

# CH1 SERIES

## LED High Bay Fixtures

CH1 Series provides the highest quality, reliability and performance with extraordinary lumen maintenance and efficacy, delivering superior ROI for your application.

**APPLICATIONS:** Industrial and Commercial Facilities, Warehouses, Manufacturing, Distribution Centers, Hangars and Indoor Sports Arenas.

### FEATURES & SPECIFICATIONS

- **Environment:** Dry/Damp, for interior applications (IP4X). Impact protection (IK08).<sup>9</sup>
- **Ambient Range Operation:** -40°C up to 45°C (-40°F up to 113°F).<sup>1</sup>
- **Heat Sinks:** Extruded aluminum heat sinks provide optimal thermal management, decreasing LED junction temperature and ensuring long life and high efficacy. In addition, we attach the LED boards to the heatsink using a high quality thermally conductive adhesive instead of screws. This promotes long life even at high ambient temperatures.
- **High-Quality Materials:** FR4 PCB is used to limit stress on solder joints by matching coefficient of thermal expansion between the LED and the PCB more closely.
- **Power Supply Access:** Wireway cover allows for easy access and quick wiring. Center hole accepting 3/4" stem and also 1/2" KO's, one on each end of the wire way, on top.
- **Mounting:** Fixture is cable ready (CRM) and has a center opening to accept a 3/4" stem mount, HOOK or surface mount options (with optional MBR). MBR reduces ambient range by 5°C when mounted flush to junction box.
- **Lenses:** UV stable polycarbonate clear and aisle or acrylic (PMMA) frosted available.
- **CCT:** 3500K, 4000K and 5000K standard, other CCT available (extended lead time).<sup>2</sup>
- **Warranty:** 5-year standard including guaranteed L70, up to 10-year optional, also available a 10-year warranty on ES40P fixtures including labor, see Accessories.
- **Bulk Packaging:** All fixtures come in eco-friendly bulk packaging. Individual boxes are also available.

<sup>9</sup>LM-79, LM 80 tests and reports are performed in accordance to IESNA standards, per TM-21. Lumen maintenance in hours (L70 via TM-21) based on 24/7 operation.

<sup>4</sup>Typical at 277V (LV) and 77°F (25°C), 4000/5000 CCT, Clear Lens, +/-10%. Typical CRI 80+. Frosted or Aisle Lens Multiplier is .96. 3500K CCT Multiplier is .97

Project Name	
Date	
Cat. Number	
Type	



See page 4 for more information

### TECHNICAL SPECIFICATIONS

Lumen Output <sup>4</sup>	Efficacy	Watts	Frame <sup>5</sup>	Part Number
5861	147	40	2MS	CH10S-A1-06K-2MS
9896	164	60	2MS	CH10S-A1-09K-2MS
12372	152	81	2MS	CH10S-A1-12K-2MS
15873	154	103	4MS	CH10S-A1-15K-4MS
17781	148	122	4MS	CH10S-A1-17K-4MS
18484	166	111	4MS	CH10S-A1-18K-4MS
20700	164	126	4MS	CH10S-A1-20K-4MS
25069	160	157	4MS	CH10S-A1-24K-4MS
27749	152	182	4MS	CH10S-A1-27K-4MS
30852	165	187	6MS	CH10S-A1-30K-6MS
34906	155	226	6MS	CH10S-A1-35K-6MS

### POWER & CONTROL

- **Power Input:** 120-277V or 347-480 (50/60Hz), Typical, depending on model.
- **Dimming:** 0-10V standard. Capable of dimming down to 10%.
- **Power Factor:** Greater than 0.9 (0.96-0.99 typical).
- **Total Harmonic Distortion:** Less than 20%, 10% typical.
- **Occupancy Sensors:** Optional - factory installed photocell and daylighting sensors.
- **Emergency Battery Backup (EMB and EMB2):** EMB initial lumen output is ~2200 lumens, thereafter EMB produces ~2000 lumens for a minimum of 90 minutes. EMB2 Initial lumen output is ~3600, thereafter EMB2 produces ~2200 lumens for a minimum of 90 minutes. EMB has 16 watts initial output, EMB2 has 20 watts initial output. Available in LV and HV (EMB only).<sup>1,7,11,13</sup>
- **Surge Protection:** Standard is 6kV for drivers. Additional surge protection is available. All HV orders will have SRG automatically added.
- **Driver Quick Disconnect:** A Driver Quick Disconnect feature is available as an additional option.

### LUMEN MAINTENANCE<sup>3</sup>

PROJECTED L70 VIA TM-21(24/7 OPERATION)

25°C Ambient Temp.	45°C Ambient Temp. <sup>1</sup>
>201,000 hours	>180,000 hours

Ambient	Year 1	Year 5	Year 10
25°C	99.43%	94.06%	87.76%
30°C	99.32%	93.71%	87.15%
35°C	99.25%	93.37%	86.51%
40°C	99.17%	93.00%	85.85%
45°C	99.09%	92.61%	85.12%

Ambient	25°C	35°C	45°C
Lumen Multiplier	1.00	0.98	0.97 <sup>3</sup>

### DIMENSIONS & DRAWINGS

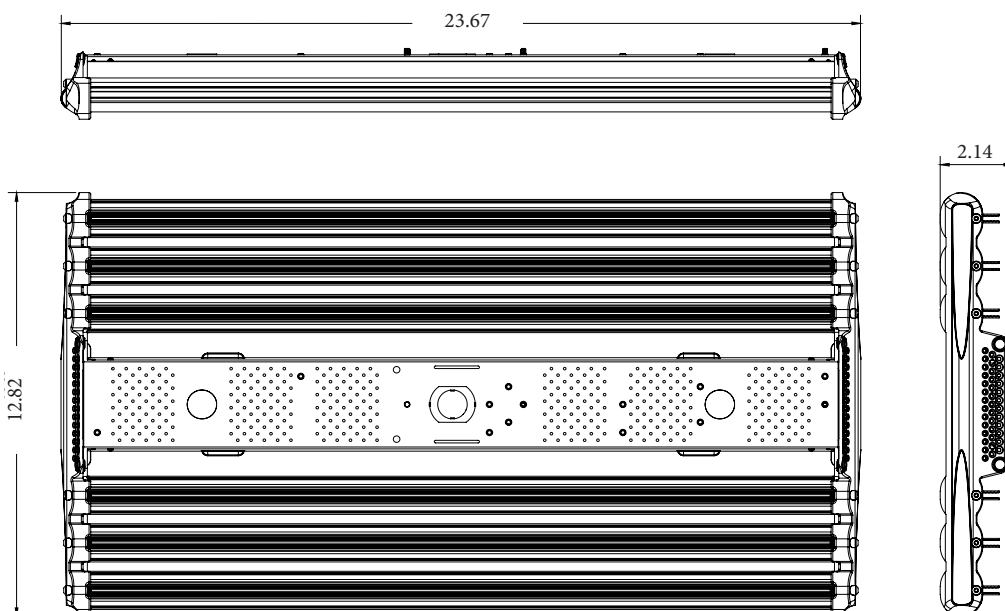
See End Note #13.

Model	Length (in)	Width (in)	Height (in)	Weight (lb)
2MS	23.75	7.1	2.1	~4.5
4MS	23.75	10	2.1	~6.5
6MS	23.75	13	2.1	~8.5

MBR and EMB mounting options adds 1 1/8" to fixture height. MBR on MS (short) fixtures with EMB adds 1 1/4" to fixture height to fixture height. Weights are approximate and vary by model, if weight is a concern, please contact factory.

### LISTINGS & CERTIFICATIONS

- ETL listed (UL 1598) - RoHS Compliant
- DesignLights™ Consortium Premium
- CSA 22.2



ORDERING EXAMPLES

Base Fixture: CH10S-A1-12K-2MS-50-80-CL-LV-CRM-10V

Base Fixture with Options: CH10S-A1-12K-2MS-50-80-CL-LV-CRM-TOCC20-CW-QDC-SRG-10V

DLC Number: CH10S-A1-12K-2MS-50-80-CL-LV-(xxx)-10V

SELECT ONE			SELECT ONE	SELECT ONE	SELECT ONE	SELECT ONE
Series-Compliance-Lumens-Frame			Color Temp	CRI	Lens	Voltage
CH10S-A1-06K-2MS <sup>5</sup>	CH10S-A1-17K-4MS <sup>5</sup>	CH10S-A1-27K-4MS <sup>5</sup>	35 <sup>2</sup>	80+	CL	LV
CH10S-A1-09K-2MS <sup>5</sup>	CH10S-A1-18K-4MS <sup>5</sup>	CH10S-A1-30K-6MS <sup>5</sup>	3500K	(Standard)	Clear Lens, Wide Distribution	120-277V
CH10S-A1-12K-2MS <sup>5</sup>	CH10S-A1-20K-4MS <sup>5</sup>	CH10S-A1-35K-6MS <sup>5</sup>	40	Other CRI available upon request	FR	HV <sup>18</sup>
CH10S-A1-15K-4MS <sup>5</sup>	CH10S-A1-24K-4MS <sup>5</sup>		4000K		Frosted Lens, Wide Distribution	347-480V
			50		AL	
			5000K		Aisle Distribution	
			Other CCT available upon request			

SELECT ONE	SELECT ONE IF APPLICABLE, IF NONE, LEAVE BLANK AND MOVE TO CORD & PLUG	SELECT ONE IF APPLICABLE, IF NONE, LEAVE BLANK, MOVE TO OPTION	SELECT AS MANY AS APPLICABLE, SEPARATE EACH WITH "-". IF NONE, LEAVE BLANK, MOVE TO DIMMING	10V	
Mounting	Occupancy Sensors <sup>7</sup> - No OCC sensor (Standard)	Cord & Plug - No cord/plug (Standard) <sup>7,10</sup>	Option <sup>10</sup>	Dimming	
<p><b>CRM<sup>6</sup></b> Cable-ready (standard) for suspension mounting or 3/4" stem mount</p> <p><b>MBR<sup>1</sup></b> Factory installed mounting box and bracket for surface mount applications - adds 1 1/8" to fixture height</p> <p><b>HOOK<sup>7</sup></b> Field installed mounting kit, includes hook and one leveling Y-cable.</p> <p><b>Plate and Hanger</b> mount also available, sold separately, see Accessories, order as <b>CRM</b>.</p> <p><b>Other mounting options available, contact factory</b></p>	<p><b>OCC8<sup>7,17</sup></b> WattStopper OCC Sensor, on/off, w/ photocell, 8' mounting height</p> <p><b>OCCDIM8<sup>7,8,11,17</sup></b> WattStopper OCC Sensor, dimmable, w/ photocell, 8' mounting height</p> <p><b>MOCDDIM8<sup>7,17,19</sup></b> WattStopper OCC Sensor, manual set and photocell, dimmable, 8' mounting height</p> <p><b>OCC20<sup>7,17</sup></b> WattStopper OCC Sensor, on/off, w/ photocell, 20' mounting height</p> <p><b>TOCC20<sup>7,17,19</sup></b> IR-TEC OCC Sensor, on/off, w/ photocell, 20' mounting height</p> <p><b>TOCCDIM20<sup>7,8,17,19</sup></b> IR-TEC OCC Sensor, dimmable w/ photocell, LV only, 20' mounting height</p> <p><b>OCCDIM20<sup>7,8,17</sup></b> WattStopper OCC Sensor, dimmable, w/ photocell, 20' mounting height</p> <p><b>MOCDDIM20<sup>7,17,19</sup></b> WattStopper OCC Sensor, manual set and photocell, dimmable, 20' mounting height</p> <p><b>OCC40<sup>7,17</sup></b> WattStopper OCC Sensor, on/off, w/ photocell, 40' mounting height</p> <p><b>TOCC40<sup>7,17,19</sup></b> IR-TEC OCC Sensor, on/off, w/ photocell, 40' mounting height</p> <p><b>TOCCDIM40<sup>7,8,17,19</sup></b> IR-TEC OCC Sensor, on/off, w/ photocell, 40' mounting height</p> <p><b>OCCDIM40<sup>7,8,17</sup></b> WattStopper OCC Sensor, dimmable, w/ photocell, 40' mounting height</p> <p><b>MOCDDIM40<sup>7,17,19</sup></b> WattStopper OCC Sensor, manual set and photocell, dimmable, 40' mounting height</p> <p><b>Other control options available, contact factory</b></p>	<p><b>6' 18AWG CORD, WHITE WITH THE FOLLOWING-</b></p> <p><b>CW<sup>7,10</sup></b> Cord, 15A, 3-wire, no plug</p> <p><b>DW<sup>7,10</sup></b> Dimming cord, 15A, 5-wire, no plug</p> <p><b>C515<sup>7,10</sup></b> Cord, 15A, straight plug 120V (5-15P)</p> <p><b>CL515<sup>7,10</sup></b> Cord, 15A, locking plug 120V (L5-15P)</p> <p><b>CL715<sup>7,10</sup></b> Cord, 15A, locking plug 277V (L7-15P)</p> <p><b>CL720<sup>7,10</sup></b> Cord, 20A, locking plug 277V (L7-20P)</p> <p><b>CL2420<sup>7,10</sup></b> Cord, 20A, locking plug 347V (L24-20P)</p> <p><b>CL820<sup>7,10</sup></b> Cord, 20A, locking plug 480V (L8-20P)</p> <p><b>CACS<sup>7,10,11,16</sup></b> 6' SO Cord whip, ACS Locking System, 277/480V, 2-wire w/ ground</p> <p><b>CACSMC<sup>7,10,11,16</sup></b> 6' MC Cable, ACS Locking System, 277/480V, 2-wire w/ ground</p>	<p><b>10' 18AWG CORD, WHITE WITH THE FOLLOWING-</b></p> <p><b>10CW<sup>7,10</sup></b> Cord, 15A, 3-wire, no plug</p> <p><b>15' 18AWG CORD, WHITE WITH THE FOLLOWING-</b></p> <p><b>15CW<sup>7,10</sup></b> Cord, 15A, 3-wire, no plug</p> <p><b>15DW<sup>7,10</sup></b> Dimming cord, 15A, 5-wire, no plug</p> <p><b>15C515<sup>7,10</sup></b> Cord, 15A, straight plug 120V (5-15P)</p> <p><b>15CL515<sup>7,10</sup></b> Cord, 15A, locking plug 120V (L5-15P)</p> <p><b>15CL715<sup>7,10</sup></b> Cord, 15A, locking plug 277V (L7-15P)</p> <p><b>15CL720<sup>7,10</sup></b> Cord, 20A, locking plug 277V (L7-20P)</p> <p><b>15CL2420<sup>7,10</sup></b> Cord, 20A, locking plug 347V (L24-20P)</p> <p><b>15CL820<sup>7,10</sup></b> Cord, 20A, locking plug 480V (L8-20P)</p> <p><b>Other cord options available, contact factory</b></p>	<p><b>EMB<sup>1,7,11,13</sup></b> Emergency battery back-up. Adds 1.25" to fixture height</p> <p><b>EMB2<sup>1,7,11,13</sup></b> High lumen emergency battery back-up. LV Only. Adds 1.25" to fixture height</p> <p><b>QDC<sup>7</sup></b> Driver Quick Disconnect</p> <p><b>SRG<sup>OFF</sup><sup>7,11,14,18</sup></b> Fixture installed 20kA Surge Suppression Device, Fails to OFF</p> <p><b>SRG<sup>2</sup><sup>18</sup></b> Fixture installed 10kA Surge Protector fails to ON</p> <p><b>BOX<sup>7</sup></b> Individual box packaging available</p> <p><b>CTRWT<sup>7,5</sup></b> Counter Balance Weight for MBR and stem mounting (certain fixtures only, see notes for applicable models, contact factory)</p> <p><b>CTRL<sup>7,11,19</sup></b> Fixture installed EnOcean Control module, 120-277V Wire-in Relay, 16A, 0-10V</p>	<p><b>10V</b> 0-10V Interface (Standard)</p>

When submitting for utility incentives and rebates, please use catalog numbers. When ordering OPTIONS, separate each option with a "-". Catalog number always ends with dimming selection "10V"

## ACCESSORIES

Must be ordered separately. Packaged separately.

Type	Part Number	Description
Safety Kit	SAFETYCABLE	Kit includes (one) 5 ft. aircraft cable with single snap hook, L-bracket, screw and nut. For use with HOOK, MBR, PLATE MOUNT or stem mounting options.
Cable Kit	CABLEKIT	Kit includes (two) 10 ft. aircraft "Y" cables and snap hooks (one pair).
Hanger	HANGER	Kit includes two wire V hangers. Order fixture with CRM mounting option.
Plate Mount	PLATE	Kit includes hanging plate with mounting hole for 3/4" conduit and (four) each 5 ft. aircraft cables and snap hooks. Order fixture with CRM option.
Wireless Programmer for Dimmable Occupancy Sensor(s)	OCCDIMPROG	Handheld wireless programmer for setup OCCDIMXX dimmable occupancy sensors. Required with OCCDIM8, OCCDIM20 and OCCDIM40 selection.
IR-TEC Wireless Programmer for Dimmable Occupancy Sensors	TOCCDIMPROG	Handheld wireless programmer for setup TOCCDIMXX dimmable occupancy sensors. Required with TOCCDIM20 and TOCCDIM40 selection.
Replacement Power Supply		Available upon request. Contact factory for details.
<b>EnOcean Controls</b> (for use with EnOcean control module, CTRL)		
Single Rocker	ENSR	EnOcean Control Single Rocker
Double Rocker	ENDR	EnOcean Control Double Rocker
Wall Occupancy Sensor	ENWLOCC	EnOcean Control Wall OCC
Ceiling Occupancy Sensor	ENCLOCC	EnOcean Control Ceiling OCC
Ceiling Daylight Sensor	ENDAY	EnOcean Control Daylight Sensor
Software	ENSFT	EnOcean Control Navigan Commissioning Software

## WARRANTY UPGRADES

Type	Part Number	Description
10-Year Premium Warranty	10PREMIUM	10-year coverage for parts, lumen maintenance (L70) and labor reimbursement of \$300 per fixture

## END NOTES

1. MBR, max. temp 5°C less, typical. EMB fixtures 32°F to 113°F (0°C to 45°C). EMB or EMB2, when mounted to the ceiling, or when using an HV EMB Max ambient 35°C. HV EMB includes step-down transformer. Temperatures below -20° have limited switch cycles, consult factory. Generator Transfer Device ambient range 0°C to 45°C (32°F to 113°F). MBR + EMB or MBR + EMB2 not available. CTOPEND and EMB not available.
2. 3500K CCT is not DLC qualified.
3. LM-79, LM 80 tests and reports are performed in accordance to IESNA standards, per TM-21. Lumen maintenance in hours (L70 via TM-21) based on 24/7 operation.
4. Typical at 277V (LV) and 77°F (25°C), 5000 CCT, Clear Lens, +/-10%. Typical CRI 80+. 4000 CCT Multiplier is .97. Frosted or Aisle Lens Multiplier is .96. 3500K CCT Multiplier is .93.
5. Counterweight is available on all CH1 fixtures, which may not hang level from a non-rigid, single point mount.
6. Optional CABLEKIT ordered separately. See ACCESSORIES.
7. Optional add-on. See price list for pricing.
8. Wireless programmer required for final field setup. See ACCESSORIES.
9. Clear and Aisle lens only.
10. All cords are 18/3 AWG, 600V and white. DW and 15DW are 18/5, 600V and white.
11. Consult factory for orders requiring EMB, EMB2, CTRL and CTRLR. GTD, SRGOFF, CACS and CACSMC may have extended lead times.
12. CTRLR includes 5 wires, capped off inside of fixture for use with field installed controls.
13. Dimensions listed are for the fixture only. See dimensional drawings for measurements with mounting hardware. Weights are approximate and vary by model, if weight is a concern, please contact factory. Weight changes when battery backup is added.
14. 20kA Surge suppression device in which, when triggered, the fixture will fall in the "Off" mode (fixture will not illuminate).
15. Generator Transfer Device. Ambient range is 0°C to +45°C (32°F to 113°F). Provides full fixture output on generator power for all fixtures. GTD is available on LV only; not available on HV fixtures.
16. American Cable Systems connector for modular wiring. The connector is 277/480V, 2-wire with Ground. If a different connector is required, please contact factory with details of the installation.
17. Settings for sensors from factory:  
 OCC (LV and HV) - If no movement for 15 mins, OFF.  
 TOCC - If no movement for 10 mins, OFF.  
 OCCDIM - If no movement for 5 mins, dim to 10%, if no movement for 60 mins, OFF.  
 MOCCDIM - (LV ONLY) If no movement for 15 mins, dim to 10%, if no movement for ~8 mins, OFF. The photocell is disabled from the factory.  
 TOCCDIM - If not movement for 10 mins, dim to 30%. If no movement for 10 mins, OFF.
18. SRG (10kA protection) is standard option on all HV fixtures. Controls and sensors should have optional SRG or SRGOFF added. They are not protected by the internal surge suppression provided by the driver.
19. 120-277V Only



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All specifications subject to change without notice. Please see [www.flexlightingsolutions.com](http://www.flexlightingsolutions.com) for latest information. All values are typical or design values and series averages. Actual performance may differ as a result of end-user environments and applications. Consult Flex Lighting Solutions with specific inquiries. Copyright © 2020, Flex. All rights reserved. No part of this document may be reproduced in any form without the prior written permission of Flex.