintained over the system life, preventing the energy waste created by the traditional practice of over-lighting.

Step-level dimming option allows system to be switched to 50% power for compliance with common energy codes while maintaining fixture appearance.

Driver disconnect provided where required to comply with US and Canadian codes.

SENSOR — Integrated sensor (individual control): Sensor Switch MSD7ADCX ((Passive infrared (PIR) or MSPDPT7ADCX ((PIR/Microphonics Dual Tech (PDT)) integrated occupancy sensor/automatic dimming photocell allows the luminaire to power off when the space is unoccupied or enough ambient light is entering the space. See page 2 for more details on the integrated sensor.

Integrated Sensor (nLight Wired Networking): This sensor is nLight-enabled, meaning it has the ability to communicate over an nLight network. When wired, using CAT-5 cabling, with other nLight-enabled

Catalog Number
Notes
Type

VT Series Volumetric LED Troffer



sensors, power packs, or WallPods, an nLight control zone is created. Once linked to a Gateway, directly or via a Bridge, the zone becomes capable of remote status monitoring and control via SensorView software. See page 2 for the nLight sensor options.

INSTALLATION — Unique grid interfacing arrangement provides mounting into standard 1" and 9/16" tee bar or screw slot grids. 9/16" allows fixture trim to hang level with architectural ceiling tiles. Drywall ceiling adaptors available. Suitable for damp location.

LISTINGS — CSA Certified to meet U.S. and Canadian standards. IC rated. DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

WARRANTY — 5-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

NOTE: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25°C. Specifications subject to change without notice.

ANTI MICROBIAL FINISH

Example: 2VTL4 40L ADPT EZ1 LP840 N100 NES7

ORDERING INFORMATION Lead times will vary depending on options selected. Consult with your sales representative.

2VTL4		60L	ADP		EZ1	LP840
Series	Air function	Lumens	Diffuser	Voltage	Driver	Color temperature
2VTL4 2X4 VTL	(blank) Static H Heat removal	30L 3000 ¹	ADP Acrylic linear prismatic	(blank) MVOLT 347 347 ²	EZ1 eldoLED dims to 1% (0-10 volt dimming)	LP830 82CRI, 3000 K
		40L 4000 ¹	ADPT Acrylic linear prismatic with diffuser trim rings		EZB eldoLED dims to dark (0-10 volt dimming)	LP835 82CRI, 3500 K
		48L 4800 ¹			EDB eldoLED DALI ³	LP840 82CRI, 4000 K
		60L 6000 ¹			EXB eldoLED DMX/RDM ³	LP850 82CRI, 5000 K
		72L 7200 ¹			SLD Step-level dimming ⁴	
					EXA1 Dims to 1%, XPoint wireless enabled ⁴	
					EXAB Dims to dark, XPoint wireless enabled ⁴	

Controls	Occupancy Control ⁶	Options
(blank) No nLight [®]	(blank) No sensor control	
N80 nLight [®] with 80% lumen management	nLight [™] NES 7 PIR integral occupancy sensor ⁷	Xpoint Wireless Networking XADS7 Xpoint [™] micro 360° PIR occupancy sensor and automatic dimming photocell ^{8,9}
N80EMG nLight [®] with 80% lumen management For use with generator supply EM power ⁵	NESPD7 nLight [™] NES PDT 7 dual technology integral occupancy control ⁷	Individual Control MSD7ADCX PIR integral occupancy sensor with automatic dimming control photocell ^{8,10}
N100 nLight [®] without lumen management	NES7ADCX nLight [™] NES 7 ADCX PIR integral occupancy sensor with automatic dimming photocell ⁷	MSPDPT7ADCX PDT integral occupancy sensor with automatic dimming control photocell ^{8,10}
N100EMG nLight [®] without lumen management For use with generator supply EM power ⁵	NESPD7ADCX nLight [™] NES PDT 7 dual technology integral occupancy sensor with automatic dimming photocell ⁷	

Accessories: Order as separate catalog number.	
2VT4 F916	Trim to adjust fixture mounting flush with 9/16" T-bar; for 2x4 fixture
DGA24 FS/VT	Drywall ceiling adapter with trim kit

- Notes**
- 1 Approximate lumen output.
 - 2 Consult factory for availability. Not available with SLD, EL7L or EL14 battery packs.
 - 3 Not available with N80, N80EMG, N100 or N100EMG.
 - 4 Gateway not included. Requires on-site commissioning. Visit www.lightingcontrols.com/XPointWireless for more information.
 - 5 nLight EMG option requires a connection to existing nLight network. Power is provided from a separate N80 or N100 enabled fixture.
 - 6 Must specify ADPT diffuser. See sensor section on page 2.
 - 7 Requires N80, N80EMG, N100, or N100EMG.
 - 8 Not available with N80, N80EMG, N100, or N100EMG.
 - 9 Only available with EXA1 or EXAB driver options.
 - 10 Only available with EZ1 driver option. 0-10v dimming wires not accessible via access plate.



Job Name:
 USC SOM BIOMDEICAL PRODUCTIONS
 STUDIO - TERRITORY 3
 Architect: STUDIO 2LR ARCHITECTS-22
 Engineer: GMK ASSOCIATES-22

Catalog Number:
 2VTL4 60L ADP EZ1 LP840 DWAM

Type:

B

Notes:

316-35536

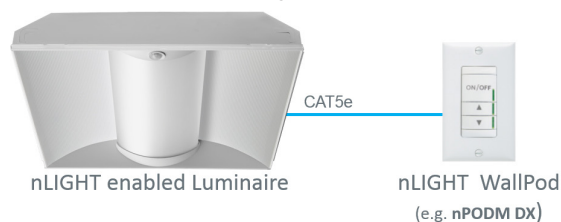
2VTL Volumetric Recessed Lighting 2'x4'

Performance Data			
Lumen Package	Lumens	Input Watts ¹	LPW
30L LP830	3168.4	30.76	103.0
30L LP835	3326.1	30.76	108.1
30L LP840	3677.2	30.76	119.5
30L LP850	3665.8	30.76	119.2
40L LP830	3992.1	38.98	102.4
40L LP835	4210.7	38.98	108.0
40L LP840	4315.3	38.98	110.7
40L LP850	4622.6	38.98	118.6
48L LP830	4619.5	46.43	99.5
48L LP835	4879.3	46.43	105.1
48L LP840	4993.3	46.43	107.5
48L LP850	5354.5	46.43	115.3
60L LP830	5069.4	52.15	97.2
60L LP835	5351.3	52.15	102.6
60L LP840	5500.3	52.15	105.5
60L LP850	5867.8	52.15	112.5
72L LP830	6751.8	69.25	97.5
72L LP835	6884.8	69.25	99.4
72L LP840	7394.9	69.25	106.8
72L LP850	7803.7	69.25	112.7

Note: Based on ADP diffuser

Sensor Options					
Option	Automatic Dimming Photocell	Occupancy Sensing		nLight Wired Networking	Xpoint Wireless Networking
		PIR	PDT		
MSD7ADCX	X	X			
MSDPDT7ADCX	X		X		
NES7		X		X	
NES7ADCX	X	X		X	
NESPD7			X	X	
NESPD7ADCX	X		X	X	
XADS7	X	X			X

Basic nLight Zone



Integrated Sensor with Individual Control

The MSD7ADCX PIR occupancy sensor/automatic dimming photocell is ideal for areas without obstructions and where daylight harvesting may be desired. Suggested applications include, but not limited to, hallways, corridors, storage rooms, and breakrooms or other areas where people are typically moving.

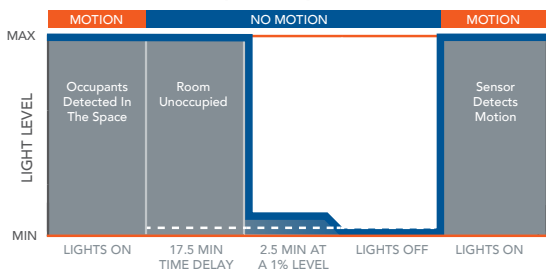
The MSDPDT7ADCX PIR/Microphonics Dual Tech occupancy sensor/automatic dimming photocell is ideal for areas with obstructions and where daylight harvesting is desired. Suggested applications include, but not limited to, open offices, private offices, classrooms, public restrooms, and conference rooms.

nLight Wired Networking

The nES 7 is ideal for small rooms without obstructions or areas with primarily walking motion. Ideal areas include hallways, corridors, storage rooms, and breakrooms. Additionally, the NES7ADCX includes an integrated photocell, which enables daylight harvesting controls.

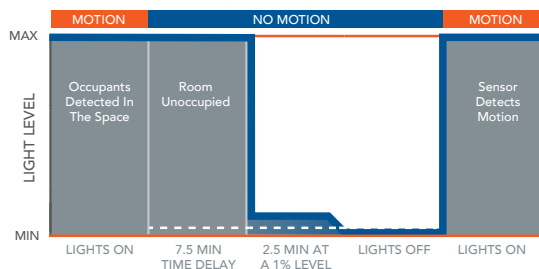
For areas like restrooms, private offices, open offices, conference rooms or any space with obstructions, the nES PDT 7 dual technology sensor is recommended. The nES PDT 7 utilizes both PIR (passive infrared) and Microphonics technologies to detect occupancy. Additionally, the NESPD7ADCX includes an integrated photocell, which enables daylight harvesting controls which is ideal for areas where windows are present.

Sequence of Operation



*The presetting on the automatic dimming photocell is 5fc.

Sequence of Operation

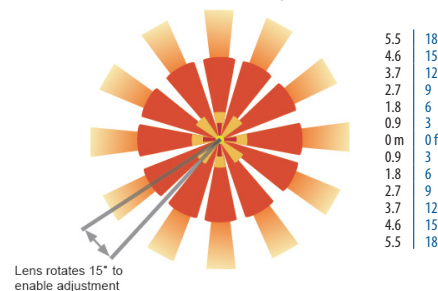


*The presetting on the automatic dimming photocell is 5fc.

Sensor Coverage Pattern Mini 360° Lens

- Recommended for walking motion detection from mounting heights between 8 ft (2.44 m) and 20 ft (6.10 m)
- Initial detection of walking motion along sensor axes at distances of 2x the mounting height up to 15 ft (4.57 m) and 1.75x up to 20 ft (6.10 m).
- Provides 12 ft (3.66 m) radial detection of small motion when mounted at 9 ft (2.74 m)
- Initial detection will occur earlier when walking across sensor's field of view than when walking directly at sensor

9 FT Mounting



2VTL-2X4



Job Name:
 USC SOM BIOMDEICAL PRODUCTIONS
 STUDIO - TERRITORY 3
 Architect: STUDIO 2LR ARCHITECTS-22
 Engineer: GMK ASSOCIATES-22

Catalog Number:
 2VTL4 60L ADP EZ1 LP840 DWAM

Type:

B

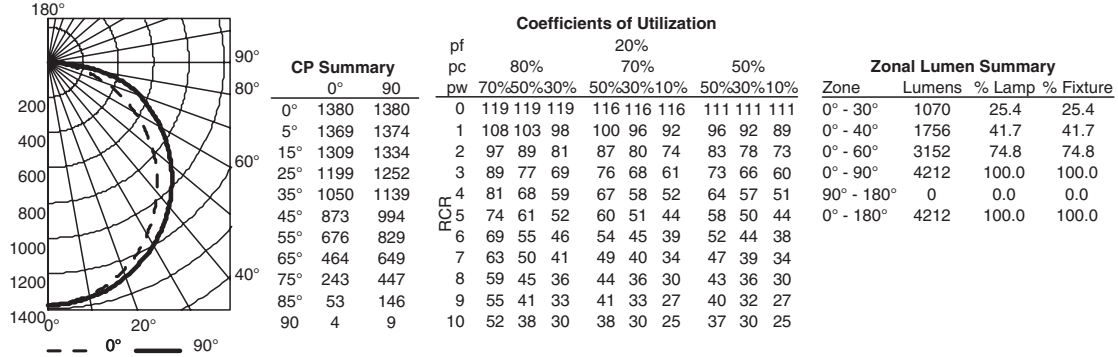
Notes:

316-35536

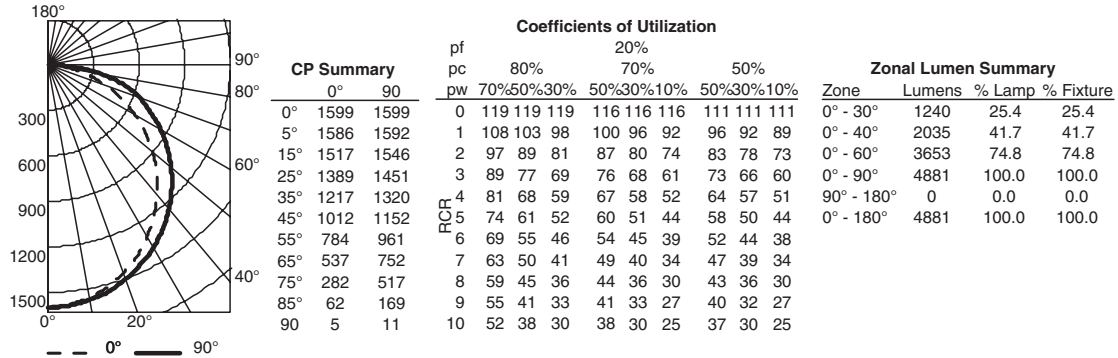
2VTL Volumetric Recessed Lighting 2'x4'

PHOTOMETRICS

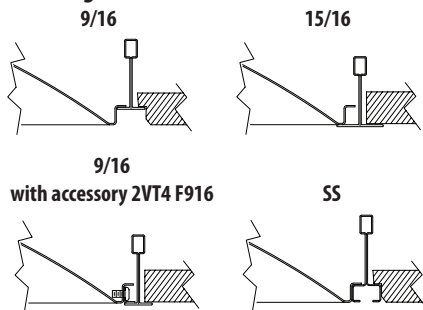
2VTL4 40L ADP LP835, 4211 delivered lumens, test no. LTL24782P4, tested in accordance to IESNA LM-79



2VTL4 48L ADP LP835, 4879 delivered lumens, test no. LTL24782P8, tested in accordance to IESNA LM-79



Mounting data

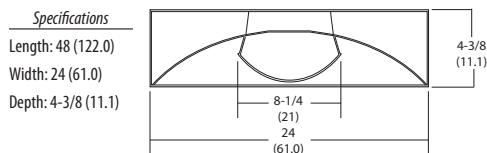


nLight® Control Accessories:
 Order as separate catalog number. Visit www.sensorswitch.com/nLight for complete listing of nLight controls.

WallPod stations	Model number	Occupancy sensors	Model number
On/Off	nPODM [color]	Small motion 360°, ceiling (PIR / dual tech)	nCM 9 / nCM PDT 9
On/Off & Raise/Lower	nPODM DX [color]	Large motion 360°, ceiling (PIR / dual tech)	nCM 10 / nCM PDT 10
Graphic Touchscreen	nPOD GFX	Wall switch with raise/lower	nWSXPDTLVDX
Photocell controls	Model number	Cat-5 cable bundles (plenium rated)	Model number
On/Off & Dimming	nCM ADCX	10', 15 pieces per bundle	CATS 10FT
		30', 15 pieces per bundle	CATS 30FT

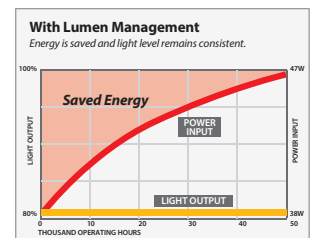
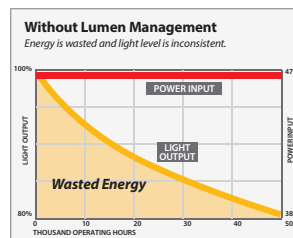
Dimensions

All dimensions are inches (centimeters) unless otherwise specified.



Constant Lumen Management

Enabled by the embedded nLight control, the VTL actively tracks its run-time and manages its light source such that constant lumen output is maintained over the system life. Referred to as lumen management, this feature eliminates the energy waste created by the traditional practice of over-lighting.





Job Name:
USC SOM BIOMDEICAL PRODUCTIONS
STUDIO - TERRITORY 3
Architect: STUDIO 2LR ARCHITECTS-22
Engineer: GMK ASSOCIATES-22

Catalog Number:
2VTL4 60L ADP EZ1 LP840 BGTD
DWAM

Notes:

Type:

BE

316-35536



FEATURES & SPECIFICATIONS

INTENDED USE — The VT Series Volumetric LED Troffer (VTL) combines the aesthetics and high performance with intelligent LED engines for applications such as offices, schools, retail locations and hospitals. High-efficacy light engines deliver long life and excellent color, ensuring a superior quality lighting installation that is highly efficient and sustainable. Multiple lumen packages and driver options provide solutions for all your lighting applications. Featured nLight control system provides design flexibility and ease of installation and optimum energy savings.

CONSTRUCTION — Rugged, one-piece cold-rolled steel coated polyester, painted after fabrication with embossed facets. Impact-modified, single clear acrylic diffuser provides excellent shielding and wide distribution. End plates include integral T-bar clips. Fixture may be mounted and wired in continuous rows. Total fixture height is only 4-3/8".

OPTICS — Volumetric illumination is achieved by creating an optimal mix of light to walls, partitions, vertical and horizontal work surfaces — rendering the interior space, objects and occupants in a more balanced, complementary luminous environment. Linear faceted reflector cavity softens and distributes light into the space while minimizing luminous contrast between the fixture and ceiling. Sloped end plates provide a smooth, luminous transition between fixture and ceiling while enhancing the perception of fixture depth. High-performance diffuser provides LED concealment, even illumination across the diffuser and improved lumen-per-watt performance.

Now available with two different aesthetics including the standard Acrylic Linear Prismatic Diffuser (ADP) and the Acrylic Linear Prismatic Diffuser with Diffuser Trim Rings (ADPT).

ELECTRICAL — Long-life LEDs, coupled with high-efficiency drivers, provide superior quantity and quality of illumination for extended service life. 90% LED lumen maintenance at 60,000 hours (L90/60,000).

eldoLED driver options deliver choice of dimming range, and choices for control, while assuring flicker-free, low-current inrush, 89% efficiency and low EMI.

Optional integrated nLight® controls make each luminaire addressable - allowing it to digitally communicate with other nLight enabled controls such as dimmers, switches, occupancy sensors and photocontrols. Simply connect all the nLight enabled control devices and the VTL luminaires using standard Cat-5 cabling. Unique plug-and-play convenience as devices and luminaires automatically discover each other and self-commission. Lumen Management: Unique lumen management system (option N80) provides onboard intelligence that actively manages the LED light source so that constant lumen output is maintained over the system life, preventing the energy waste created by the traditional practice of over-lighting.

Step-level dimming option allows system to be switched to 50% power for compliance with common energy codes while maintaining fixture appearance.

Driver disconnect provided where required to comply with US and Canadian codes.

SENSOR — Integrated sensor (individual control): Sensor Switch MSD7ADCX ((Passive infrared (PIR) or MSPDPT7ADCX ((PIR/Microphonics Dual Tech (PDT)) integrated occupancy sensor/automatic dimming photocell allows the luminaire to power off when the space is unoccupied or enough ambient light is entering the space. See page 2 for more details on the integrated sensor.

Integrated Sensor (nLight Wired Networking): This sensor is nLight-enabled, meaning it has the ability to communicate over an nLight network. When wired, using CAT-5 cabling, with other nLight-enabled

Catalog Number
Notes
Type

VT Series Volumetric LED Troffer



sensors, power packs, or WallPods, an nLight control zone is created. Once linked to a Gateway, directly or via a Bridge, the zone becomes capable of remote status monitoring and control via SensorView software. See page 2 for the nLight sensor options.

INSTALLATION — Unique grid interfacing arrangement provides mounting into standard 1" and 9/16" tee bar or screw slot grids. 9/16" allows fixture trim to hang level with architectural ceiling tiles. Drywall ceiling adaptors available. Suitable for damp location.

LISTINGS — CSA Certified to meet U.S. and Canadian standards. IC rated. DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

WARRANTY — 5-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

NOTE: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25°C. Specifications subject to change without notice.

ANTI MICROBIAL FINISH

ORDERING INFORMATION

Lead times will vary depending on options selected. Consult with your sales representative.

Example: 2VTL4 40L ADPT EZ1 LP840 N100 NES7

2VTL4		60L		ADP		EZ1		LP840	
Series	Air function	Lumens	Diffuser	Voltage	Driver	Color temperature			
2VTL4 2X4 VTL	(blank) Static	30L 3000 ¹	ADP Acrylic linear prismatic	(blank) MVOLT	EZ1 eldoLED dims to 1% (0-10 volt dimming)	LP830 82CRI, 3000 K			
	H Heat removal	40L 4000 ¹	ADPT Acrylic linear prismatic with diffuser trim rings	347 347 ²	EZB eldoLED dims to dark (0-10 volt dimming)	LP835 82CRI, 3500 K			
		48L 4800 ¹			EDB eldoLED DALI ³	LP840 82CRI, 4000 K			
		60L 6000 ¹			EXB eldoLED DMX/RDM ³	LP850 82CRI, 5000 K			
		72L 7200 ¹			SLD Step-level dimming ²				
					EXA1 Dims to 1%, XPoint wireless enabled ⁴				
					EXAB Dims to dark, XPoint wireless enabled ⁴				
BGTD									
Controls		Occupancy Control ⁶						Options	
(blank)	No nLight [®]	(blank)	No sensor control			Xpoint Wireless Networking		EL7L	700 lumen battery pack
N80	nLight [®] with 80% lumen management	NES7	nLight [™] nES 7 PIR integral occupancy sensor ⁷			XADS7	Xpoint [™] micro 360° PIR occupancy sensor and automatic dimming photocell ^{8,9}	EL14L	1400 lumen battery pack
N80EMG	nLight [®] with 80% lumen management For use with generator supply EM power ⁵	NESPD7	nLight [™] nES PDT 7 dual technology integral occupancy control ⁷				Individual Control	CP	Chicago plenum
N100	nLight [®] without lumen management	NES7ADCX	nLight [™] nES 7 ADCX PIR integral occupancy sensor with automatic dimming photocell ⁷			MSD7ADCX	PIR integral occupancy sensor with automatic dimming control photocell ^{8,10}		
N100EMG	nLight [®] without lumen management For use with generator supply EM power ⁵	NESPD7ADCX	nLight [™] nES PDT 7 dual technology integral occupancy sensor with automatic dimming photocell ⁷			MSPDPT7ADCX	PDT integral occupancy sensor with automatic dimming control photocell ^{8,10}		

BGTD - EMERGENCY TRANSFER DEVICE

Accessories: Order as separate catalog number.	
2VT4 F916	Trim to adjust fixture mounting flush with 9/16" T-bar; for 2x4 fixture
DGA24 FS/VT	Drywall ceiling adapter with trim kit

Notes

- 1 Approximate lumen output.
- 2 Consult factory for availability. Not available with SLD, EL7L or EL14 battery packs.
- 3 Not available with N80, N80EMG, N100 or N100EMG.
- 4 Gateway not included. Requires on-site commissioning. Visit www.lightingcontrols.com/XPointWireless for more information.
- 5 nLight EMG option requires a connection to existing nLight network. Power is provided from a separate N80 or N100 enabled fixture.
- 6 Must specify ADPT diffuser. See sensor section on page 2.
- 7 Requires N80, N80EMG, N100, or N100EMG.
- 8 Not available with N80, N80EMG, N100, or N100EMG.
- 9 Only available with EXA1 or EXAB driver options.
- 10 Only available with EZ1 driver option. 0-10v dimming wires not accessible via access plate.



Job Name:
 USC SOM BIOMDEICAL PRODUCTIONS
 STUDIO - TERRITORY 3
 Architect: STUDIO 2LR ARCHITECTS-22
 Engineer: GMK ASSOCIATES-22

Catalog Number:
 2VTL4 60L ADP EZ1 LP840 BGTD
 DWAM

Notes:

Type:

BE

316-35536

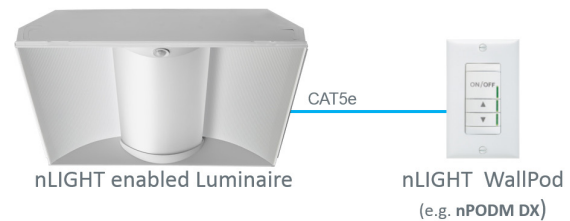
2VTL Volumetric Recessed Lighting 2'x4'

Performance Data			
Lumen Package	Lumens	Input Watts ¹	LPW
30L LP830	3168.4	30.76	103.0
30L LP835	3326.1	30.76	108.1
30L LP840	3677.2	30.76	119.5
30L LP850	3665.8	30.76	119.2
40L LP830	3992.1	38.98	102.4
40L LP835	4210.7	38.98	108.0
40L LP840	4315.3	38.98	110.7
40L LP850	4622.6	38.98	118.6
48L LP830	4619.5	46.43	99.5
48L LP835	4879.3	46.43	105.1
48L LP840	4993.3	46.43	107.5
48L LP850	5354.5	46.43	115.3
60L LP830	5069.4	52.15	97.2
60L LP835	5351.3	52.15	102.6
60L LP840	5500.3	52.15	105.5
60L LP850	5867.8	52.15	112.5
72L LP830	6751.8	69.25	97.5
72L LP835	6884.8	69.25	99.4
72L LP840	7394.9	69.25	106.8
72L LP850	7803.7	69.25	112.7

Note: Based on ADP diffuser

Sensor Options					
Option	Automatic Dimming Photocell	Occupancy Sensing		nLight Wired Networking	Xpoint Wireless Networking
		PIR	PDT		
MSD7ADCX	X	X			
MSDPDT7ADCX	X		X		
NES7		X		X	
NES7ADCX	X	X		X	
NESPD7			X	X	
NESPD7ADCX	X		X	X	
XADS7	X	X			X

Basic nLight Zone



Integrated Sensor with Individual Control

The MSD7ADCX PIR occupancy sensor/automatic dimming photocell is ideal for areas without obstructions and where daylight harvesting may be desired. Suggested applications include, but not limited to, hallways, corridors, storage rooms, and breakrooms or other areas where people are typically moving.

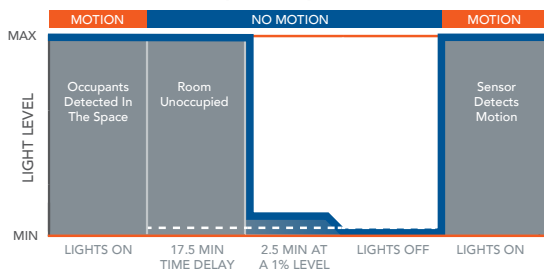
The MSDPDT7ADCX PIR/Microphonics Dual Tech occupancy sensor/automatic dimming photocell is ideal for areas with obstructions and where daylight harvesting is desired. Suggested applications include, but not limited to, open offices, private offices, classrooms, public restrooms, and conference rooms.

nLight Wired Networking

The nES 7 is ideal for small rooms without obstructions or areas with primarily walking motion. Ideal areas include hallways, corridors, storage rooms, and breakrooms. Additionally, the NES7ADCX includes an integrated photocell, which enables daylight harvesting controls.

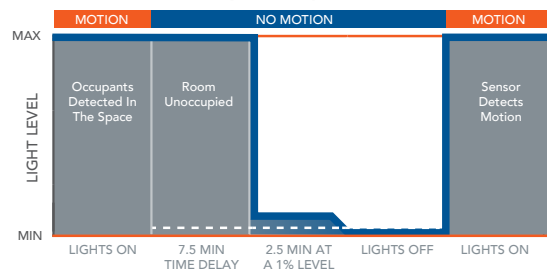
For areas like restrooms, private offices, open offices, conference rooms or any space with obstructions, the nES PDT 7 dual technology sensor is recommended. The nES PDT 7 utilizes both PIR (passive infrared) and Microphonics technologies to detect occupancy. Additionally, the NESPD7ADCX includes an integrated photocell, which enables daylight harvesting controls which is ideal for areas where windows are present.

Sequence of Operation



*The presetting on the automatic dimming photocell is 5fc.

Sequence of Operation

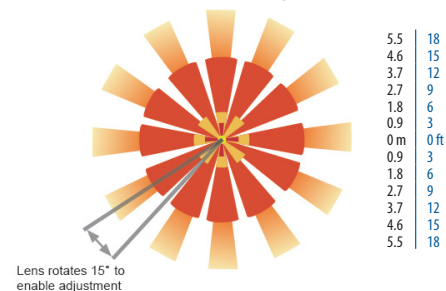


*The presetting on the automatic dimming photocell is 5fc.

Sensor Coverage Pattern Mini 360° Lens

- Recommended for walking motion detection from mounting heights between 8 ft (2.44 m) and 20 ft (6.10 m)
- Initial detection of walking motion along sensor axes at distances of 2x the mounting height up to 15 ft (4.57 m) and 1.75x up to 20 ft (6.10 m).
- Provides 12 ft (3.66 m) radial detection of small motion when mounted at 9 ft (2.74 m)
- Initial detection will occur earlier when walking across sensor's field of view than when walking directly at sensor

9 FT Mounting



2VTL-2X4



Job Name:
 USC SOM BIOMDEICAL PRODUCTIONS
 STUDIO - TERRITORY 3
 Architect: STUDIO 2LR ARCHITECTS-22
 Engineer: GMK ASSOCIATES-22

Catalog Number:
 2VTL4 60L ADP EZ1 LP840 BGTD
 DWAM

Notes:

Type:

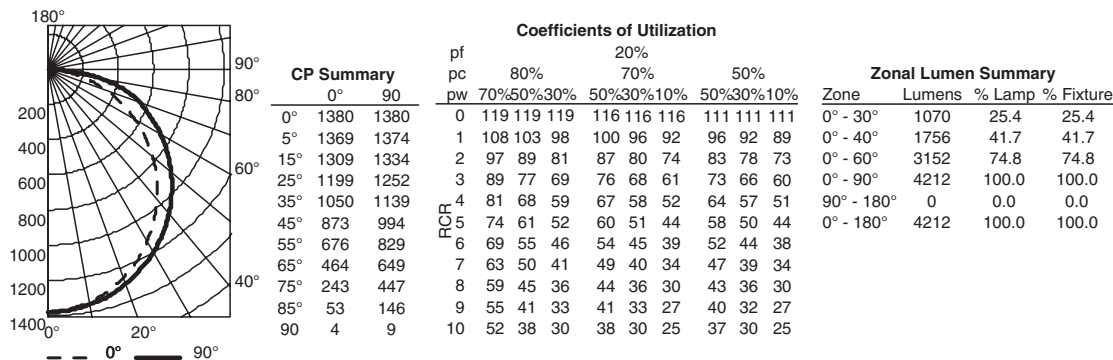
BE

316-35536

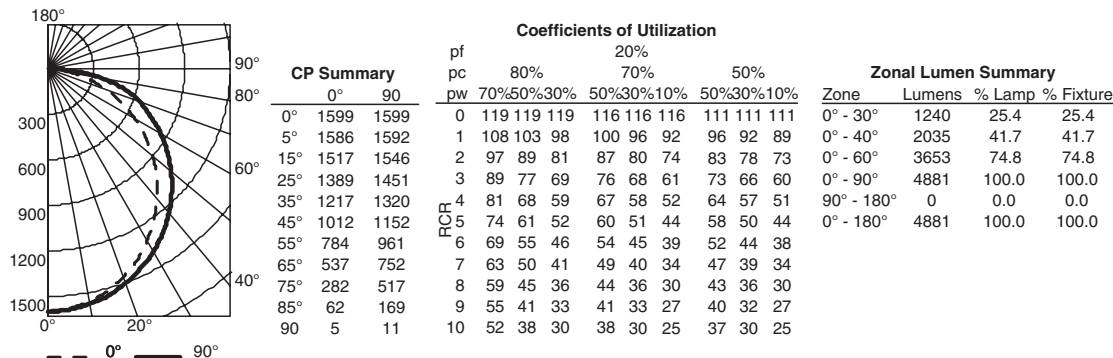
2VTL Volumetric Recessed Lighting 2'x4'

PHOTOMETRICS

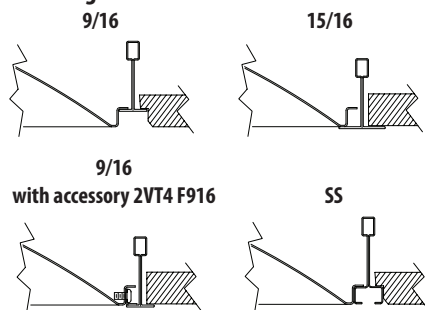
2VTL4 40L ADP LP835, 4211 delivered lumens, test no. LTL24782P4, tested in accordance to IESNA LM-79



2VTL4 48L ADP LP835, 4879 delivered lumens, test no. LTL24782P8, tested in accordance to IESNA LM-79



Mounting data

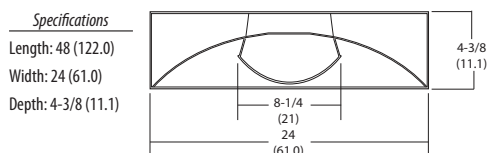


nLight® Control Accessories:
 Order as separate catalog number. Visit www.sensorswitch.com/nLight for complete listing of nLight controls.

WallPod stations	Model number	Occupancy sensors	Model number
On/Off	nPODM [color]	Small motion 360°, ceiling (PIR / dual tech)	nCM 9 / nCM PDT 9
On/Off & Raise/Lower	nPODM DX [color]	Large motion 360°, ceiling (PIR / dual tech)	nCM 10 / nCM PDT 10
Graphic Touchscreen	nPOD GFX	Wall switch with raise/lower	nWSXPDTLVDX
Photocell controls	Model number	Cat-5 cable bundles (plenium rated)	Model number
On/Off & Dimming	nCM ADCX	10', 15 pieces per bundle	CATS 10FT
		30', 15 pieces per bundle	CATS 30FT

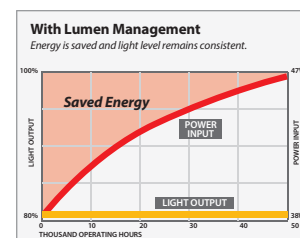
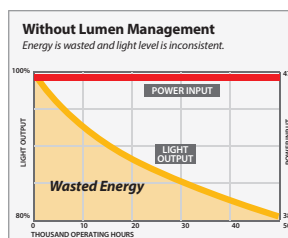
Dimensions

All dimensions are inches (centimeters) unless otherwise specified.



Constant Lumen Management

Enabled by the embedded nLight control, the VTL actively tracks its run-time and manages its light source such that constant lumen output is maintained over the system life. Referred to as lumen management, this feature eliminates the energy waste created by the traditional practice of over-lighting.





Job Name:
 USC SOM BIOMDEICAL PRODUCTIONS
 STUDIO - TERRITORY 3
 Architect: STUDIO 2LR ARCHITECTS-22
 Engineer: GMK ASSOCIATES-22

Catalog Number:
 2GTL 4 60L EZ1 LP840 PAF

Type:

D

Notes:

316-35536



FEATURES & SPECIFICATIONS

INTENDED USE — The 2GTL LED recessed troffer offers a wide range of lumen packages, color temperatures, and lens options to meet the lighting needs for a wide range of applications such as schools, offices, and hospitals. The light engine delivers long life and excellent color to ensure a sound quality, low-maintenance lighting installation. **Certain airborne contaminants can diminish integrity of acrylic.** [Click here for Acrylic Environmental Compatibility table for suitable uses.](#)

CONSTRUCTION — Housing formed from 22 gauge cold-rolled steel. Smooth hemmed sides and smooth inward formed end flanges for safe handling. Lighter-weight fixture allows for safe, easy installation.

OPTICS — Highly transmissive pattern #12 lens diffuses the light source without compromising output. Pattern # 19 and satin white lens options also available.

ELECTRICAL — Long-life LEDs, coupled with high-efficiency drivers, provide extended service life. 90% LED lumen maintenance at 60,000 hours (L90/60,000).

eldoLED driver options deliver choice of dimming range, and choices for control, while assuring flicker-free, low-current inrush, 89% efficiency and low EMI.

Optional nLight® embedded controls make each luminaire addressable - allowing it to digitally communicate with other nLight enabled controls such as dimmers, switches, occupancy sensors and photocontrols. Simply connect all the nLight enabled control devices and the GTL luminaires using standard Cat-5 cabling. Unique plug-and-play convenience as devices and luminaires automatically discover each other and self-commission. Lumen Management: Unique lumen management system (option N80) provides onboard intelligence that actively manages the LED light source so that constant lumen output is maintained over the system life, preventing the energy waste created by the traditional practice of over-lighting.

The step-level dimming option (SLD) allows the system to be switched to 50% power for compliance with common energy codes while maintaining fixture appearance.

Ballast disconnect is provided where required to comply with U.S. and Canadian codes.

INSTALLATION — LED boards include plug-in connectors for easy of upgradeability. Suitable for direct insulation contact. Suitable for damp location.

LISTINGS — CSA certified to meet U.S. and Canadian standards. IC rated. DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

WARRANTY — 5-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Catalog Number
Notes
Type



GTL Series

2GTL

2' x 4'

LED Recessed Troffer

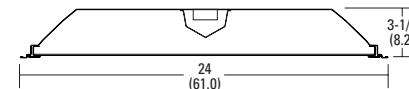


Specifications

Length: 48 (122.0)

Width: 24 (61.0)

Depth: 3-1/4 (8.2)



All dimensions are in inches (centimeters) unless otherwise indicated.

ORDERING INFORMATION

Lead times will vary depending on options selected. Consult with your sales representative.

Example: 2GTL 4 48L EZ1 LP835

2GTL	4		60L				EZ1	LP840
Series	Length	Trim type	Lumens ¹	Door	Lens	Voltage	Driver	Color temperature
2GTL 2' wide recessed LED luminaire	4 4'	(blank) Grid F Overlapping flange	30L 3000 lumens 40L 4000 lumens 48L 4800 lumens 60L 6000 lumens 72L 7200 lumens	(blank) Flush steel, white FN Flush aluminum, natural FM Flush aluminum, matte black FW Flush aluminum, white RN Regressed aluminum, natural RM Regressed aluminum, matte black RW Regressed aluminum, white	(blank) #12 pattern acrylic, 0.125" thick A19 #19 pattern acrylic, 0.156" thick SWL Satin white	(blank) MVOLT (120-277V) 120 120V 277 277V 347 347V ²	EZ1 eldoLED dims to 1% SLD Step-level dimming ³ EXA1 eldoLED dims to 1%, XPoint wireless enabled	LP830 3000 K LP835 3500 K LP840 4000 K LP850 5000 K

Controls ⁴		Options	
(blank)	No controls	EL7L	700 lumen emergency battery ⁵
N80	nLight with 80% (L80) lumen management	EL14L	1400 lumen emergency battery ⁵
N80EMG	nLight with 80% (L80) lumen management for use with generator supply emergency power	CP	Chicago plenum
N100	nLight without lumen management	PWS1836	6' pre-wire, 3/8" diameter, 18-gauge, 1-circuit
N100EMG	nLight without lumen management for use with generator supply emergency power	PWS1846	6' pre-wire, 3/8" diameter, 18-gauge, 2-circuit
		ABC	Door frame gasketing ⁵
		GLR	Fast-blowing fuse ⁶
		GMF	Slow-blowing fuse ⁶
		LATC	Earthquake clip
		NPLT	Narrow pallet
		PAF	Paint after fab

Accessories: Order as separate catalog number.	
DGA24	Drywall grid adapter for 2x4 recessed fixture.

- Notes**
- 1 Approximate lumen output. Lumen output will vary depending upon lens option chosen.
 - 2 Not available with EL7L, EL14L, or SLD.
 - 3 When using pre-wire option, use PWS1846.
 - 4 Not available with SLD.
 - 5 Only available with aluminum door.
 - 6 Must specify voltage, 120 or 277.



Job Name:
 USC SOM BIOMDEICAL PRODUCTIONS
 STUDIO - TERRITORY 3
 Architect: STUDIO 2LR ARCHITECTS-22
 Engineer: GMK ASSOCIATES-22

Catalog Number:
 2GTL 4 60L EZ1 LP840 PAF

Notes:

Type:

D

316-35536

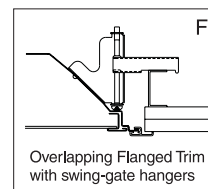
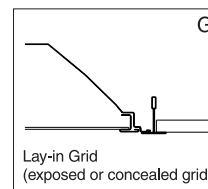
2GTL LED Troffer

Performance Data							
Lumen Package	Input Watts	Lumens	LPW	Lumen Package	Input Watts	Lumens	LPW
30L LP830	32.02	3347.66	104.55	60L LP830	54.8	5173.3	94.40
30L LP835	32.02	3515.04	109.78	60L LP835	54.8	5430.7	99.10
30L LP840	32.02	3690.8	115.27	60L LP840	54.8	5702.5	104.06
30L LP850	32.02	3875.34	121.03	60L LP850	54.8	5849.1	106.74
40L LP830	38.9	3910.8	100.53	72L LP830	71.0	6731.1	94.80
40L LP835	38.9	4103.7	105.49	72L LP835	71.0	7066.9	99.53
40L LP840	38.9	4290.2	110.29	72L LP840	71.0	7421.3	104.53
40L LP850	38.9	4393.3	112.94	72L LP850	71.0	7538.5	106.18
48L LP830	46.9	4583.3	97.72				
48L LP835	46.9	4815.2	102.67				
48L LP840	46.9	5036.3	107.38				
48L LP850	46.9	5164.2	110.11				

Note: Performance based on standard #12 pattern acrylic lens.

MOUNTING DATA

Continuous row mounting of flanged units requires CRE and CRM trim options (see Options).

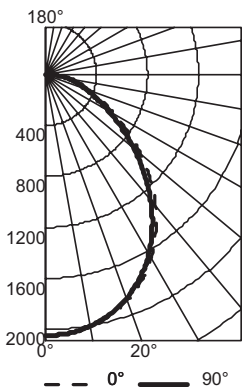


NOTE:

1 Recommended rough-in dimensions for F-trim fixtures 24"x48" (Tolerance is +1/4"-0"). Swing-gate range 1-3/16" to 3-15/16". Swing-gate span 23-3/8" to 26-11/16". Fixture swing-gate points require additional 1-1/16" over nominal fixture height.

PHOTOMETRICS

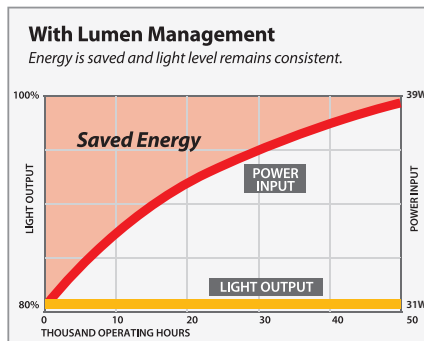
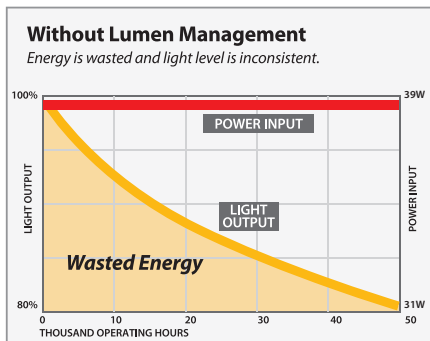
2GTL4 48L EZ1 LP835, 4815 delivered lumens, test no. LTL26406P9, tested in accordance to IESNA LM-79.



CP Summary	Coefficients of Utilization									Zonal Lumen Summary						
	0°		80%			20%			50%			Zone	Lumens	% Lamp	% Fixture	
	0°	90°	70%	50%	30%	10%	50%	30%	10%							
0°	2046	2046	0	119	119	119	116	116	116	111	111	111	0° - 30°	1551	32.2	32.2
5°	2040	2038	1	109	105	101	103	99	96	98	95	93	0° - 40°	2471	51.3	51.3
15°	1959	1948	2	100	92	86	90	85	80	87	82	78	0° - 60°	4002	83.1	83.1
25°	1782	1755	3	92	82	74	80	73	67	77	71	66	0° - 90°	4813	100.0	100.0
35°	1507	1460	4	85	73	65	72	64	58	69	63	57	90° - 120°	2	0.0	0.0
45°	1158	1093	5	78	66	57	65	57	51	63	56	50	90° - 130°	2	0.0	0.0
55°	795	726	6	72	60	51	59	51	45	57	50	44	90° - 150°	2	0.0	0.0
65°	482	439	7	67	54	46	54	46	40	52	45	40	90° - 180°	2	0.0	0.0
75°	257	255	8	63	50	42	49	41	36	48	41	36	0° - 180°	4815	100.0	100.0
85°	96	94	9	59	46	38	45	38	32	44	37	32				
90	13	7	10	55	42	35	42	35	30	41	34	29				

Constant Lumen Management

Enabled by the embedded nLight control, the GTL actively tracks its run-time and manages its light source such that constant lumen output is maintained over the system life. Referred to as lumen management, this feature eliminates the energy waste created by the traditional practice of over-lighting.



2GTL 2X4



Job Name:
 USC SOM BIOMDEICAL PRODUCTIONS
 STUDIO - TERRITORY 3
 Architect: STUDIO 2LR ARCHITECTS-22
 Engineer: GMK ASSOCIATES-22

Catalog Number:
 2GTL 4 72L EZ1 LP840 PAF

Type:
 D1

Notes:

316-35536



FEATURES & SPECIFICATIONS

INTENDED USE — The 2GTL LED recessed troffer offers a wide range of lumen packages, color temperatures, and lens options to meet the lighting needs for a wide range of applications such as schools, offices, and hospitals. The light engine delivers long life and excellent color to ensure a sound quality, low-maintenance lighting installation. **Certain airborne contaminants can diminish integrity of acrylic.** [Click here for Acrylic Environmental Compatibility table for suitable uses.](#)

CONSTRUCTION — Housing formed from 22 gauge cold-rolled steel. Smooth hemmed sides and smooth inward formed end flanges for safe handling. Lighter-weight fixture allows for safe, easy installation.

OPTICS — Highly transmissive pattern #12 lens diffuses the light source without compromising output. Pattern # 19 and satin white lens options also available.

ELECTRICAL — Long-life LEDs, coupled with high-efficiency drivers, provide extended service life. 90% LED lumen maintenance at 60,000 hours (L90/60,000).

eldoLED driver options deliver choice of dimming range, and choices for control, while assuring flicker-free, low-current inrush, 89% efficiency and low EMI.

Optional nLight® embedded controls make each luminaire addressable - allowing it to digitally communicate with other nLight enabled controls such as dimmers, switches, occupancy sensors and photocontrols. Simply connect all the nLight enabled control devices and the GTL luminaires using standard Cat-5 cabling. Unique plug-and-play convenience as devices and luminaires automatically discover each other and self-commission. Lumen Management: Unique lumen management system (option N80) provides onboard intelligence that actively manages the LED light source so that constant lumen output is maintained over the system life, preventing the energy waste created by the traditional practice of over-lighting.

The step-level dimming option (SLD) allows the system to be switched to 50% power for compliance with common energy codes while maintaining fixture appearance.

Ballast disconnect is provided where required to comply with U.S. and Canadian codes.

INSTALLATION — LED boards include plug-in connectors for easy of upgradeability. Suitable for direct insulation contact. Suitable for damp location.

LISTINGS — CSA certified to meet U.S. and Canadian standards. IC rated. DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

WARRANTY — 5-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Catalog Number
Notes
Type



GTL Series

2GTL

2' x 4'

LED Recessed Troffer

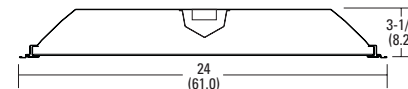


Specifications

Length: 48 (122.0)

Width: 24 (61.0)

Depth: 3-1/4 (8.2)



All dimensions are in inches (centimeters) unless otherwise indicated.

ORDERING INFORMATION

Lead times will vary depending on options selected. Consult with your sales representative.

Example: 2GTL 4 48L EZ1 LP835

2GTL	4		72L				EZ1	LP840
Series	Length	Trim type	Lumens ¹	Door	Lens	Voltage	Driver	Color temperature
2GTL 2' wide recessed LED luminaire	4 4'	(blank) Grid F Overlapping flange	30L 3000 lumens 40L 4000 lumens 48L 4800 lumens 60L 6000 lumens 72L 7200 lumens	(blank) Flush steel, white FN Flush aluminum, natural FM Flush aluminum, matte black FW Flush aluminum, white RN Regressed aluminum, natural RM Regressed aluminum, matte black RW Regressed aluminum, white	(blank) #12 pattern acrylic, 0.125" thick A19 #19 pattern acrylic, 0.156" thick SWL Satin white	(blank) MVOLT (120-277V) 120 120V 277 277V 347 347V ²	EZ1 eldoLED dims to 1% SLD Step-level dimming ³ EXA1 eldoLED dims to 1%, XPoint wireless enabled	LP830 3000 K LP835 3500 K LP840 4000 K LP850 5000 K

Controls ⁴		Options	
(blank)	No controls	EL7L	700 lumen emergency battery ³
N80	nLight with 80% (L80) lumen management	EL14L	1400 lumen emergency battery ³
N80EMG	nLight with 80% (L80) lumen management for use with generator supply emergency power	CP	Chicago plenum
N100	nLight without lumen management	PWS1836	6' pre-wire, 3/8" diameter, 18-gauge, 1-circuit
N100EMG	nLight without lumen management for use with generator supply emergency power	PWS1846	6' pre-wire, 3/8" diameter, 18-gauge, 2-circuit
		ABC	Door frame gasketing ⁵
		GLR	Fast-blowing fuse ⁶
		GMF	Slow-blowing fuse ⁶
		LATC	Earthquake clip
		NPLT	Narrow pallet
		PAF	Paint after fab

Accessories: Order as separate catalog number.	
DGA24	Drywall grid adapter for 2x4 recessed fixture.

- Notes**
- 1 Approximate lumen output. Lumen output will vary depending upon lens option chosen.
 - 2 Not available with EL7L, EL14L, or SLD.
 - 3 When using pre-wire option, use PWS1846.
 - 4 Not available with SLD.
 - 5 Only available with aluminum door.
 - 6 Must specify voltage, 120 or 277.



Job Name:
 USC SOM BIOMDEICAL PRODUCTIONS
 STUDIO - TERRITORY 3
 Architect: STUDIO 2LR ARCHITECTS-22
 Engineer: GMK ASSOCIATES-22

Catalog Number:
 2GTL 4 72L EZ1 LP840 PAF

Notes:

Type:

D1

316-35536

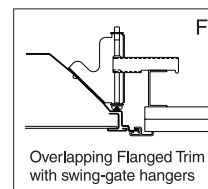
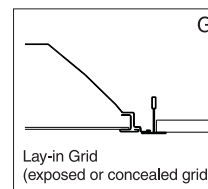
2GTL LED Troffer

Performance Data							
Lumen Package	Input Watts	Lumens	LPW	Lumen Package	Input Watts	Lumens	LPW
30L LP830	32.02	3347.66	104.55	60L LP830	54.8	5173.3	94.40
30L LP835	32.02	3515.04	109.78	60L LP835	54.8	5430.7	99.10
30L LP840	32.02	3690.8	115.27	60L LP840	54.8	5702.5	104.06
30L LP850	32.02	3875.34	121.03	60L LP850	54.8	5849.1	106.74
40L LP830	38.9	3910.8	100.53	72L LP830	71.0	6731.1	94.80
40L LP835	38.9	4103.7	105.49	72L LP835	71.0	7066.9	99.53
40L LP840	38.9	4290.2	110.29	72L LP840	71.0	7421.3	104.53
40L LP850	38.9	4393.3	112.94	72L LP850	71.0	7538.5	106.18
48L LP830	46.9	4583.3	97.72				
48L LP835	46.9	4815.2	102.67				
48L LP840	46.9	5036.3	107.38				
48L LP850	46.9	5164.2	110.11				

Note: Performance based on standard #12 pattern acrylic lens.

MOUNTING DATA

Continuous row mounting of flanged units requires CRE and CRM trim options (see Options).

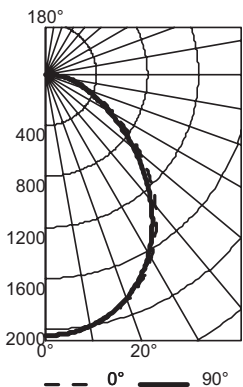


NOTE:

1 Recommended rough-in dimensions for F-trim fixtures 24"x48" (Tolerance is +1/4"-0"). Swing-gate range 1-3/16" to 3-15/16". Swing-gate span 23-3/8" to 26-11/16". Fixture swing-gate points require additional 1-1/16" over nominal fixture height.

PHOTOMETRICS

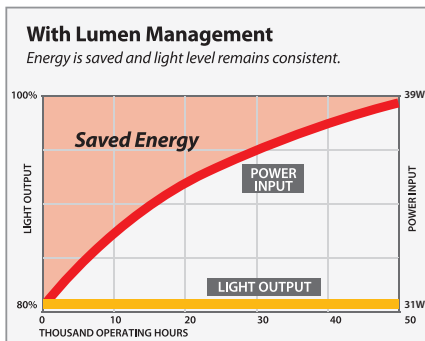
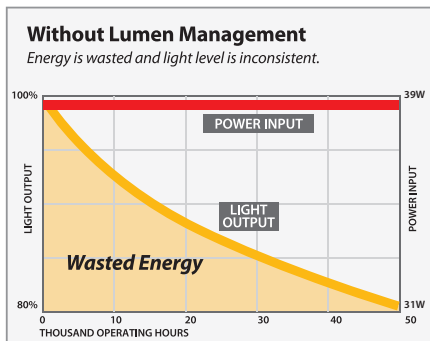
2GTL4 48L EZ1 LP835, 4815 delivered lumens, test no. LTL26406P9, tested in accordance to IESNA LM-79.



CP Summary		Coefficients of Utilization									Zonal Lumen Summary					
0°	90°	pc	80%			20%			50%			Zone	Lumens	% Lamp	% Fixture	
			70%	50%	30%	50%	30%	10%	50%	30%	10%					
0°	2046	2046	0	119	119	119	116	116	116	111	111	111	0° - 30°	1551	32.2	32.2
5°	2040	2038	1	109	105	101	103	99	96	98	95	93	0° - 40°	2471	51.3	51.3
15°	1959	1948	2	100	92	86	90	85	80	87	82	78	0° - 60°	4002	83.1	83.1
25°	1782	1755	3	92	82	74	80	73	67	77	71	66	0° - 90°	4813	100.0	100.0
35°	1507	1460	4	85	73	65	72	64	58	69	63	57	90° - 120°	2	0.0	0.0
45°	1158	1093	5	78	66	57	65	57	51	63	56	50	90° - 130°	2	0.0	0.0
55°	795	726	6	72	60	51	59	51	45	57	50	44	90° - 150°	2	0.0	0.0
65°	482	439	7	67	54	46	54	46	40	52	45	40	90° - 180°	2	0.0	0.0
75°	257	255	8	63	50	42	49	41	36	48	41	36	0° - 180°	4815	100.0	100.0
85°	96	94	9	59	46	38	45	38	32	44	37	32				
90°	13	7	10	55	42	35	42	35	30	41	34	29				

Constant Lumen Management

Enabled by the embedded nLight control, the GTL actively tracks its run-time and manages its light source such that constant lumen output is maintained over the system life. Referred to as lumen management, this feature eliminates the energy waste created by the traditional practice of over-lighting.



2GTL 2X4



Job Name:
 USC SOM BIOMDEICAL PRODUCTIONS
 STUDIO - TERRITORY 3
 Architect: STUDIO 2LR ARCHITECTS-22
 Engineer: GMK ASSOCIATES-22

Catalog Number:
 2GTL 4 60L EZ1 LP840 PAF

Type:
D2

Notes:

316-35536



FEATURES & SPECIFICATIONS

INTENDED USE — The 2GTL LED recessed troffer offers a wide range of lumen packages, color temperatures, and lens options to meet the lighting needs for a wide range of applications such as schools, offices, and hospitals. The light engine delivers long life and excellent color to ensure a sound quality, low-maintenance lighting installation. **Certain airborne contaminants can diminish integrity of acrylic.** [Click here for Acrylic Environmental Compatibility table for suitable uses.](#)

CONSTRUCTION — Housing formed from 22 gauge cold-rolled steel. Smooth hemmed sides and smooth inward formed end flanges for safe handling. Lighter-weight fixture allows for safe, easy installation.

OPTICS — Highly transmissive pattern #12 lens diffuses the light source without compromising output. Pattern # 19 and satin white lens options also available.

ELECTRICAL — Long-life LEDs, coupled with high-efficiency drivers, provide extended service life. 90% LED lumen maintenance at 60,000 hours (L90/60,000).

eldoLED driver options deliver choice of dimming range, and choices for control, while assuring flicker-free, low-current inrush, 89% efficiency and low EMI.

Optional nLight® embedded controls make each luminaire addressable - allowing it to digitally communicate with other nLight enabled controls such as dimmers, switches, occupancy sensors and photocontrols. Simply connect all the nLight enabled control devices and the GTL luminaires using standard Cat-5 cabling. Unique plug-and-play convenience as devices and luminaires automatically discover each other and self-commission. Lumen Management: Unique lumen management system (option N80) provides onboard intelligence that actively manages the LED light source so that constant lumen output is maintained over the system life, preventing the energy waste created by the traditional practice of over-lighting.

The step-level dimming option (SLD) allows the system to be switched to 50% power for compliance with common energy codes while maintaining fixture appearance.

Ballast disconnect is provided where required to comply with U.S. and Canadian codes.

INSTALLATION — LED boards include plug-in connectors for easy of upgradeability. Suitable for direct insulation contact. Suitable for damp location.

LISTINGS — CSA certified to meet U.S. and Canadian standards. IC rated. DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

WARRANTY — 5-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Catalog Number
Notes
Type



GTL Series

2GTL

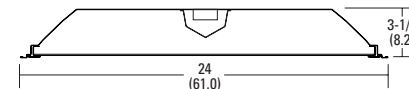
2' x 4'

LED Recessed Troffer



Specifications

Length: 48 (122.0)
 Width: 24 (61.0)
 Depth: 3-1/4 (8.2)



All dimensions are in inches (centimeters) unless otherwise indicated.

ORDERING INFORMATION

Lead times will vary depending on options selected. Consult with your sales representative.

Example: 2GTL 4 48L EZ1 LP835

2GTL	4		60L				EZ1	LP840
Series	Length	Trim type	Lumens ¹	Door	Lens	Voltage	Driver	Color temperature
2GTL 2' wide recessed LED luminaire	4 4'	(blank) Grid F Overlapping flange	30L 3000 lumens 40L 4000 lumens 48L 4800 lumens 60L 6000 lumens 72L 7200 lumens	(blank) Flush steel, white FN Flush aluminum, natural FM Flush aluminum, matte black FW Flush aluminum, white RN Regressed aluminum, natural RM Regressed aluminum, matte black RW Regressed aluminum, white	(blank) #12 pattern acrylic, 0.125" thick A19 #19 pattern acrylic, 0.156" thick SWL Satin white	(blank) MVOLT (120-277V) 120 120V 277 277V 347 347V ²	EZ1 eldoLED dims to 1% SLD Step-level dimming ³ EXA1 eldoLED dims to 1%, XPoint wireless enabled	LP830 3000 K LP835 3500 K LP840 4000 K LP850 5000 K

Controls ⁴		Options	
(blank)	No controls	EL7L	700 lumen emergency battery ³
N80	nLight with 80% (L80) lumen management	EL14L	1400 lumen emergency battery ³
N80EMG	nLight with 80% (L80) lumen management for use with generator supply emergency power	CP	Chicago plenum
N100	nLight without lumen management	PWS1836	6' pre-wire, 3/8" diameter, 18-gauge, 1-circuit
N100EMG	nLight without lumen management for use with generator supply emergency power	PWS1846	6' pre-wire, 3/8" diameter, 18-gauge, 2-circuit
		ABC	Door frame gasketing ⁵
		GLR	Fast-blowing fuse ⁶
		GMF	Slow-blowing fuse ⁶
		LATC	Earthquake clip
		NPLT	Narrow pallet
		PAF	Paint after fab

Accessories: Order as separate catalog number.	
DGA24	Drywall grid adapter for 2x4 recessed fixture.

- Notes**
- 1 Approximate lumen output. Lumen output will vary depending upon lens option chosen.
 - 2 Not available with EL7L, EL14L, or SLD.
 - 3 When using pre-wire option, use PWS1846.
 - 4 Not available with SLD.
 - 5 Only available with aluminum door.
 - 6 Must specify voltage, 120 or 277.



Job Name:
 USC SOM BIOMDEICAL PRODUCTIONS
 STUDIO - TERRITORY 3
 Architect: STUDIO 2LR ARCHITECTS-22
 Engineer: GMK ASSOCIATES-22

Catalog Number:
 2GTL 4 60L EZ1 LP840 PAF

Notes:

Type:

D2

316-35536

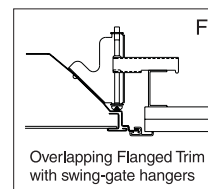
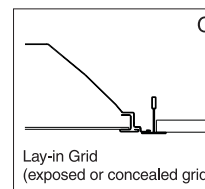
2GTL LED Troffer

Performance Data							
Lumen Package	Input Watts	Lumens	LPW	Lumen Package	Input Watts	Lumens	LPW
30L LP830	32.02	3347.66	104.55	60L LP830	54.8	5173.3	94.40
30L LP835	32.02	3515.04	109.78	60L LP835	54.8	5430.7	99.10
30L LP840	32.02	3690.8	115.27	60L LP840	54.8	5702.5	104.06
30L LP850	32.02	3875.34	121.03	60L LP850	54.8	5849.1	106.74
40L LP830	38.9	3910.8	100.53	72L LP830	71.0	6731.1	94.80
40L LP835	38.9	4103.7	105.49	72L LP835	71.0	7066.9	99.53
40L LP840	38.9	4290.2	110.29	72L LP840	71.0	7421.3	104.53
40L LP850	38.9	4393.3	112.94	72L LP850	71.0	7538.5	106.18
48L LP830	46.9	4583.3	97.72				
48L LP835	46.9	4815.2	102.67				
48L LP840	46.9	5036.3	107.38				
48L LP850	46.9	5164.2	110.11				

Note: Performance based on standard #12 pattern acrylic lens.

MOUNTING DATA

Continuous row mounting of flanged units requires CRE and CRM trim options (see Options).

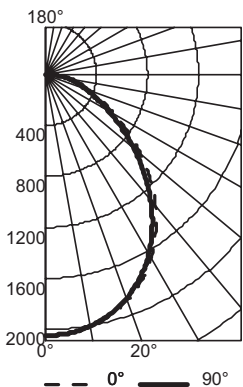


NOTE:

1 Recommended rough-in dimensions for F-trim fixtures 24"x48" (Tolerance is +1/4"-0"). Swing-gate range 1-3/16" to 3-15/16". Swing-gate span 23-3/8" to 26-11/16". Fixture swing-gate points require additional 1-1/16" over nominal fixture height.

PHOTOMETRICS

2GTL4 48L EZ1 LP835, 4815 delivered lumens, test no. LTL26406P9, tested in accordance to IESNA LM-79.



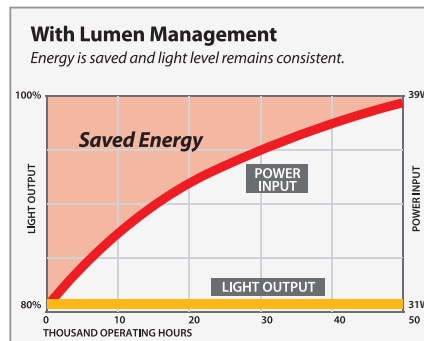
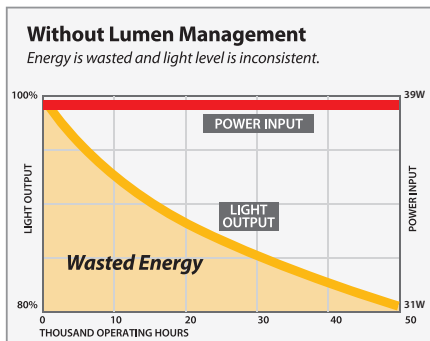
CP Summary		
0°	90°	
0°	2046	2046
5°	2040	2038
15°	1959	1948
25°	1782	1755
35°	1507	1460
45°	1158	1093
55°	795	726
65°	482	439
75°	257	255
85°	96	94
90°	13	7

RCR	pf	Coefficients of Utilization								
		20%			50%			70%		
		70%	50%	30%	50%	30%	10%	50%	30%	10%
0	119	119	119	116	116	116	111	111	111	
1	109	105	101	103	99	96	98	95	93	
2	100	92	86	90	85	80	87	82	78	
3	92	82	74	80	73	67	77	71	66	
4	85	73	65	72	64	58	69	63	57	
5	78	66	57	65	57	51	63	56	50	
6	72	60	51	59	51	45	57	50	44	
7	67	54	46	54	46	40	52	45	40	
8	63	50	42	49	41	36	48	41	36	
9	59	46	38	45	38	32	44	37	32	
10	55	42	35	42	35	30	41	34	29	

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0° - 30°	1551	32.2	32.2
0° - 40°	2471	51.3	51.3
0° - 60°	4002	83.1	83.1
0° - 90°	4813	100.0	100.0
90° - 120°	2	0.0	0.0
90° - 130°	2	0.0	0.0
90° - 150°	2	0.0	0.0
90° - 180°	2	0.0	0.0
0° - 180°	4815	100.0	100.0

Constant Lumen Management

Enabled by the embedded nLight control, the GTL actively tracks its run-time and manages its light source such that constant lumen output is maintained over the system life. Referred to as lumen management, this feature eliminates the energy waste created by the traditional practice of over-lighting.



2GTL 2X4



Job Name:
 USC SOM BIOMDEICAL PRODUCTIONS
 STUDIO - TERRITORY 3
 Architect: STUDIO 2LR ARCHITECTS-22
 Engineer: GMK ASSOCIATES-22

Catalog Number:
 C 2 32 MVOLT GEB10IS WGCUN
 NST PAF
 Notes:

Type:
C
 316-35536



FEATURES & SPECIFICATIONS

INTENDED USE — Ideal where high brightness and good illumination levels are required such as retail, light industrial and warehouses.

Attributes: Available in one lamp or two lamp configuration.

CONSTRUCTION — Heavy-duty channel, die-formed from code-gauge steel.

Sturdy channel cover secured by captive quarter-turn latch for easy access to wireway.

Combination endplate/channel connector furnished with each fixture.

Finish: Five-stage iron phosphate pretreatment ensures superior paint adhesion and rust resistance. Painted parts finished with high-gloss, baked white enamel.

ELECTRICAL — Thermally protected, resetting, Class P, UL Listed and CSA Certified ballast is standard. Sound rating depends on lamp/ballast combination.

AWM, TFN, THHN wire throughout, rated for required temperatures.

INSTALLATION — For unit or row installations, surface or suspended mounting.

LISTINGS — UL listed to US and Canadian safety standards. Optional: Mexico NOM.

Damp location listed.

Listed for 25 degree C ambient temperature.

WARRANTY — 1-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Actual performance may differ as a result of end-user environment and application.

Note: Specifications subject to change without notice.

Catalog Number
Notes
Type



General-Purpose Strip



2', 3', 4', 6' and 8' length
 1 or 2 lamps

Specifications

Length:	24" (61.0)
	36" (91.4)
	48" (121.9)
	72" (182.9)
	96" (243.8)
Width:	4-3/8" (11.1)
Fixture Depth:	2-1/16" (5.2)

All dimensions are inches (centimeters) unless otherwise specified.

ORDERING INFORMATION Lead times will vary depending on options selected. Consult with your sales representative.

Example: C 2 32 MVOLT GEB10IS

C	2	32	MVOLT	GEB10IS	
Series	Number of lamps	Lamp type	Voltage	Options	
C General-purpose strip For tandem double length unit, add prefix T. Example: TC	1	T8	MVOLT ¹	GEB10IS Electronic ballasts, ≤10%THD, instant start	GLR Internal fast-blow fuse (add X for external) ⁴
	2	17 17W T8 (24")	120	GEB10RS Electronic ballast, ≤10%THD, rapid start ²	GMF Internal slow-blow fuse (add X for external) ⁴
	lamp not included	25 25W T8 (36")	277	GEB10PS Electronic ballast, ≤10%THD, programmed start	PLR_ Plug-in wiring; specify 1, 2, or 3 branch circuits and hot wires (A = Black, B = Red, C = Blue, AB or AC) ⁴
		32 32W T8 (48")	347	BILP T8 high-efficiency ballast, .78bf (low), instant start	TILW Tandem in-line wiring
		96T8 59W T8 slimline (96")	Others available	BINP T8 high-performance ballast, .88bf (normal), instant start	CSA CSA Certified (only required for 347V)
		T8HO		BIHP T8 high-performance ballast, 1.20bf (high), instant start	NOM NOM Certified
		48T8HO 44W T8 (48")		1/4 One four-lamp ballast ³	AL Aluminum housing; white enamel finish
		72T8HO 65W T8 (72")			
		96T8HO 86W 380mA (96")			

WGCUN NST PAF

Accessories: Order as separate catalog number.

SQ_ Swivel stem hanger (specify length in 2" increments)	HRC1 ^o Hooker T-bar hanger (1-1/2" from ceiling)
1B Ceiling spacer (adjusts from 1-1/2" to 2-1/2" from ceiling)	WGCASR48 Wireguard, 4' white for symmetric reflector ⁵
CONLGC 12" screw-on channel connector	WGCASR48 Wireguard, 4' white for asymmetric reflector ⁵
WGCUN NST Wireguard, 4' white ⁵	CSMR 48 Symmetric reflector, 4' white, 7" aperture ⁵
HC36 Chain hangers (1 pair, 36" long)	CASR 48 Asymmetric reflector, 4' white, 5-3/4" wide ⁵
HRC ^o Hooker T-bar hanger (flush to ceiling)	

PAF

Notes

- MVOLT standard for 120-277V applications, 50-60 mhz operation. Some options require voltage specified.
- 347V, slimline lamps only.
- Not available in slimline.
- Specify voltage.
- Order two for 8' fixtures.



Job Name:
 USC SOM BIOMDEICAL PRODUCTIONS
 STUDIO - TERRITORY 3
 Architect: STUDIO 2LR ARCHITECTS-22
 Engineer: GMK ASSOCIATES-22

Catalog Number:
 C 2 32 MVOLT GEB10IS WGCUN
 NST PAF
 Notes:

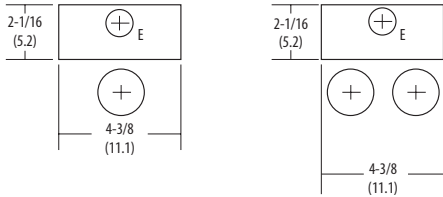
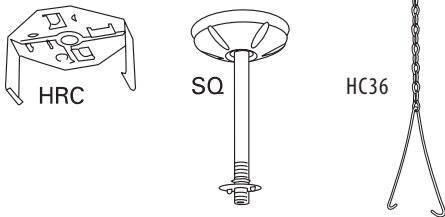
Type:
C
 316-35536

C General-Purpose Strip

MOUNTING DATA

For unit or row installation, surface or suspended mounting.
 Unit installation — Minimum of two hangers required.
 Row installation — Two hangers per channel required one per fixture plus one per row of CONLGC installed.
 Hooker® (HRC) and (HC) Hangers - minimum two per channel (unit and row).

See ACCESSORIES below for hanging devices.

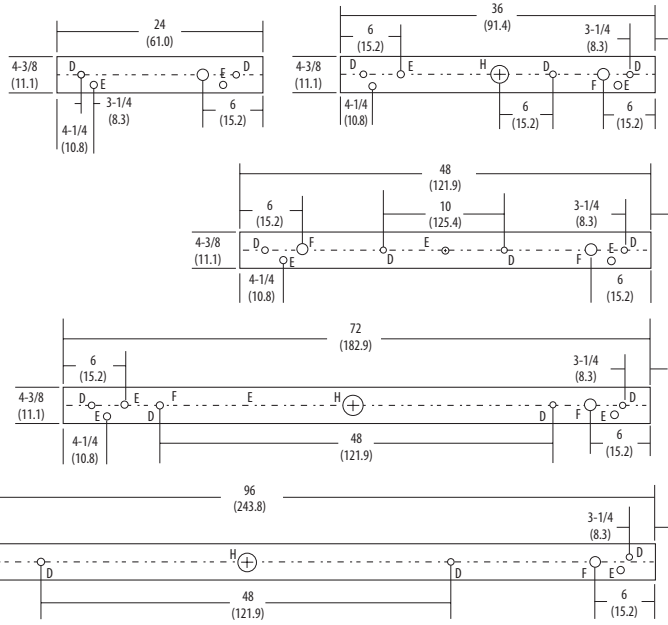


D = 11/16 (1.7) Dia.K.O.
 E = 7/8 (2.2) Dia.K.O.
 F = 1-1/4 (3.2) Dia.K.O.
 H = 2 (5.1) Dia.K.O.

DIMENSIONS

All dimensions in inches (centimeters) unless otherwise specified. Subject to change without notice.

48", 72", and 96" have only two 7/8" K.O.'s 6" from each end.
 24" and 36" have only two 7/8" K.O.'s 3-1/4" from each end.



PHOTOMETRICS

See www.lithonia.com for photometry reports.



Submitted by James G. Murphy Co., Inc.



Job Name:
 USC SOM BIOMDEICAL PRODUCTIONS
 STUDIO - TERRITORY 3
 Architect: STUDIO 2LR ARCHITECTS-22
 Engineer: GMK ASSOCIATES-22

Catalog Number:
 138540 24 40K 95 120 WH / 138529-
 WH-120
 Notes:

Type:
U2
 316-35536



Bruck By Ledra Brands Inc. | 15774 Gateway Circle | PH: 714.259.9959 | www.brucklighting.com
 Tustin, CA 92780 | FAX: 714.259.9969

Job Name:	Contact:
Ordering Code:	Fixture Type:



wUndercab

Description

The LED wUndercab by Bruck is a low profile LED line voltage under cabinet light offered in 120V or 277V. It is offered in 4 lengths to accommodate standard under cabinet sizes. wUndercab has ZERO pixelation with premium and efficient opal diffuser for even illumination. SDCM of 3 in 3000 or 4000 Kelvin for 220 lumens per foot.

This direct wire or plug in under cabinet task fixture can be directly connected or with a flex connector available in lengths from 8" to 72". Easy access key hole door with knockouts. A standard occupancy sensor integrated wire box is offered with 3 way switching. Rocker switch is in 120V only. 277V fixtures and accessories have no rocker switch and are hard wired only. 120/277V fixtures are non-dimmable. Available in white or antique bronze finishes. cETLus and Energy Star rated*.

Housing

Aluminum under cabinet fixture

Mounting

Quick installation via captive screws

Electrical/ LED Driver

- 120 or 277 Vac input, 50/60Hz, Electronic 60V driver
- Maximum run length of 300W
- Protections: Short circuit, over current, over voltage, over temperature
- 277V remote switching (no rocker switch)

Listings

- ETLus Listed to UL1598 and UL153 (suitable for dry locations only)
- cETL Listed to CSA C22.2 #250.0 and #9.0
- *EnergyStar listed in 120V only



bz

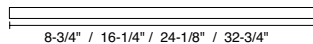
Ordering Codes

Follow the steps to specify your fixture, example: 138540 - 16 - 40K - 95 - 120 - wh

Part Number	Length	CCT	CRI	Voltage	Finish
138540 LED	8 8-3/4"	30K 3000K	95 95 CRI	120 120V	bz bronze
	16 16-1/4"	40K 4000K		277 277V	wh white
	24 24-1/8"				
	32 32-3/4"				

Notes

Accessories option see page 2



**Job Name:**

USC SOM BIOMDEICAL PRODUCTIONS
STUDIO - TERRITORY 3
Architect: STUDIO 2LR ARCHITECTS-22
Engineer: GMK ASSOCIATES-22

Catalog Number:

138540 24 40K 95 120 WH / 138529-
WH-120

Notes:

Type:**U2**

316-35536

BRUCK

LEDRAbrands

Bruck By Ledra Brands Inc.

15774 Gateway Circle
Tustin, CA 92780

PH: 714.259.9959
FAX: 714.259.9969

www.brucklighting.com

Job Name:

Contact:

Ordering Code:

Fixture Type:

LED Performance

LED Osram 5630

SDCM 3 Step MacAdam Ellipse

DUV +/-0.01

CCT 3000K, 4000K

CRI Ra >90

Life L70 50,000 hrs.

Warranty 5 year limited fixture warranty

Length	8-3/4"	16-1/4"	24-1/8"	32-3/4"
Lumens	253 lm	492 lm	783 lm	1056 lm
120V - Watts	4.9W	9.1W	13.4W	17.3W
277V - Watts	5.3W	8.1W	13W	17.3W

Accessories

138521-6-bk 6" flexible connector, black
138521-12-bk 12" flexible connector, black
138521-24-bk 24" flexible connector, black
138521-72-4bk 72" flexible connector, black
138521-6-wh 6" flexible connector, white
138521-12-wh 12" flexible connector, white
138521-24-wh 24" flexible connector, white
138521-72-wh 72" flexible connector, white



Flexible Connector

Technical Specs:
120VAC



Plug-In Power Feed

Technical Specs:
120VAC

138527-bk 72" plug-in feed, black
138527-wh 72" plug-in feed, white

138526-bk 72" power feed, black
138526-wh 72" power feed, white



Power Feed

Technical Specs:
120VAC



Switch Box

Technical Specs:
120VAC
Multiple 1/2" knockouts
1" height
Captive mounting screws

138528-bz¹ switch box, bronze
138528-wh¹ switch box, white

138529-bz-120¹ switch box w/ occupancy sensor, bronze
138529-wh-120¹ switch box w/ occupancy sensor, white

138547-bz-277² occupancy sensor box, bronze
138547-wh-277² occupancy sensor box, white

Notes

- 120V rocker switch included
- 277V has no rocker switch



Switch Box w/ occupancy sensor

Technical Specs:
120VAC
Multiple 1/2" knockouts
1" height
Captive mounting screws



Occupancy Sensor Box

Technical Specs:
277VAC
Hard wired only
Multiple 1/2" knockouts
1" height
Captive mounting screws

**Job Name:**

USC SOM BIOMDEICAL PRODUCTIONS
STUDIO - TERRITORY 3
Architect: STUDIO 2LR ARCHITECTS-22
Engineer: GMK ASSOCIATES-22

Catalog Number:

LRP 1 RC 120/277 EL N

Notes:

Type:**EXIT**

316-35536

**FEATURES & SPECIFICATIONS**

INTENDED USE — Suitable for architectural applications where aesthetics and superior performance are required.

CONSTRUCTION — High-polish, injection-molded virgin acrylic panel, ultrasonically welded to eliminate visible hardware. Graduated depth of molded letters provides uniform light distribution on graphics. Standard housing finish is brushed aluminum.

Precision-molded, textured letters – 6" high with 3/4" stroke, with 100 ft viewing distance rating, based upon UL924 standard. Chevron indicator direction must be specified.

Recessed rough-in section constructed of 20-gauge, die-formed galvanized steel. Extruded aluminum housing trim mounts flush onto wall or ceiling.

ELECTRICAL — Sealed, maintenance-free nickel cadmium battery delivers 90 minutes capacity to lamp. Constant-current series charger, 24-hour recharge after 90-minute discharge.

Polarized battery connector simplifies installation and maintenance; prevents charger damage due to improper connection.

OPTICS — LEDs mounted on printed circuit board. The typical life of the exit LED lamp is 10 years.

Low energy consumption — only 2.3W for 120V single-face red sign; 1.7W for 120V single-face green sign.

INSTALLATION — Recessed mount — rough-in section for back, ceiling or end mounting. Fits into minimum wall or ceiling opening 13-5/8" L x 4-1/2" W x 3-1/8" D.

Adjustable T-bar hangers adapt mounting tray for mounting in suspended ceilings or variable-size framed openings. Trim ring has 3/4" variable depth adjustment to ensure flush fit against surface of wall or ceiling.

Plug-in wire connections and self-captive mounting screws for mounting panel/trim to rough-in section.

LISTINGS — UL listed. Non-IC recessed mounting. Meets UL 924, NFPA 101 (current Life Safety Code), NEC and OSHA illumination standards, and State of Minnesota requirements for less than 20W energy consumption. NEMA Premium certified.

WARRANTY — 5-year limited warranty, including lamps. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

NOTE: Actual performance may differ as a result of end-user environment and application.

All values are design or typical values, measured under laboratory conditions at 25°C. Specifications subject to change without notice.

Catalog Number
Notes
Type



PRECISE
COLLECTION

Edge-Lit Exits

LRP EL N

LED LAMPS EMERGENCY

**ORDERING INFORMATION**For shortest lead times, configure products using **bolded options**.**Example:** LRP 1 RMR LA 120/277 EL N

LRP	Family	Housing color	Number of faces	Letters/background	Directional indicators ¹	120/277
LRP LED		(blank) Brushed aluminum	1 Single face	RW Red on white	(blank) None	120/277 Dual voltage
		W White	2 Double face	RC Red on clear (single face only)	LA Left ²	
		B Black		RMR Red on mirror (simulates clear background for double-face exits)	RA Right ²	
		BZ Bronze		GW Green on white	LRA Left and right	
		BS Polished brass		GC Green on clear (single face only)	DA Double face ³	
		U Unfinished		GMR Green on mirror (simulates clear background for double-face exits)		

EL N	Emergency operation	Mounting	Item type	Options ⁴
EL N	Nickel cadmium battery	(blank) Ceiling or back mount	(blank) Complete exit panel and rough-in section	FI Fire alarm interface ⁵
		EM Recessed end mount	PNL Panel assembly only	F Flashing emergency operation (one flash/second) ⁵
				FA Flashing emergency operation and intermittent audible alarm

Accessories^{4,6}: Order as separate items.

ELA R LRIS 120/277 EL N	Single-face, red LED emergency rough-in section
ELA G LRIS 120/277 EL N	Single-face, green LED emergency rough-in section
ELA R 2LRIS 120/277 EL N	Double-face, red LED emergency rough-in section
ELA G 2LRIS 120/277 EL N	Double-face, green LED emergency rough-in section

Notes

- See chart on back for more information.
- Only available with single face.
- Only available with double face.
- When ordering rough-in separately, all options must be included with rough-in nomenclature. Example: ELA R LRIS 120/277 EL N FA.
- Choice of F or FI. Not available with both.
- Rough-in supplied standard with exit unless PNL suffix is specified. Order separately only if needed for early installation.

**Job Name:**

USC SOM BIOMDEICAL PRODUCTIONS
STUDIO - TERRITORY 3
Architect: STUDIO 2LR ARCHITECTS-22
Engineer: GMK ASSOCIATES-22

Catalog Number:

LRP 1 RC 120/277 EL N

Notes:

Type:**EXIT**

316-35536

LRP EL N Precise® LED Exit Signs**SPECIFICATIONS****ELECTRICAL****Primary Circuit**

Type	Typical LED life ¹	Supply voltage	Number of faces	Input watts	Max. amps
Red	10 years	120	1	2.3	.093
		277	1	2.7	.095
Red	10 years	120	2	3.2	.084
		277	2	3.9	.094
Green	10 years	120	1	1.7	.07
		277	1	1.9	.07
Green	10 years	120	2	3.7	.14
		277	2	3.8	.14

BATTERY**Sealed Nickel-Cadmium**

Shelf life ²	Typical life ²	Maintenance ³	Optimum temperature ⁴
3 yrs.	7-9 yrs.	none	32°-100°F (0°-38°C)

Notes

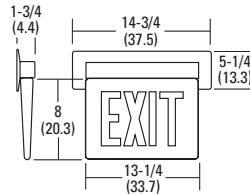
- Based on continuous operation. The typical life of the exit LED lamp is 10 years.
- At 77°F (25°C).
- All life safety equipment, including emergency lighting for path of egress must be maintained, serviced, and tested in accordance with all National Fire Protection Association (NFPA) and local codes. Failure to perform the required maintenance, service, or testing could jeopardize the safety of occupants and will void all warranties.
- Optimum ambient temperature range where unit will provide capacity for 90 minutes. Higher and lower temperatures affect life and capacity. Consult factory for detailed information.

MOUNTING

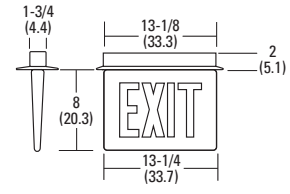
All dimensions are in inches (centimeters).

Shipping weight for panel: 5 lbs. (2.3 kgs.)

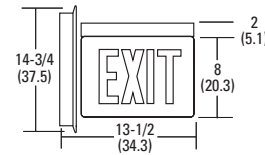
Shipping weight for rough-in section: 5.8 lbs. (2.6 kgs.)



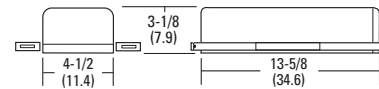
Back Mount



Ceiling Mount



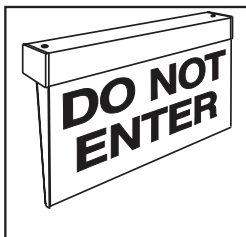
End Mount



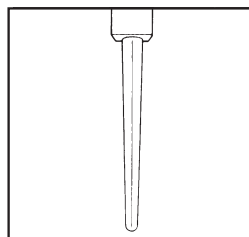
Rough -In Section

Directional Indicators

Specification (add to catalog number)	Graphics	
	Back	Front
LA		
RA		
LRA (single face)		
DA		
LRA (double face)		

KEY FEATURES

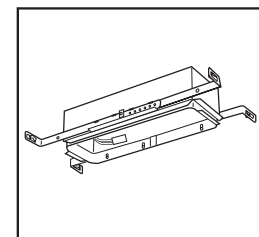
Silk-screening process allows customized text and/or graphics.



Unique wedge-shaped panel design concentrates light for uniform letter illumination.



Trim fits flush against wall or ceiling for clean, attractive appearance.



Small rough-in section.



LRP EL N



Date: Aug 22, 2016

CAL+D
1237 Gadsden Street
Columbia SC 29201
Phone: (803) 271-2818
Fax:

Job Name
USC SOM Biomedical Studio -
COL16-31813
Columbia SC

Bid Date
Sep 1, 2016

Submittal Date
Aug 22, 2016

Engineer:
GMK Associates Eng
1201 Main Street
Columbia SC 29201



Carolina
Architectural
Lighting and
Design

Transmittal

CAL+D
1237 Gadsden Street
Columbia SC 29201
Phone: (803) 271-2818
From: Ryan Phillips

Project USC SOM Biomedical Studio -
Quote# COL16-31813
Location Columbia SC
Contact:

ATTACHED WE ARE SENDING YOU 1 COPY OF THE FOLLOWING ITEM:

- | | | |
|-----------------------------------|---|--------|
| <input type="checkbox"/> Drawings | <input type="checkbox"/> Specifications | Other: |
| <input type="checkbox"/> Prints | <input type="checkbox"/> Information | |
| <input type="checkbox"/> Plans | <input type="checkbox"/> Submittals | |

THESE ARE TRANSMITTED FOR:

- | | | |
|--|---|---------------------------------|
| <input type="checkbox"/> Prior Approval | <input type="checkbox"/> Resubmittal for Approval | <input type="checkbox"/> Record |
| <input type="checkbox"/> Approval | <input type="checkbox"/> Corrections | Bids due on: |
| <input type="checkbox"/> Approval as Submitted | <input type="checkbox"/> Your Use | Other: |
| <input type="checkbox"/> Approval as Noted | <input type="checkbox"/> Review and Comment | |

Type	MFG	Part
U2	Con-Tech lighting	LPU2-24-4-P
EXIT	Dual-Lite	LXURWE
OCC	Intelligent Lighting Controls	OSC20-M0W
OCC	Intelligent Lighting Controls	OPP20-OD1
OCC	Intelligent Lighting Controls	OSSMD-GDW



**Carolina
Architectural
Lighting and
Design**

www.cal-d-lighting.com
Aug 22, 2016

RE: USC SOM Biomedical Studio -
Columbia SC

Type	MFG	Part
U2	Con-Tech lighting	LPU2-24-4-P
EXIT	Dual-Lite	LXURWE
OCC	Intelligent Lighting Controls	OSC20-M0W
OCC	Intelligent Lighting Controls	OPP20-OD1
OCC	Intelligent Lighting Controls	OSSMD-GDW

**Job Name:**USC SOM Biomedical Studio -
Engineer: GMK Associates Eng (Columbia)**Catalog Number:**

LPU2-24-4-P

Notes:

Type:**U2**

COL16-31813

CONTECH®
LIGHTING **LPU2**
LED Undercabinet Lighting

Catalog No. _____

Type _____

Project _____

Specifications/Features**Housing**

120V/277V Triac dimmable
Integral driver in each unit
Superior versatility, color rendering and efficiency.
Resistant to shock and vibration.
No infrared or ultraviolet radiation.
Thin profile; less than 1" in depth.
Bronze or white finish with frosted lens.
Each unit includes: 72" Power Connector (LPAPL72), 12" Jumper Cable (LPAC12), End-to-End Connector (LPACE), Conduit Connector and Mounting Screws.
277V Unit does not include 72" Power Connector; hardwire only.
Assorted flexible connections allow for continuous row applications as well as applications with bends and corners.
Linkable to 200W max.
Integral ON/OFF switch, along with High/Low switch.

Lamp

Selectable switch allows selection of three (3) different color temperatures: 2700K, 3000K, and 4000K.
CRI: 90
12": 5W/250Lm - 300Lm
18": 8W/380Lm - 450Lm
24": 12W/850Lm - 900Lm
32": 16W/950Lm - 1050Lm

Mounting

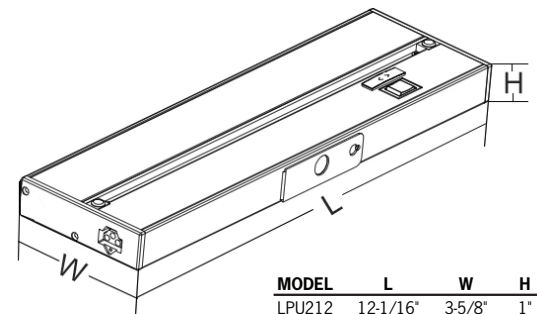
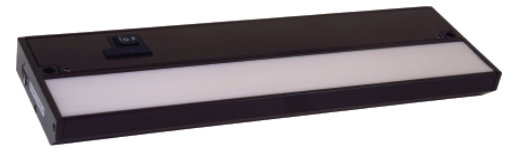
Built in LED driver and large knockout plate in the back makes for effortless installation.

Warranty

This complete fixture is covered by ConTech's full five (5) year replacement guarantee after date of purchase.

Listing

cETLus listed. Suitable for dry locations.



MODEL	L	W	H
LPU212	12-1/16"	3-5/8"	1"
LPU218	18-1/16"	3-5/8"	1"
LPU224	24-1/16"	3-5/8"	1"
LPU232	32-1/16"	3-5/8"	1"

Ordering InformationExample Order: -

Fixture	Length	Voltage	Finish
<input type="text" value="LPU2"/>	<input type="text" value="12 - 12-1/16"/> <input type="text" value="18 - 18-1/16"/> <input type="text" value="24 - 24-1/16"/> <input type="text" value="32 - 32-1/16"/>	<input type="text" value="1 - 120V"/> <input type="text" value="2 - 277V"/>	<input type="text" value="BZ - Bronze"/> <input type="text" value="P - White"/>

Accessories

LPACE-(B,P) - End-to-End Connector
LPAC6-(B,P) - 6" Jumper Cable
LPAC12-(B,P) - 12" Jumper Cable
LPAC24-(B,P) - 24" Jumper Cable
LPAC72-(B,P) - 72" Jumper Cable
LPAHW72-(B,P) - 72" 3-Wire Hardwire Connector
LPAPL72-(B,P) - 72" Plug-and-Play Connector (120V Only)

Finish Codes: -B (Black), -P (White)



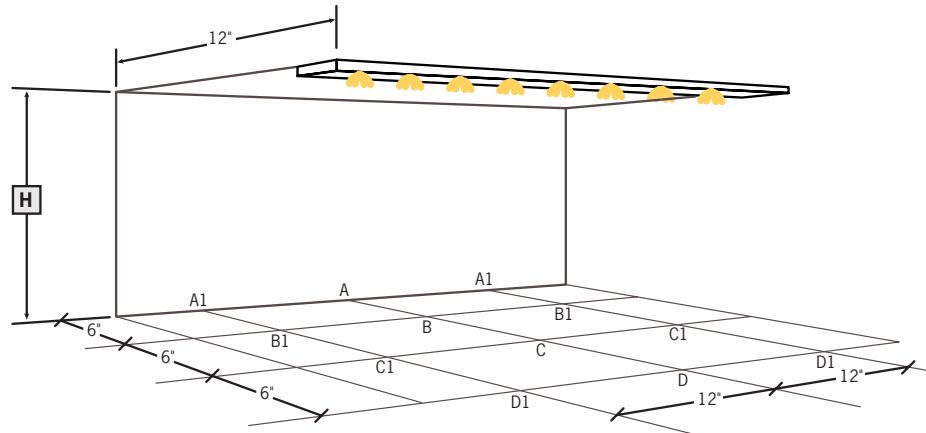
CONTECH LIGHTING **LPU2**
LED Undercabinet Lighting

Catalog No. _____

Type _____

Project _____

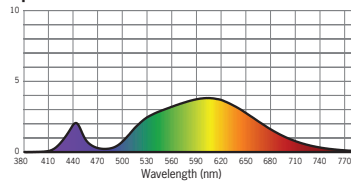
Photometrics



LPU2 - HIGH

Designed for 50,000 Hour Lamp Life*; LM-79 Test No. 63753

Light Output (Fixture Lumens): 337
Total Watts@120V: 5.5
Lumens Per Watt: 61
Color Rendering Index (CRI)¹: 90
Color Temperature (CCT)²: 3000K
Spectral Power Distribution Chart³

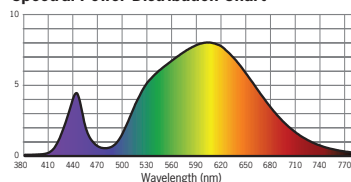


Lamp Spacing From Wall (in.)	Cabinet Elevation H (in.)	Footcandles on Horizontal Plane							
		A	A1	B	B1	C	C1	D	D1
12	12	42	20	79	33	36	18	8	5
12	18	32	19	45	25	27	16	10	8
12	24	23	16	28	19	19	14	10	8

LPU2 - LOW

Designed for 50,000 Hour Lamp Life*; LM-79 Test No. 63754

Light Output (Fixture Lumens): 287
Total Watts@120V: 5.7
Lumens Per Watt: 50
Color Rendering Index (CRI)¹: 90
Color Temperature (CCT)²: 3000K
Spectral Power Distribution Chart³



Lamp Spacing From Wall (in.)	Cabinet Elevation H (in.)	Footcandles on Horizontal Plane							
		A	A1	B	B1	C	C1	D	D1
12	12	35	17	67	28	31	15	7	5
12	18	27	16	38	22	23	14	9	6
12	24	19	14	24	16	17	12	9	7

1. Accuracy of rendering colors
2. Color appearance of light source
3. Colors present within the light source

*Dependent on surrounding temperatures

**Job Name:**
 USC SOM Biomedical Studio -
 Engineer: GMK Associates Eng (Columbia)
Catalog Number:

LXURWE

Notes:

Type:**EXIT**

COL16-31813



LX Series

Designer LED Exit Sign

FEATURES**Application**

The LX Series offers bright and even LED EXIT panel illumination with Green or Red letters and attractive UV stable thermo-plastic housing. Features include AC or Emergency operation with optional Spectron® self-test/self diagnostic circuitry. Housing designed for quick and easy installation with low energy consumption. Damp location listed. Accepts 120 or 277 VAC input.

Construction

The precision-molded thermoplastic housing is impact resistant and scratch resistant, corrosion proof and UL stabilized to resist discoloration. Available in white or black finish. Innovative snap-together design. Includes additional face-plate for single or double face applications. Snap-in directional chevrons. Exit stencil with 6" letters and 3/4" stroke. Includes push-in wire connectors for easy installation.

Installation

Universal mounting (ceiling, end, wall) to standard 3-1/2" or 4" octagon or square electrical box by use of easily removed, template configured knockouts. Canopy and universal mounting plate included. All mounting hardware is fully concealed.

Illumination

Exit face illumination is provided by energy saving, long-life red or green LED's. Exceeds UL 924 requirements for brightness and uniformity. UL listed LED run-time of 120 minutes. 10 year LED life.

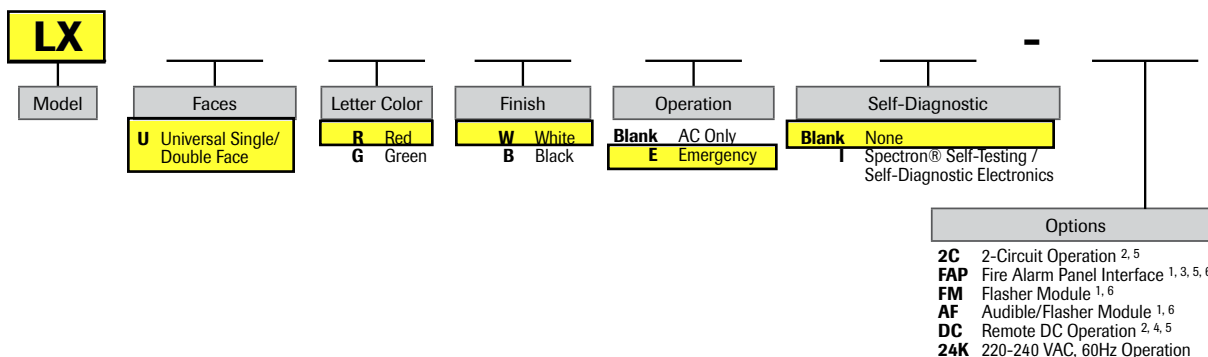
Compliances

UL 924 Listed (Meets 1998 brightness and uniformity requirements)
 UL Damp Location Listed
 NFPA-70
 NFPA-101
 US Patent No. D402,316, and D406,863

Warranty

Unit and electronics: 5 years full

Catalog Number	
Comments	Type

**ORDERING GUIDE****ACCESSORIES (order separately)**

VRS-3	Vandal Resistant Shield
FCM-R	Kit Converts AC red letter models to emergency operation
FCM-G	Kit Converts AC green letter models to emergency operation
PMLXW	12 1/2" Pendant Mounting Kit (white)
PMLXB	12 1/2" Pendant Mounting Kit (black)
WGLX	Wire Guard (wall mount)
WGLXC	Wire Guard (ceiling mount)
WGLXE	Wire Guard (end mount)

FEATURES

- (1) For use with Spectron® self-diagnostic models only.
- (2) For use with AC models only.
- (3) Operates with 24-volt AC or DC fire alarm panels.
- (4) For emergency illumination of sign from remote 6-24 VDC power sources.
- (5) -DC option may not be specified with -2C or -FAP options.
- (6) -AF, -FM and -FAP options may not be specified together.

**Job Name:**
 USC SOM Biomedical Studio -
 Engineer: GMK Associates Eng (Columbia)
Catalog Number:

LXURWE

Notes:

Type:**EXIT**

COL16-31813


LX Series
Designer LED Exit Sign
SPECIFICATIONS**Electronics**

Available with AC, emergency and Spectron® self-diagnostic/self-testing electronics option. Emergency and self-diagnostic models equipped with isolation transformer and fully automatic constant current solid-state charger with sealed maintenance-free nickel-cadmium battery. All components mounted inside housing. Includes test switch and AC-on indicator. Transient/surge protection, low-voltage disconnect and AC lock-out features included. Battery re-charge within UL time standards. Includes pre-stripped AC input pigtail leads. UL listed LED run-time of 120 minutes.

Power Consumption

Model	120VAC	277VAC
Red AC Only	2.64 watts	2.70 watts
Green AC Only	2.24 watts	2.24 watts
Red Emergency	3.81 watts	3.80 watts
Green Emergency	3.50 watts	3.50 watts

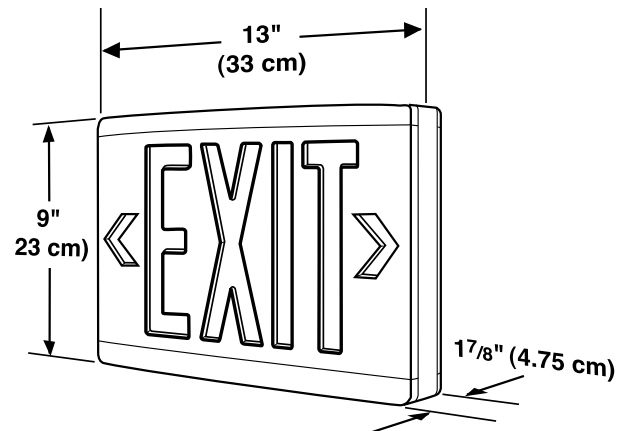
* Wattage figures include LED lamps, transformer and electronics power requirements. LED lamp assemblies (red or green) consume less than 1 watt.

Power Factor, Average: .8 (lagging)

Battery Type: Maintenance-free sealed nickel cadmium battery

AC Input: 120/277VAC, 60 Hz. (all models)

Operating Temperature Range: 0°C to 40°C (32°F to 104°F)

DIMENSIONS

Occupancy Sensor Multi-Technology Ceiling Sensor

OSC20-MOW
OSC10-MOW
OSC05-MOW.....

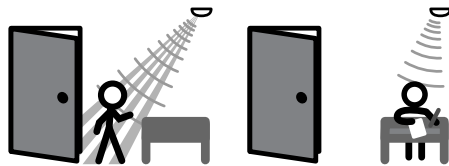
The most advanced sensor available. Combines multi-technology with all-digital architecture. Eliminates false triggering. The result is a trouble-free, "install and forget" solution for lighting control.

THE OSCxx-MOW SERIES OCCUPANCY SENSOR

- MULTI-TECHNOLOGY FOR HIGHEST RELIABILITY
 INFRARED & ULTRASONIC
- SIMPLE, FAST INSTALLATION
- SELF-ADJUSTING
- ALL-DIGITAL, COMPLETE RELIABILITY
- PHOTOCELL BUILT-IN
- CEILING MOUNT

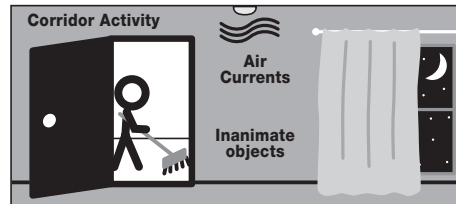
GENERAL OPERATION

Occupancy sensors have two tasks: keeping the lights on while the room is occupied and, conversely keeping the lights off when unoccupied. Ultrasonic (doppler shift) motion detection gives maximum sensitivity yet can be vulnerable to false triggering from air conditioning currents, corridor activity and movement of inanimate objects. Infrared motion sensing gives immunity to false triggering, but lacks sensitivity at greater distances. Leviton multi-technology sensors combine the benefits of both infrared and ultrasonic technologies for unrivaled performance and reliability.



Upon room entry, the infrared detects motion and turns lights on.

Ultrasonic keeps lights on even with very minor motion.



When unoccupied, lights stay off while air conditioning system cycles on and off, and cleaning crews occupy corridors.

ADAPTIVE FUNCTIONS

The OSCxx-MOW constantly analyzes and adapts to changing conditions:

HOW THE ODCXX-M AUTOMATICALLY ADAPTS

Condition	Example	Adaptive Reaction
Timer Left In Test Mode - The sensor remains in an 6 sec. test mode.	An installer accidentally leaves the sensor in the 6 sec. timer test mode and the lights may go off or on every 6 sec.	The sensor automatically resets the timer to 10 min. after 15 min of test mode.
False-On -The sensor incorrectly turns the lights on.	The sensor detects movement in the corridor or hallway and the room lights turn on.	After an initial movement is sensed, if another movement is not sensed within the timer setting then the delayed off time setting is automatically reduced.
False-Off -The sensor incorrectly turns the lights off.	The sensor does not detect movement because an occupant sits virtually motionless at a desk and the lights turn off.	If motion is sensed within a short period after the lights go off, then the current delayed off-time setting is increased.

OSCxx-MOW



LEVITON SPECIFICATION SUBMITTAL

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**Job Name:**USC SOM Biomedical Studio -
Engineer: GMK Associates Eng (Columbia)**Catalog Number:**

OSC20-MOW

Notes:

Type:

OCC

COL16-31813

Product Specifications

OSCxx-MOW

PRODUCT SPECIFICATIONS

FEATURES**Self-adjusting Settings:** Callbacks for adjustment are eliminated. Time delay settings are continually adjusted.**Non-Volatile Memory:** Learned and adjusted settings saved in protected memory. Power outages will not cause status loss.**Wide Coverage:** Select the approximate area needed. Units from 500 to 2000 sq. ft. available.**Ambient Light Recognition:** The photocell prevents lights from turning on when the room is adequately lit by natural light**Small Size:** The spherical-section shape makes the installation almost invisible.**Accurate, Consistent Switching:** Occupant complaints are eliminated; lights are on when room is occupied, off when empty. Annoying false-offs are minimized and lights on at night is eliminated.**Fast, Simple Installation:** A single mounting post and three color-coded wires make installation easy.**Photocell:** 20-3,000 Lux adjustable. Factory set 3,000 L (photocell disable)**Timer Settings:** Automatic and Manual - 30s to 30 min. Test mode - 6 sec.

SPECIFICATIONS

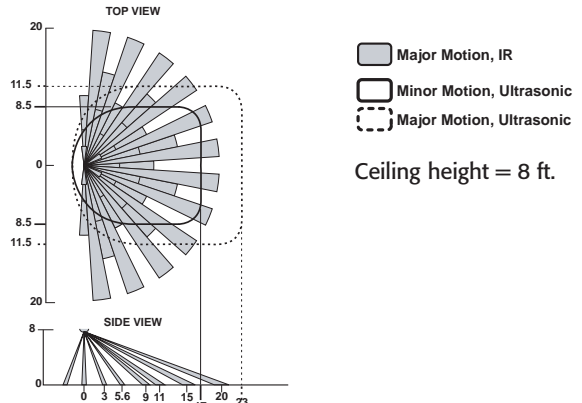
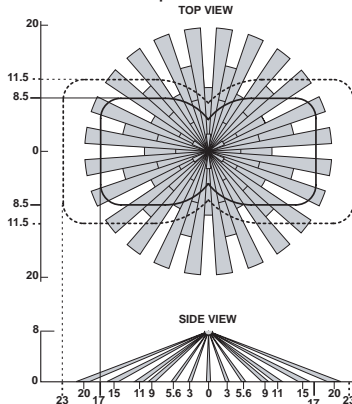
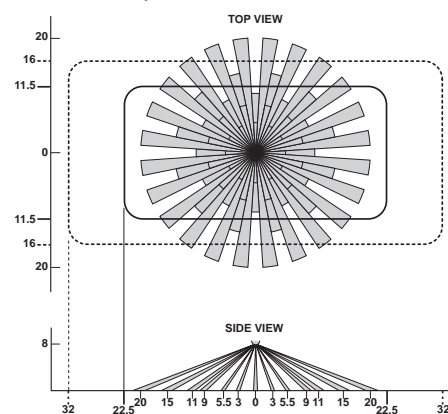
Indicator**Green LED Lamp:** Ultrasonic motion.**Red LED Lamp:** Infrared motion.**Construction:** Two ultrasonic transmitters and two narrow bandwidth receivers each 16mm in diameter. Frequency -- Crystal controlled to $\pm 0.005\%$. Transducers -- Oriented north and south (OSC20-M, OSC10-M only, others use single pairs), angled 30° down from horizontal. Housing -- Rugged, high-impact, flame class rating, UV inhibitors. Color coded leads are 6".**Size & Weight:** 4.5" dia., 1.5" height; 5 oz. (114 mm dia., 38 mm height; 142 g.)**Power Requirements:** 24 VDC, (use OSPxx power pack.)

Model	Power Requirement
OSC05-MOW	30MA
OSC10-MOW	40MA
OSC20-MOW	32MA

Output: 24 VDC active high logic control signal with short circuit protection.**Operating Environment:** 32°F to 104°F (0°C to 40°C); 0% to 95% non-condensing, relative humidity. For indoor use only.**Warranty:** 5 years.**LEVITON** SPECIFICATION SUBMITTAL

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RANGES

OSC05-M 500 sq. ft.**OSC10-M 1000 sq. ft.****OSC20-M 2000 sq. ft.**

**Job Name:**
 USC SOM Biomedical Studio -
 Engineer: GMK Associates Eng (Columbia)
Catalog Number:

OSC20-M0W

Notes:

Type:**OCC**

COL16-31813

Product Specifications

OSCxx-MOW

CONTROLS**DIP switch settings**

Switch	Switch Functions		Switch Settings
	Bank A	OFF	ON
A1	Single/Multi-Tech Mode	Multi-Tech	Single Tech
A2	PIR/Ultrasonic Mode	PIR	Ultrasonic
A3	Manual Mode	Auto Adapting Enabled	Auto Adapting Disabled
A4	Walk-Thru Disable	Walk-Thru Enabled	Walk-Thru Disabled
Bank B			
B1	Override to On	Auto Mode	Lights forced On
B2	Override to Off	Auto Mode	Lights forced Off
B3	Test Mode	OFF → ON → OFF	Enter/Exit Test Mode
B4	LED Disable	LEDS Enabled	LEDS Disabled

Knob Color: Control	Function	Automatic Operation	Conditions Analyzed in Automatic Operation	Knob Setting Under Manual Operation**	Recommended Manual Setting
Green: Ultrasonic Sensitivity	Sets the ultrasonic range	Sensor analyzes room and sets sensitivity to optimal setting	Air currents False-on occurrences False-off "	Linear range setting Full CCW = min (off) Full CW = max range	50%
Red: Infrared Sensitivity	Sets the infrared range	Same as above	Room (surface) temp Lens dirt Signal to noise ratio	Same as above	75%
Black: Timer	Sets the length of time lights will remain on after last motion is sensed	Timer setting generally increased during learning period, then decreases to minimize "on" time	False-off occurrences Error free operation decreases the timer setting	Linear range setting Full CCW = min Full CW = max (30 min.)	33% 10 min.
Blue: Photocell	Sets level of daylight needed to prevent the lights from turning on	No automatic operation	N/A	Linear range setting Full CCW = min daylight Full CW = max (off)	Off unless used

**When a function is set to "Automatic Operation" the initial setting is determined by the position of the knob. CCW is counter clockwise, CW is clockwise

Models

Part Number	Coverage	Transducer Pairs	Operating Frequency	Infrared Lens	Additional Features
OSC05-M	500 sq. ft.	One	40kHz	Extended Range	Photocell
OSC10-M	1000 sq. ft.	Two	40kHz	Extended Range	Photocell
OSC20-M	2000 sq. ft.	Two	32kHz	Extended Range	Photocell

NOTE: Sensor activates upon infrared detection. Place sensors to provide infrared coverage at room entrances.

**SPECIFICATION SUBMITTAL**

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JOB NUMBER: <input type="text"/>	<input type="text"/>

**Job Name:**USC SOM Biomedical Studio -
Engineer: GMK Associates Eng (Columbia)**Catalog Number:**

OSC20-M0W

Notes:

Type:**OCC**

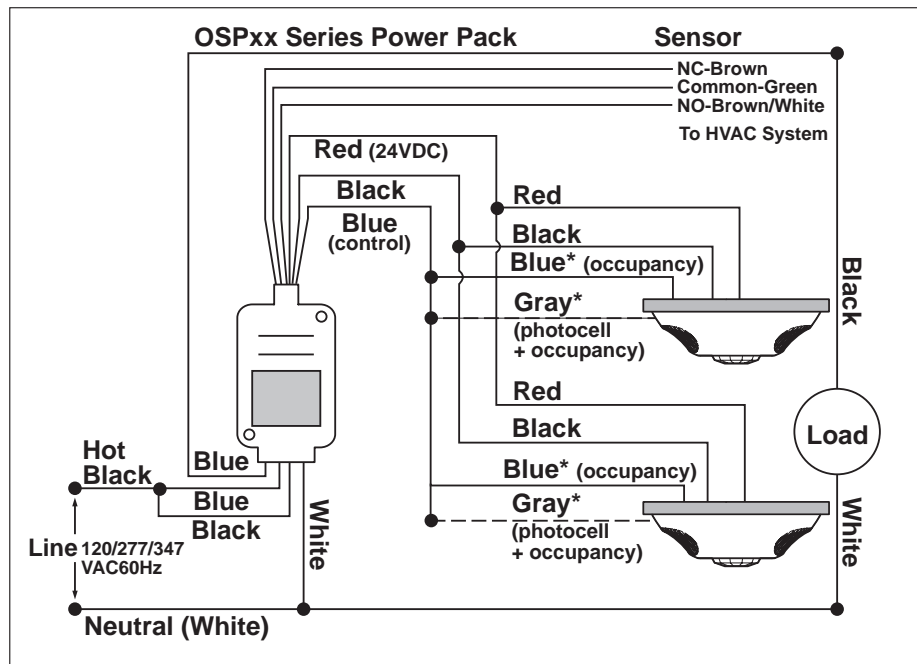
COL16-31813

Product Specifications

OSCxx-MOW

AUTOMATIC ADJUSTMENTS

The automatic timer and automatic sensitivity features of the ODCxx-MOW work independently to prevent "false-offs" and "false-ons." When the sensor detects motion immediately after it turns the lights out, a "false-off" is detected, timer increased. If the sensor turns the lights on, but detects no immediate follow-up motion, "false-on" is detected, timer is decreased.

PHYSICAL WIRING

**When the photocell function is not being used, connect the Blue Occupancy Sensor lead to the Blue Power Pack lead. When using the Photocell function, connect the Gray Occupancy Sensor lead to the Blue Power pack lead—Do not use the Blue Occupancy Sensor lead for the photocell function.*

LEVITON SPECIFICATION SUBMITTAL

JOB NAME:	CATALOG NUMBERS:
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JOB NUMBER:	<input type="text"/>

**Job Name:**
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 Engineer: GMK Associates Eng (Columbia)
Catalog Number:

OPP20-OD1

Notes:

Type:**OCC**

COL16-31813

**OPP20-D1**

UPC Code: 07847763404

Country of Origin: China

Occupancy Sensors**Brand Features**

The Leviton OPP20 Super Duty Power Pack is the first power pack designed to control virtually any lighting or receptacle circuit load to meet today's challenges for solid state lighting control and tougher code requirements for unmatched performance and durability. The Power Pack models are cost-effective with simplified energy management tools for daylight harvesting and energy management.

Item Description

20A Standard Power Pack for Occupancy Sensors, features include Auto ON, Latching Relay; Line Voltage Input: 120/208/220/230/240/277V, 50/60Hz; Low Voltage: Input-24VDC, 2mA, Output-24VDC, 225mA. Housing: 1/2" Threaded nipple w/locknut (fits on or in a 4" sqr box), RoHS Compliant, Title 24 Compliant, ASHRAE 90.1 Compliant, Color: Gray

Technical InformationProduct Features**Latching Relay:** Yes**20A:** Yes**Tested Relay Cycles:** 1.5M loaded cycles**Fail-Safe Circuit:** Yes**Power On Restore:** Yes**Manual Switch Input:** Yes**Momentary/Maintained Switch:**
Exclusive Self-detect**Configurable Local Switch:** Yes**Manual On OCC Input:** Yes**Auto On OCC Input:** Yes**Meets CA Title 24 Requirements:** Yes**Switched Daylighting Input:** Yes**Output Short Circuit Protection:** Yes**Regulated 24VDC Current Output:**
225mA**Warranty:** 5 Year**Plenum Rated:** UL2043**120-230-277VAC, 50/60 Hz:** Yes**UL/cUL Listed:** 916; 2043**NOM Certified:** Yes**Meets ASHRAE 90.1:** Yes**Plug Load Control Requirements:** Yes**NEMA 410 Tested:** Electronic Ballast
Current**Zero Cross Technologies:** Yes**Auto-ON/Auto-OFF:** Yes**Features and Benefits**

- First true industry-exclusive "fail safe" design assures lights ON meeting life safety requirements of NFPA 101
- Robust power pack meets intense plug load control requirements of CA Title 24/ASHRAE 90.1
- Industry exclusive Switched Daylighting Power Pack models for use with Wall Switches, Occupancy Sensors and Photocells
- Robust and reliable mechanical latching relays specifically designed to operate LED's and high inrush electronic ballast loads

**Job Name:**USC SOM Biomedical Studio -
Engineer: GMK Associates Eng (Columbia)**Catalog Number:**

OSSMD-GDW

Type:**OCC****Notes:**

COL16-31813

PRODUCT DATA**LEVITON®**

Dual Relay Multi-Technology Wall Switch Occupancy Sensors

The OSSMD line of dual relay multi-technology Decora style wall switch occupancy sensors features several models to provide automatic lighting control for energy savings and convenience in a variety of commercial applications. OSSMD combines multi-technology with all-digital architecture in a dual relay switch occupancy sensor to minimize false triggering. The OSSMD automatically analyzes room conditions and adapts to changing environments. The result is a code compliant, trouble-free, "install-and-forget" solution for bi-level switching and lighting control.

- PIR and US technology for performance and sensitivity
- Controls two separate lighting loads from a single unit
- Manual-ON only for the secondary relay
- Features self-adjusting occupancy sensor technology with automatic "walk-through" sensing
- PIR can be disabled
- 30-minute maximum time-out delay
- CEC Title 24 Compliant

APPLICATIONS

- Private and Executive offices
- Conference rooms
- Classrooms
- Restrooms
- Storage areas
- Training areas
- Multimedia rooms
- Day care centers
- Lounges
- Retrofits

The OSSMD provides automatic switching of two separate loads from a single unit. It is compatible with incandescent fluorescent, low-voltage lighting, and fan loads. The unit features dual manual-override switches that can be used to toggle the ON/OFF status of each lighting load while an area is occupied. The OSSMD can be installed in place of two single-pole wall switches and fits in a standard single-gang wall box. The unit requires a ground connection for proper operation. The sensor has an adjustable 30 minute time-delay setting for both relays with a shorter 30-second vacancy confirmation built in. To comply with California Energy Commission's Title 24, the second relay is a manual-ON only.

**OSSMD**

The OSSMD line offers flexibility in unique application conditions that may require the use of US technology only with the ability to disable the PIR function when there are extreme changes in airflow or temperature. In addition, the OSSMD-GD does not require a neutral wire for installation, perfect for retrofit applications.

The OSSMD-FT is ideal for use in commercial restrooms with exhaust fans when the user requires a delayed-OFF for the second relay. Featuring a single pushbutton switch with two relays, the OSSMD-FT uses auto-ON or manual-ON to keep the exhaust fan on for 10 minutes longer than occupancy to clear air odor in public restrooms found in coffee shops, restaurants, and similar establishments.

Dual Relay Multi-Technology Wall Switch Occupancy Sensors**Leviton Mfg. Co., Inc. Lighting Management Systems**

20497 SW Teton Avenue, Portland, OR 97062 1-800-736-6682 Tech Line: 1-800-959-6004 Fax: 503-404-5594 www.leviton.com/lms
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Engineer: GMK Associates Eng (Columbia)**Catalog Number:**

OSSMD-GDW

Notes:

Type:**OCC**

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PRODUCT DATA**OPERATION**

The PIR is used to detect motion and turn lights on, while either technology is used to keep lights on while occupied. This allows the US to be set to higher sensitivity levels minimizing false OFF conditions. The PIR portion gives immunity to false ON through a specialized lens that divides the field-of-view into sensor zones. When a person passes into or out of a sensor zone, the sensor detects motion and switches two separate lighting loads ON. The lights will remain ON as long as there is an occupant moving through the sensor zones. The US sensors give maximum sensitivity and range in difficult spaces with irregular shaped rooms and partitions that can block the PIR field-of-view. A pair of US sensors will detect Doppler shifts caused by motion in a space. These sensors are more sensitive to small movements since they do not rely on zones. Sensitivity can be field adjusted to Low-Medium-High. This flexibility makes the OSSMD perfect for a wide variety of room sizes and configurations.

A delayed-OFF time adjustment limits the length of time the lights will remain on after the room becomes unoccupied. In order to keep the lights ON, a person must pass through a sensor zone at least once during the selected delayed-OFF time interval. A self-adjusting delayed-OFF time feature compensates for real-time occupancy patterns to prevent unnecessary ON/OFF switching. An LED indicator blinks each time the unit detects activity in the sensor zones.

To ensure longer service life and compatibility with electronic ballasts, the device carefully times the primary relay switching contact opening and closing with the zero crossing point of the AC power curve. This minimizes contact wear caused by in-rush currents from electronic ballasts.

PUSHBUTTON MANUAL OVERRIDE CONTROL

For manual control of primary and secondary lighting loads, both the OSSMD-MD and the OSSMD-GD feature dual pushbutton switches that will "toggle" the ON/OFF status of each load. Pushbutton 1 controls the primary relay, and pushbutton 2 controls the secondary relay. If the lights are OFF, pressing either button 1 or 2 will turn the respective lighting loads ON and keep them ON for as long as the room is occupied. The lights will be turned OFF once the room is vacant, after the delayed-OFF time expires.

The dual manual-override switches provide a viewing mode feature: If the lights are ON, pressing the push-buttons will turn lights OFF and keep them OFF even if the room is occupied. This feature is particularly useful for viewing slide or film presentations. The lights can be turned back ON as needed by simply pressing the buttons. The lights will remain OFF when the room becomes vacant. After the delayed-OFF time expires, the unit will resume motion detection operation.

"WALK-THROUGH" SENSING

In Auto-Adaptive mode, an exclusive Walk-Through feature addresses the common situation where personnel may only enter a room momentarily. The Walk-Through feature provides increased energy savings by not leaving the lights ON for the full delayed-OFF period after only momentary occupancy. The Walk-Through period is 2-1/2 minutes long. The unit will switch lights ON when it detects a person entering the area it is monitoring. However, if the OSSMD does not continue to detect activity during the Walk-Through period, the OSSMD will turn the lights OFF. If the person stays in the room for longer than 2-1/2 minutes, the OSSMD will operate as normal.

MANUAL-ON/AUTO-OFF MODE

In this mode, the unit will not turn lights ON automatically when motion is detected. Lights can only be turned ON manually by pressing the pushbutton. The lights will remain ON as long as the unit detects activity in the sensor zones. It will shut lights OFF automatically after the space becomes unoccupied and the delayed-OFF time expires. Lights can also be turned OFF manually at any time by pressing the pushbutton. This mode is ideal for areas where manual-ON switching is required but automatic OFF switching is desired for energy savings.

Leviton Mfg. Co., Inc. Lighting Management Systems

20497 SW Teton Avenue, Portland, OR 97062 1-800-736-6682 Tech Line: 1-800-959-6004 Fax: 503-404-5594 www.leviton.com/lms
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**Job Name:**
 USC SOM Biomedical Studio -
 Engineer: GMK Associates Eng (Columbia)
Catalog Number:

OSSMD-GDW

Notes:

Type:**OCC**

COL16-31813

PRODUCT DATA**AMBIENT LIGHT OVERRIDE**

To maximize energy savings, the Ambient Light Override feature prevents the OSSMD from switching the primary relay lights ON when there is ample natural sunlight in the room, regardless of occupancy. The pushbutton can be used to turn lights ON at any time, regardless of the override setting.

The sensor will take a measurement of the ambient light in the room when it first detects motion. If there is enough light in the room, the sensor will leave the lights OFF. If there is not enough light in the room, the sensor will turn the lights connected to the primary relay ON. Note that the sensor will time out and turn the lights OFF after no motion is detected, regardless of mode of operation.

ENHANCED ADJUSTMENT OPTIONS

The OSSMD is factory preset to deliver optimum performance in a wide variety of commercial applications. Factory settings are:

- 10-minute time-out time delay
- Ultrasonic setting on High
- PIR setting mid-range
- No ambient light override in effect
- Auto-adaptive mode disabled (no 2-1/2 minute walk-through)
- Manual-ON for secondary relay
- Blinders open

To meet specific installation requirements, the OSSMD provides enhanced adjustment options for sensitivity, ambient light override, delayed-OFF time, field-of-view, and non-adaptive mode. To avoid tampering, all adjustments can only be accessed by removing the control panel cover. A small flat-head screwdriver can be used to adjust the control knobs, and the field-of-view blinders are fingertip operated. Controls are labeled as follows:

- **Blinders**--Integral sliding blinders on each side of the lens may be used to restrict the 180° field-of-view down to 32°. Adjust these to prevent unwanted detection in areas such as hallways.

- **Time**--The delayed-OFF time is preset at 10 minutes. A choice of four delayed-OFF time settings is available: 30-seconds (recommended for walking test purposes only), 10, 20, and 30 minutes for fixed time and auto adapting. The LED will flash amber when the adjusting knob is set to the indicated time value.

- **Self-Adjusting Delayed-OFF Time**--OSSMD provides convenience and energy savings by optimizing the delayed-OFF time based on the use pattern for the monitored space. The self-adjusting delayed-OFF time feature will track the occupancy patterns and adjust accordingly. If the occupant frequently returns to the monitored space after only a short absence, the sensor will decrease the delayed-OFF time. If the occupant frequently returns near the end of the delayed-OFF time, the sensor will extend the delayed-OFF time.

- **Non-Adaptive Mode**--Both the Self-Adjusting Delayed-OFF Time and Walk-Through Features can be disabled for installations where they are not required.

- **Range (PIR)**--Adjusting the range allows the unit to ignore motion at the far end of its range and avoid unnecessarily switching lights ON. The range can be adjusted from 100% to 35% of the total coverage area. PIR can also be disabled.

- **Sensitivity (US)**--Users can adjust internal ultrasonic operation to maximize detection of motion while minimizing the effects of environmental noise (electrical noise, air currents, temperature changes, etc.). Adjustment is made by pushing the ON-OFF button in a prescribed sequence to Low-Medium-High sensitivity (see installation sheet).

- **Light**--To maximize energy savings, the Ambient Light Override feature will prevent the unit from switching the primary relay lights ON when there is ample natural sunlight, regardless of occupancy. The Ambient Light Override adjustment should be made during a period where the ambient light in the room being monitored is at a level where no artificial light is needed. When this mode is active, the pushbutton can be used to turn lights ON at any time, regardless of the override setting.

**Job Name:**
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 Engineer: GMK Associates Eng (Columbia)
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OSSMD-GDW

Notes:

Type:**OCC**

COL16-31813

**FEATURES**

- Self-Adaptive technology eliminates callbacks for adjustments. Time delay and sensitivity settings are continually adjusted to occupant patterns of use in auto adapt mode.
- Exclusive Walk-Through feature provides increased energy savings by not leaving the lights ON for an extended period after only momentary occupancy.
- Provides automatic switching for two separate banks of fluorescent, incandescent, or low-voltage lighting from a single unit. Ideal for classrooms, day care centers, offices, multimedia areas, conference rooms, lounges and other commercial areas.
- All digital circuitry uses a minimum of components for maximum reliability and low cost.
- Convenient pushbutton provides manual-ON/OFF light switching of each load at any time.
- Fits in a standard single-gang wall box and replaces two single-pole wall-switches for fast and easy installation; neutral and ground connection required for OSSMD-MD and OSSMD-FT. OSSMD-GD does not require a neutral for installation.
- Adjustable horizontal field-of-view (PIR) may be adjusted between 180° and 32° of arc by using integral blinders located on either side of the lens.
- Ultrasonic technology provides excellent small motion sensitivity.
- True zero-cross relay switches at the zero crossing point of the AC power curve to ensure maximum contactor life and compatibility with electronic ballasts.
- To comply with California Title 24, the second relay is a manual-ON only with a maximum 30 minute time-out.
- Ambient Light Override feature measures the ambient light in the room when it first detects motion and leaves the lights OFF if there is enough light in the room or turns the lights connected to the first relay ON if there is not enough light in the room.
- The OSSMD-FT is intended to control a light circuit and a fan. The single button on the sensor provides ON control for both circuits and OFF for lighting circuits only. The sensor will automatically turn on both when occupancy is detected. When no movement is detected, the primary relay will turn off after the delay off time expires. The fan will remain on for an additional 10 minutes after the time-out or button press.

- Viewing Mode feature for slide or film presentations allows pushbuttons to turn lights OFF and keep them OFF even if room is occupied.
- Non-Adaptive Mode disables self-adjusting delayed-OFF Time and walk-through feature in applications where these feature are not desired. Optional manual adjustment for delayed-OFF time settings allows customized adjustments to maximize energy savings.
- Uses Decora wallplates and coordinates with Leviton's popular line of Decora wiring devices.
- 180° field-of-view provides approximately 2400 square feet of coverage, suitable for a variety of commercial areas.
- Optional manual adjustment for delayed-OFF time settings of 30 seconds (for walking test), 10 minutes, 20 minutes, and 30 minutes. Allows customized adjustments to maximize energy savings.
- Manual-ON/Automatic-OFF mode for installations where manual-ON switching is required but automatic OFF switching is still desired for energy savings.
- LED indicator light flashes when sensor detects motion to verify detection is active. Green flashes for ultrasonic, red flashes for PIR.
- One unit can be used for either 120V or 277V lighting. Compatible with both electronic and magnetic ballasts.
- ETL/CETL Certified, complies with California Title 24 Energy Code and FCC Regulations.
- Limited Five-Year Warranty

INSTALLATION

The OSSMD mounts in a standard single-gang wall box and replaces two single-pole wall switches that control two separate lighting loads. The unit must be properly grounded in order to operate. The unit's integral blinders may be used to restrict the field-of-view to prevent unwanted detection of hallway traffic. The OSSMD should be positioned at least 4 feet away from HVAC registers. Note that whenever the unit is powered up, it will take approximately 1 minute to begin normal operation.



Job Name:

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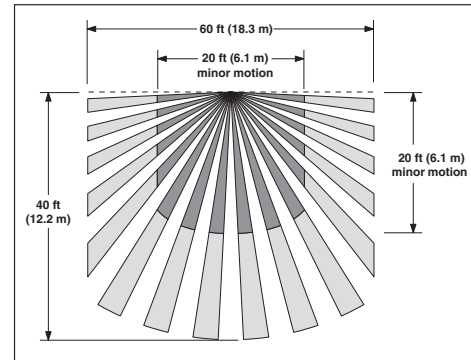
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PRODUCT DATA

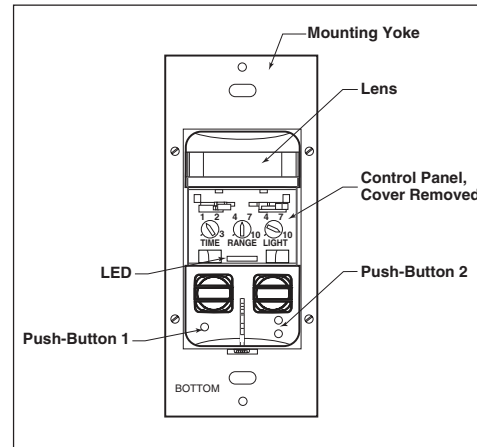
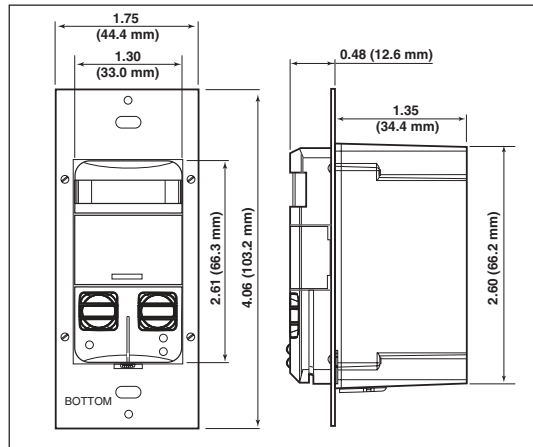


FIELD-OF-VIEW

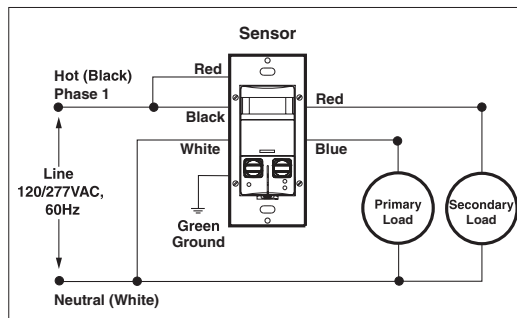
The OSSMD provides a 180° field-of-view with a maximum coverage area of approximately 2400 square feet. The maximum large motion sensing distance in front of the sensor is 40 feet, and at each side is 30 feet. A “small-motion” zone detects relatively small body movements and allows the lights to stay ON even though a person may not be moving or walking around the room. This zone is approximately 20 feet by 20 feet.



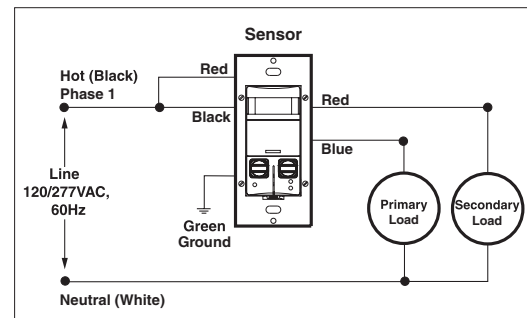
DIMENSIONAL DIAGRAMS



WIRING DIAGRAMS



OSSMD-MD/OSSMD-FT



OSSMD-GD

Dual Relay Multi-Technology Wall Switch Occupancy Sensors

**Job Name:**USC SOM Biomedical Studio -
Engineer: GMK Associates Eng (Columbia)**Catalog Number:**

OSSMD-GDW

Notes:

Type:**OCC**

COL16-31813

PRODUCT DATA**SPECIFICATIONS****ELECTRICAL**

Line Voltage	120/277 VAC	
Operational Frequency	60Hz	
US Operating Frequency	40kHz	
Wire Designation	Primary Relay-No. 16 AWG leads: Line-Black Load-Blue Ground-Green White-Neutral (where provided)	Secondary Relay-No. 16 AWG isolated contact leads: (2) Red
Load Rating	Primary Relay: Fluorescent: 1200VA @ 120V 2700VA @ 277V Incandescent: 800W @ 120V 60Hz AC only Motor: 1/4 HP @ 120V	Secondary Relay: Fluorescent: 800VA @ 120V 1200VA @ 277V Incandescent: 800W @ 120V 60Hz AC only Motor: 1/4 HP @ 120V

ENVIRONMENTAL

Operating Temperature Range	0° C to 50° C
Storage Temperature Range	0° C to 50° C
Relative Humidity	20% to 90% non-condensing

PHYSICAL

Size	4.06" H x 1.75" W x 1.85" D (103.2mm x 44.4mm x 47.2mm)
Colors	White, Ivory, Almond, Light Almond, Gray, Black
Listings	ETL/cETL Listed UL508/CSA C22.2 No. 14, CEC Title 24 Compliant, FCC Compliant, Meets ASHRAE Standard 90.1 Requirements

ORDERING INFORMATION

CAT. NO.	DESCRIPTION
OSSMD- MDx	Dual Relay Multi-Tech Wall Switch Occupancy Sensor, 120/277V
OSSMD- GDx	No Neutral, Dual Relay Multi-Tech Wall Switch Occupancy Sensor, 120/277V
OSSMD- FTx	Dual Relay Multi-Tech Wall Switch Occupancy Sensor with 10-minute Delayed-OFF for Second Relay, 120/277V

x = (W) White, (I) Ivory, (A) Almond, (T) Light Almond, (G) Gray, (B) Black

Dual Relay Multi-Technology Wall Switch Occupancy Sensors

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