



LED LINEAR HIGH BAY WITH Q-BASE

► **DESIGN** - LED LINEAR HIGH BAY WITH Q-BASE has a built-in motion sensor base, allowing you to install microwave or PIR motion sensor. Die-cast aluminum housing with excellent heat dissipation along with an anti-glare PC lens provide many years of use. It is designed to operate on 120-277V circuits with a 0-10V dimmable driver. WHB5A-PRO Series is also extremely efficient with a 170lm/W output.

► **BATTERY BACK-UP** - The built-in battery back-up provides 90 minutes of power in case of emergency.

► **SURGE PROTECTION** - 6kV protects the fixture from voltage spikes and current surges.

► **COLOR AND POWER SELECTABLE** - You can choose either a 3,500K neutral white, 4,000K cool white or 5,000K daylight color temperature, and change the power with a simple switch.

► **INSTALLATION** - It has three different mounting options: suspended, surface, and pendant. Perfect commercial or industrial solution for warehouses, supermarkets, retail stores, gyms, and many other applications. This fixture is also Damp Locations rated.

► **ADVANTAGES** - With calculated lifespan up to 187,000 hours, these fixtures are made to last decades under normal operation! ASD provides a 5-year limited warranty along with UL and DLC Premium certifications to guarantee top quality products and safety!

Catalog number	
Notes	
Type	



Model	Watts	Q-base	Voltage	Dimmable	Lumens	CCT	Finish	Dimensions (LxWxH)
WHB5A 150lm/W								
ASD-WHB5A-100D50	100W	3-pin	120-277 V	0-10 V	15,230 lm	5,000 K	White	14-3/16" x 9-13/16" x 1-7/8"
ASD-WHB5A-160D50	160W	3-pin	120-277 V	0-10 V	24,087 lm	5,000 K	White	14-3/16" x 9-13/16" x 1-7/8"
ASD-WHB5A-220D50	220W	3-pin	120-277 V	0-10 V	29,434 lm	5,000 K	White	19-11/16" x 11-13/16" x 2-1/8"
ASD-WHB5A-320D50	320W	3-pin	120-277 V	0-10 V	43,638 lm	5,000 K	White	39-3/8" x 11-13/16" x 2-1/8"
ASD-WHB5A-400D50	400W	3-pin	120-277 V	0-10 V	53,082 lm	5,000 K	White	39-3/8" x 11-13/16" x 2-1/8"
ASD-WHB5A-500D50	500W	3-pin	120-277 V	0-10 V	73,306 lm	5,000 K	White	39-3/8" x 11-13/16" x 2-1/8"
ASD-WHB5A-A160DAC	100/130/160W	3-pin	120-277 V	0-10 V	up to 23,257 lm	3CCT (3,500/4,000/5,000 K)	White	14-3/16" x 9-13/16" x 1-7/8"
ASD-WHB5A-A320DAC	220/260/320W	3-pin	120-277 V	0-10 V	up to 47,277 lm	3CCT (3,500/4,000/5,000 K)	White	39-3/8" x 11-13/16" x 2-1/8"
ASD-WHB5A-A500DAC	320/400/500W	3-pin	120-277 V	0-10 V	up to 69,834 lm	3CCT (3,500/4,000/5,000 K)	White	39-3/8" x 11-13/16" x 2-1/8"
WHB5A-EM WITH BATTERY BACK-UP 150lm/W								
ASD-WHB5A-160D50-20EM	160W	3-pin	120-277 V	0-10 V	21,657 lm	5,000 K	White	14-3/16" x 9-13/16" x 2-11/16"
ASD-WHB5A-220D50-20EM	220W	3-pin	120-277 V	0-10 V	29,434 lm	5,000 K	White	19-11/16" x 11-13/16" x 2-1/8"
ASD-WHB5A-A160DAC-20EM	100/130/160W	3-pin	120-277 V	0-10 V	up to 23,257 lm	3CCT (3,500/4,000/5,000 K)	White	14-3/16" x 9-13/16" x 2-11/16"
ASD-WHB5A-A220DAC-20EM	130/160/220W	3-pin	120-277 V	0-10 V	up to 31,097 lm	3CCT (3,500/4,000/5,000 K)	White	19-11/16" x 11-13/16" x 2-1/8"

Model	Watts	Q-base	Voltage	Dimmable	Lumens	CCT	Finish	Dimensions (LxWxH)
WHB5A-PRO 170lm/W								
ASD-WHB5A-PRO-100	60/80/100W	3-pin	120-277 V	0-10 V	up to 16,552 lm	3CCT (3,500/4,000/5,000 K)	White	14-3/16" x 9-13/16" x 1-7/8"
ASD-WHB5A-PRO-160	100/130/160W	3-pin	120-277 V	0-10 V	up to 26,276 lm	3CCT (3,500/4,000/5,000 K)	White	19-11/16" x 11-13/16" x 2-1/8"
ASD-WHB5A-PRO-220	130/160/220W	3-pin	120-277 V	0-10 V	up to 35,215 lm	3CCT (3,500/4,000/5,000 K)	White	19-11/16" x 11-13/16" x 2-1/8"
ASD-WHB5A-PRO-320	220/260/320W	3-pin	120-277 V	0-10 V	up to 51,291 lm	3CCT (3,500/4,000/5,000 K)	White	39-3/8" x 11-13/16" x 2-1/8"
ASD-WHB5A-PRO-500	320/400/500W	3-pin	120-277 V	0-10 V	up to 80,269 lm	3CCT (3,500/4,000/5,000 K)	White	39-3/8" x 11-13/16" x 2-1/8"
WHB5A-HV-PRO HIGH VOLTAGE 170lm/W								
ASD-WHB5A-HV-PRO-220	130/160/220W	3-pin	277-480 V	0-10 V	up to 36,018 lm	3CCT (3,500/4,000/5,000 K)	White	19-11/16" x 11-13/16" x 2-1/8"
ASD-WHB5A-HV-PRO-320	220/260/320W	3-pin	277-480 V	0-10 V	up to 50,940 lm	3CCT (3,500/4,000/5,000 K)	White	39-3/8" x 11-13/16" x 2-1/8"
ASD-WHB5A-HV-PRO-500	320/400/500W	3-pin	277-480 V	0-10 V	up to 80,049 lm	3CCT (3,500/4,000/5,000 K)	White	39-3/8" x 11-13/16" x 2-1/8"
WHB5A-PRO-EM WITH BATTERY BACK-UP 170lm/W								
ASD-WHB5A-PRO-160-EM	100/130/160W	3-pin	120-277 V	0-10 V	up to 26,276 lm	3CCT (3,500/4,000/5,000 K)	White	19-11/16" x 11-13/16" x 2-1/8"
ASD-WHB5A-PRO-220-EM	130/160/220W	3-pin	120-277 V	0-10 V	up to 35,215 lm	3CCT (3,500/4,000/5,000 K)	White	19-11/16" x 11-13/16" x 2-1/8"
SENSORS AND REMOTE								
ASD-09MW-WH	Microwave motion sensor 3pin white							2-1/8" x 2-1/8" x 1-5/16"
ASD-09MW-BK	Microwave motion sensor 3pin black							2-1/8" x 2-1/8" x 1-5/16"
ASD-09IR-WH	Infrared motion sensor 3pin white							2-1/8" x 2-1/8" x 1-11/16"
ASD-09IR-BK	Infrared motion sensor 3pin black							2-1/8" x 2-1/8" x 1-11/16"
ASD-09IR50-WH	Infrared motion sensor 3pin 50ft white							2-1/8" x 2-1/8" x 1-11/16"
ASD-06RC	Remote control for motion sensor							5-11/16" x 1-3/4" x 13/16"
ASD-09MW-NLS-WH	Microwave motion sensor smart 3pin white							2-1/8" x 2-1/8" x 1-3/8"
ASD-09IR-NLS-WH	Infrared motion sensor smart 3pin white							2-1/8" x 2-1/8" x 1-11/16"
ASD-06RC-NLS	Remote control for motion sensor smart							5-11/16" x 1-3/4" x 13/16"

For detailed luminous flux information please refer to Annex 1, page 11.

For most up-to-date spec sheets please refer to asd-lighting.com

ASD LIGHTING CORP

E-mail: orders@asd-lighting.com | Web site: www.asd-lighting.com





LED LINEAR HIGH BAY WITH Q-BASE

PRODUCT SPECIFICATIONS:

Construction & Materials						
Housing	Die-cast aluminum					
Lens	PC					
Finish	White					
Weight	ASD-WHB5A-100D50	3.9 lbs (1.8 kg)	ASD-WHB5A-A160DAC	4 lbs (1.8 kg)	ASD-WHB5A-PRO-100	4.2 lbs (1.9 kg)
	ASD-WHB5A-160D50		ASD-WHB5A-A320DAC	12.6 lbs (5.7 kg)	ASD-WHB5A-PRO-160	6.2 lbs (2.8 kg)
	ASD-WHB5A-220D50	6.1 lbs (2.8 kg)	ASD-WHB5A-A500DAC	13.7 lbs (6.2 kg)	ASD-WHB5A-PRO-220	6.4 lbs (2.9 kg)
	ASD-WHB5A-320D50	12.3 lbs (5.6 kg)	ASD-WHB5A-160D50-20EM	5.1 lbs (2.3 kg)	ASD-WHB5A-PRO-320	12.1 lbs (5.5 kg)
	ASD-WHB5A-400D50	12.3 lbs (5.6 kg)	ASD-WHB5A-220D50-20EM	7.3 lbs (3.3 kg)	ASD-WHB5A-PRO-500	12.6 lbs (5.7 kg)
	ASD-WHB5A-500D50	12.5 lbs (5.7 kg)	ASD-WHB5A-A160DAC-20EM	5.3 lbs (2.4 kg)	ASD-WHB5A-HV-PRO-220	6.4 lbs (2.9 kg)
			ASD-WHB5A-A220DAC-20EM	7.5 lbs (3.4 kg)	ASD-WHB5A-HV-PRO-320	12.1 lbs (5.5 kg)
					ASD-WHB5A-HV-PRO-500	12.6 lbs (5.7 kg)
				ASD-WHB5A-PRO-160-EM	7.5 lbs (3.4 kg)	
				ASD-WHB5A-PRO-220-EM	7.7 lbs (3.5 kg)	
Environmental system						
Work environment	Suitable for Damp Locations					
Operating temperature	-40°F to 122°F (-40°C to 50°C)					
L-70 Life	for WHB5A models: R > 54,000 hrs; C > 187,000 hrs		for DAC models: R > 54,000 hrs; C > 182,000 hrs		for PRO models: R > 102,000 hrs; C > 167,000 hrs	
	for ASD-WHB5A-500D50 model: R > 54,000 hrs; C > 147,000 hrs					
	for ASD-WHB5A-A220DAC-20EM model: R > 48,000 hrs; C > 159,000 hrs					
Optical system						
Color temperature	5,000 K					
	3CCT switch (3,500/4,000/5,000 K), 5,000 K by default					
CRI	> 80					
Electrical system						
Input voltage	Regular voltage: 120-277 V					
	High voltage: 277-480 V					
Max input current	ASD-WHB5A-100D50	0.91 A	ASD-WHB5A-A160DAC	1.6 A	ASD-WHB5A-PRO-100	1.3 A
	ASD-WHB5A-160D50	1.46 A	ASD-WHB5A-A320DAC	2.93 A	ASD-WHB5A-PRO-160	2 A
	ASD-WHB5A-220D50	2.02 A	ASD-WHB5A-A500DAC	5.1 A	ASD-WHB5A-PRO-220	2.6 A
	ASD-WHB5A-320D50	2.93 A	ASD-WHB5A-160D50-20EM	1.6 A	ASD-WHB5A-PRO-320	3 A
	ASD-WHB5A-400D50	3.67 A	ASD-WHB5A-220D50-20EM	2.3 A	ASD-WHB5A-PRO-500	4 A
	ASD-WHB5A-500D50	5.1 A	ASD-WHB5A-A160DAC-20EM	1.6 A	ASD-WHB5A-HV-PRO-220	1.1 A
			ASD-WHB5A-A220DAC-20EM	2.02 A	ASD-WHB5A-HV-PRO-320	1.8 A
					ASD-WHB5A-HV-PRO-500	1.2 A
					ASD-WHB5A-PRO-160-EM	2 A
					ASD-WHB5A-PRO-220-EM	2.6 A
Inrush current (Action time)	for WHB5A: 60 A (0.35 S)		for HV models: 45 A (0.2 S)		for PRO and EM models: 80 A (0.35 S)	
Off state power	0W					
Power consumption	ASD-WHB5A-100D50	110W	ASD-WHB5A-A160DAC	100/130/160W	ASD-WHB5A-PRO-100	60/80/100W
	ASD-WHB5A-160D50	160W	ASD-WHB5A-A320DAC	220/260/320W	ASD-WHB5A-PRO-160	100/130/160W
	ASD-WHB5A-220D50	220W	ASD-WHB5A-A500DAC	320/400/500W	ASD-WHB5A-PRO-220	130/160/220W
	ASD-WHB5A-320D50	320W	ASD-WHB5A-160D50-20EM	160W	ASD-WHB5A-PRO-320	220/260/320W
	ASD-WHB5A-400D50	400W	ASD-WHB5A-220D50-20EM	220W	ASD-WHB5A-PRO-500	320/400/500W
	ASD-WHB5A-500D50	500W	ASD-WHB5A-A160DAC-20EM	100/130/160W	ASD-WHB5A-HV-PRO-220	130/160/220W
			ASD-WHB5A-A220DAC-20EM	130/160/220W	ASD-WHB5A-HV-PRO-320	220/260/320W
					ASD-WHB5A-HV-PRO-500	320/400/500W
					ASD-WHB5A-PRO-160-EM	100/130/160W
				ASD-WHB5A-PRO-220-EM	130/160/220W	
Power factor	> 0.9					
Output voltage	260 V	for ASD-WHB5A-100D50, ASD-WHB5A-160D50 and ASD-WHB5A-160D50-20EM models: 130 V			for PRO models: 180-260 V	
Max output current	ASD-WHB5A-100D50	0.9 A	ASD-WHB5A-A160DAC	0.64 A	ASD-WHB5A-PRO-100	0.39 A
	ASD-WHB5A-160D50	1.25 A	ASD-WHB5A-A320DAC	1.5 A	ASD-WHB5A-PRO-160	0.63 A
	ASD-WHB5A-220D50	0.9 A	ASD-WHB5A-A500DAC	2 A	ASD-WHB5A-PRO-220	0.86 A
	ASD-WHB5A-320D50	1.5 A	ASD-WHB5A-160D50-20EM	1.28 A	ASD-WHB5A-PRO-320	1.25 A
	ASD-WHB5A-400D50	0.9 A	ASD-WHB5A-220D50-20EM	0.88 A	ASD-WHB5A-PRO-500	0.196 A
	ASD-WHB5A-500D50	2 A	ASD-WHB5A-A160DAC-20EM	1.25 A	ASD-WHB5A-HV-PRO-220	0.86 A
			ASD-WHB5A-A220DAC-20EM	0.9 A	ASD-WHB5A-HV-PRO-320	1.25 A
					ASD-WHB5A-HV-PRO-500	0.196 A
					ASD-WHB5A-PRO-160-EM	0.63 A
				ASD-WHB5A-PRO-220-EM	0.86 A	
Surge protection DM/CM	6 kV / 6 kV	for ASD-WHB5A-100D50, ASD-WHB5A-160D50 and ASD-WHB5A-160D50-20EM models: 4 kV / 6 kV				
Dimming compatible controls						
Brand	Lutron				Leviton	
Models	DVSTV		DVTV		DS710	

For most up-to-date spec sheets please refer to asd-lighting.com



LED LINEAR HIGH BAY WITH Q-BASE

Regular and voluntary certifications

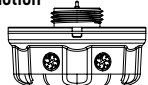
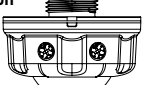
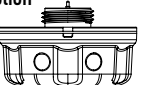
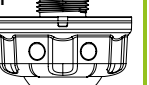
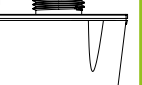

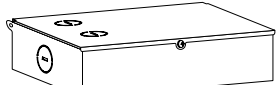
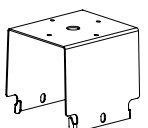
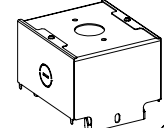


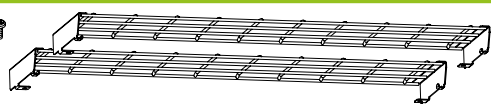
5-year limited warranty
 DesignLights Consortium (DLC) listed (Classification: Premium)
 Main: Indoor luminaires; General application: High-bay;
 Primary use: High-bay luminaires for commercial and industrial buildings
 UL certified E473804

PACKAGE CONTENTS:

Description	Q-ty
LED Linear High Bay with Q-Base	1
Hanging kit: V hook, chain 3.2 ft (A)	1
Box	1



ACCESSORIES (sold separately):

Microwave motion sensor 3pin ASD-09MW 	Infrared motion sensor 3pin ASD-09IR 	Microwave motion sensor smart 3pin ASD-09MW-NLS 	Infrared motion sensor smart 3pin ASD-09IR-NLS 	Infrared motion sensor 3pin 50ft ASD-09IR50 
Remote control for motion sensor ASD-06RC 	Battery back-up kit  20W ASD-EMK20W-WHB5A 30W ASD-EMK30W-WHB5A		Surface mounting bracket ASD-SMB1-WHB5 	Pendant mount bracket for 100-220W ASD-PMB1-WHB5 
Wire guard for 100-160W ASD-WG14-WHB5 	Wire guard for 220W ASD-WG20-WHB5 			

ACCESSORY COMPATIBILITY LIST:

Accessories		Models											
		Microwave motion sensor 3pin ASD-09MW	Infrared motion sensor 3pin ASD-09IR ASD-09IR50	Microwave motion sensor smart 3pin ASD-09MW-NLS-WH	Infrared motion sensor smart 3pin ASD-09IR-NLS-WH	Battery back-up kit 20W ASD-EMK20W-WHB5A	Battery back-up kit 20W ASD-EMK20W-WHB5B	Battery back-up kit 30W ASD-EMK30W-WHB5A	Surface mount bracket ASD-SMB1-WHB5	Pendant mounting bracket ASD-PMB1-WHB5	Pendant mounting bracket ASD-PMB2-WHB5	Wire guard 14" ASD-WG14-WHB5	Wire guard 20" ASD-WG20-WHB5
ASD-WHB5A	100W	•	•	•	•	•			•	•		•	
	160W	•	•	•	•	•			•	•		•	
	220W	•	•	•	•		•	•	•	•			•
	320W	•	•	•	•		•	•	•	•	•		
	400W	•	•	•	•		•	•	•	•	•		
ASD-WHB5A-DAC	500W	•	•	•	•		•	•	•	•	•		
	160W	•	•	•	•		•	•	•	•		•	
	320W	•	•	•	•		•	•	•	•			
ASD-WHB5A-EM	500W	•	•	•	•		•	•	•	•	•		
	160W	•	•	•	•				•	•		•	
ASD-WHB5A-DAC-EM	220W	•	•	•	•				•	•		•	
	320W	•	•	•	•				•	•			•
ASD-WHB5A-PRO	100W	•	•	•	•		•	•	•	•		•	
	160W	•	•	•	•		•	•	•	•			•
	220W	•	•	•	•		•	•	•	•			•
	320W	•	•	•	•		•	•	•	•	•		
ASD-WHB5A-HV-PRO	500W	•	•	•	•		•	•	•	•	•		
	220W	•	•	•	•				•	•			•
	320W	•	•	•	•				•	•			•
ASD-WHB5A-PRO-EM	500W	•	•	•	•				•	•	•		
	220W	•	•	•	•				•	•			•

For most up-to-date spec sheets please refer to asd-lighting.com

ASD LIGHTING CORP

E-mail: orders@asd-lighting.com | Web site: www.asd-lighting.com





LED LINEAR HIGH BAY WITH Q-BASE

MOTION SENSOR INFORMATION

REMOTE CONTROL **ASD-06RC** **ASD-06RC-NLS** sold separately:



Button	Remarks	Button	Remarks	Button	Remarks
ON/OFF	ON/OFF Turn the sensor ON/OFF.	M H	Mounting height Adjust detection area/sensitivity levels according to real installation situations, higher or lower.	Up	The main functional buttons to adjust the factors to desired level. Press + - button to dim light directly in non-detection mode.
Auto	Auto Enter "sensor mode" and perform previous settings.	Send	Send Memorize and send out the previous setting of individual parameters.	Down	
Reset	Reset Enter "sensor mode" and perform the default settings.	Detection range	Also known as "sensitivity", 100 % means the highest sensitivity and longest distance. Use this button and the + - buttons to adjust.	CCT Selectable	Not applicable to this product.
Scenes	Scenes Shows current settings saved in remote.	Daylight sensor	The preset lux level at which motion will be detected. Use this button and the + - buttons to adjust.	POWER	Adjust brightness in both ON/OFF mode & sensor mode, minimum 10%, max 100%, each time this button is pressed it changes by 5%.
Start	Start Press this to begin scene setup.	Stand-by dimming	After hold time, the light will dim from 100 % to optional standby dimming levels. Use this button and the + - buttons to adjust.	Reserved Button	Not applicable to this product.
Memory	Memory Saves the scene settings.	Hold time	The period that light will stay illuminated 100 % after no motion is detected. Use this button and the + - buttons to adjust.	Daylight Harvesting	Daylight harvesting function enabled or disabled.
Apply	Apply Applies current scene settings to the fixture.	Stand-by period	The period after holdtime, during which the light keeps standby dimming level. Use this button and the + - buttons to adjust.	Test button	Press this button to test the sensor; it will temporarily change the hold time to 2s. This setting cannot be saved.



ASD-09MW
Microwave motion
sensor 3pin



ASD-06RC
Remote control



ASD-09IR
Infrared motion
sensor 3pin



ASD-06RC
Remote control



ASD-09IR50
Infrared motion
sensor 3pin 50ft



ASD-06RC
Remote control



ASD-09MW-NLS
Microwave motion
sensor smart 3pin



ASD-06RC-NLS
Remote control
or smartphone



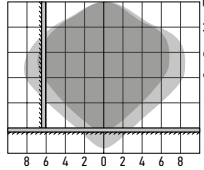
ASD-09IR-NLS
Infrared motion
sensor smart 3pin



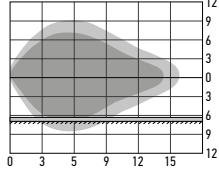
ASD-06RC-NLS
Remote control
or smartphone

ASD-09MW, ASD-09MW-NLS:

Ceiling mounted

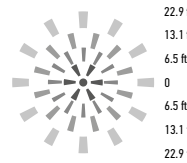


Wall mounted

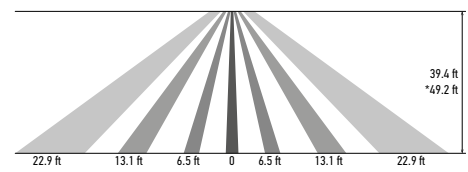


- Highest mounting height is 49.2 ft (15 m)
 - This figure indicates the maximum distance at the highest mounting height with 100 % sensitivity.
- Well detected area
■ Possibly detected area

ASD-09IR, ASD-09IR50, ASD-09IR-NLS:



Mounting height < 39.4 ft (12 m) ceiling mounting
* for ASD-09IR50 < 49.2 ft (15 m)



Detection distance radius 9.8-22.9 ft (3-7 m)

User notes:

- Microwaves can penetrate walls or glass thinner than 0.8" but will be impaired if thicker than 0.8".
- The driver voltage shall be stable and float within 10 %.
- Detection area will be affected by speed of motion, mounting height and movement volume.
- Conduct testing with adequate ambient lighting for best results.
- Dimming performance differs when connected to different drivers; If the driver can't completely turn OFF, sensor can't either.
- The first time powering ON the sensor, light will be ON 100% for about 10S then dims to standby level or OFF.

Installation precautions:

- Designed for ceiling mount installation. If installing on a side wall, adjust the sensitivity settings accordingly, as it will become more sensitive.
- Make sure the microwave module is completely exposed.
- The detection surface of the sensor module should be installed facing the detection area.

Application environment:

- Suitable for indoor application, partial/completely outdoor environment conditions might trigger the sensor.
- Shall be mounted securely, to avoid any false triggers caused by movement of the fixture itself.
- Keep the sensor module away from AC input and DC output to avoid high/low frequency signal interference.

User notes:

- The driver voltage shall be stable and float within 10%.
- Detection area options may not function as expected because they depend on the Fresnel lens, which physically determines their operation.
- Detection distance performance works better when moving parallel to the sensor as opposed to towards it.
- Conduct testing with adequate ambient lighting for best results.
- Dimming performance differs when connected to different drivers; If the driver can't completely turn OFF, sensor can't either.
- The first time powering ON the sensor, light will be ON 100% for about 45S then dims to standby level or OFF.

Installation precautions:

- PIR sensor can't be placed inside any material, fresnel lens must be completely exposed in air.
- Fresnel lens of the PIR sensor must be lower than the lighting fixture.
- Designed for ceiling mount installation. If installing on a side wall, adjust the sensitivity settings accordingly, as it will become more sensitive.

Application environment:

- Suitable for indoor application, partial/completely outdoor environment conditions might trigger the sensor.
- The PIR sensor is not suitable for environments with sudden changes in temperature or airflow.
- Not suitable environment if there's shelves between the sensor and target area.
- Shall be mounted securely, to avoid any false triggers caused by movement of the fixture itself.

Specifications	Models: ASD-09MW, ASD-09MW-NLS	Models: ASD-09IR, ASD-09IR-NLS	Models: ASD-09IR50
Operating voltage	10-15 V		
Operating current	< 30 mA	< 15 mA	< 30 mA
Detection area	25 %/50 %/75 %/100 %		
Hold time	Remote control: 5 s/30 s/1 min/3 min/5 min/10 min/20 min/30 min	Built-in switch: 5 s/1 min/5 min/10 min	
Daylight threshold	2 lux (0.2 fc)/10 lux (0.9 fc)/30 lux (2.8 fc)/50 lux (4.7 fc)/80 lux (7.4 fc)/120 lux (11.2 fc)/200 lux (18.6 fc)/250 lux (23.2 fc)/300 lux (27.9 fc)/350 lux (32.5 fc)/400 lux (37.2 fc)/disable		
Standby period	0 s/10 s/30 s/1 min/5 min/10 min/30 min/60 min/+ ∞		
Standby dimming level	Remote control: 10 %/20 %/30 %/50 %	Built-in switch: 0 %/10 %/30 %/50 %	
Mounting height	max 49.2 ft (15 m)	≤ 39.4 ft (12 m)	max 49.2 ft (15 m)
Detection range	≥ 9 ft (3 m)		
Operating frequency	5.8 GHz ± 75 GHz	-	-
Transmitting power	< 0.3 mW	-	-

DEFAULT SETTING:

Specifications	
Detection area	100 %
Hold time	10 min
Daylight threshold	Disable
Stand-by period	0 s
Stand-by dimming level	10 %

For most up-to-date spec sheets please refer to asd-lighting.com

ASD LIGHTING CORP

E-mail: orders@asd-lighting.com | Web site: www.asd-lighting.com

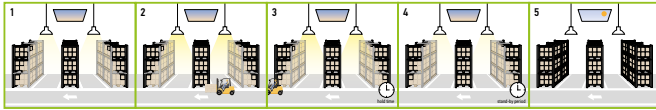




LED LINEAR HIGH BAY WITH Q-BASE

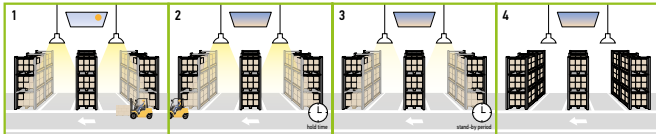
WITH DUSK/DAWN FUNCTION:

1. With insufficient ambient brightness, sensor turns on light and keeps it at standby dimming level even if there is no motion or presence.
2. When sensor detects motion or presence it will bring the light level up to 100 %.
3. After motion is no longer detected, fixture remains at 100 % for hold time.
4. After the preset hold time period, it will dim to the standby dimming level and maintain it indefinitely.
5. With sufficient ambient brightness, sensor will turn OFF light automatically.



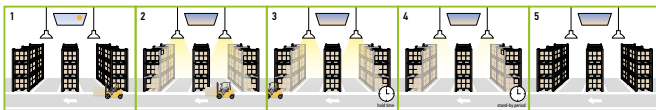
WITH DAYLIGHT DISABLED:

1. Sensor turns ON light when motion is detected.
2. Light will stay on after detecting motion for the desired hold time.
3. Sensor dims light to standby dimming level after hold time if there is still no motion.
4. Sensor turns OFF light after standby period.



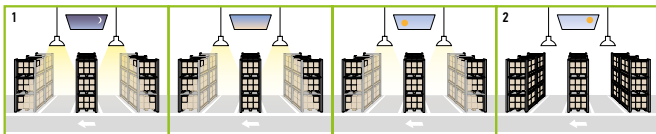
WITH DAYLIGHT THRESHOLD:

1. With sufficient daylight, the light remains OFF even after motion is detected.
2. With insufficient daylight, the sensor turns light ON when motion is detected.
3. After there's no motion detected, the sensor keeps light ON 100 % for holdtime.
4. After holdtime, sensor dims light to standby dimming level for standby period. If the standby period has been set as 0s, sensor turns light OFF automatically after holdtime.
5. The sensor turns OFF light automatically after the standby period when there's no motion detected.



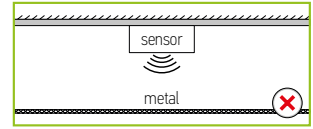
DAYLIGHT HARVESTING:

1. When the ambient brightness is lower than the preset lux level, the sensor will automatically turn on the light and adjust the dimming according to changes in ambient brightness. As it gets darker outside, the fixtures will brighten, and as it gets brighter outside, the fixtures will dim.
2. When the ambient brightness exceeds the preset lux level, the light will turn OFF.

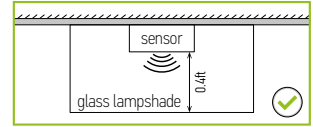


MICROWAVE MOTION SENSOR:

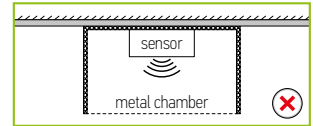
To avoid blocking the microwave emission, the microwave sensor can not be covered with metal materials, be sprayed with a coating of metal components, or have attached metal material or stickers etc.



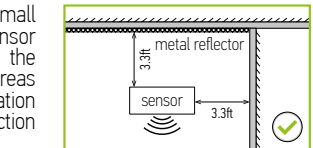
The distance between the antenna and the glass (dielectric material) should be no less than 0.4 ft when the sensor is within the glass lampshade. Otherwise, the microwave motion sensor will not penetrate the glass easily.



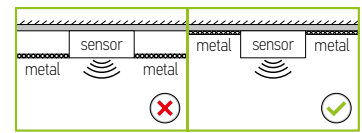
Avoid placing the sensor inside a metal chamber, this may cause a mis-trigger.



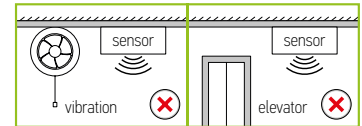
The sensor should not be placed in a small confined space. To avoid increasing the sensor detection range or abnormal operation, the sensor should be kept away from large areas of metal and glass reflectors (separation distance at least 3.3 ft). Reduce the detection area setting.



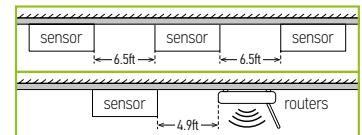
To avoid affecting the microwave signal transmission, the microwave antenna should be higher than the surrounding metal surface.



Any vibration or movement may trigger the sensor. Ensure the sensor is far from any constant movement.

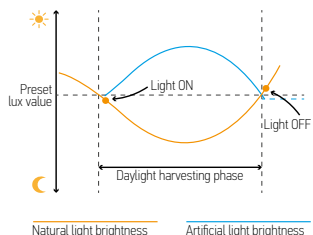


There must be at least 6.5ft between microwave sensors; There must be at least 4.9ft between the sensor and other wireless devices such as routers to avoid possible radio interference.



DAYLIGHT HARVESTING SETTING:

1. Adjust "daylight" value higher than 50lux.
2. Preset "standby period" 0S
3. Press the MW/PIR button three times until the MW/PIR icons both blink on the LCD screen to enable the daylight harvesting function.








LED LINEAR HIGH BAY WITH Q-BASE

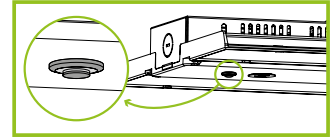
BUILT-IN BATTERY BACK-UP INFORMATION

Model	Battery watts	Lumens in emergency mode	Battery capacity	Emergency mode	Charging time
ASD-WHB5A-160D50-20EM	20W	3,189 lm	3,200 mA * 8	≥ 90 minutes	≥ 24 hours
ASD-WHB5A-220D50-20EM	20W	3,207 lm	3,200 mA * 8	≥ 90 minutes	≥ 24 hours
ASD-WHB5A-A160DAC-20EM	20W	3,189 lm	3,200 mA * 8	≥ 90 minutes	≥ 24 hours
ASD-WHB5A-A220DAC-20EM	20W	3,207 lm	3,200 mA * 8	≥ 90 minutes	≥ 24 hours
ASD-WHB5A-PRO-160-EM	20W	3,200 lm	3,200 mA * 8	≥ 90 minutes	≥ 24 hours
ASD-WHB5A-PRO-220-EM	20W	3,200 lm	3,200 mA * 8	≥ 90 minutes	≥ 24 hours

Specifications	
Input voltage	100-277 V 50/60 Hz
Indicator light	Illuminated test switch, indicator light
Battery type	Li-ion
Battery charging current	250 mA

STANDARD OPERATION DISPLAY STATUS:

Charging	
Emergency mode	 Flash slowly
Test failure	 Flash quickly



BACK-UP BATTERY KIT INFORMATION

ASD-EMK20W-WHB5A

ASD-EMK20W-WHB5B

ASD-EMK30W-WHB5A

sold separately:



Self-check emergency battery back-up kit offers a dependable solution for virtually every LED Linear High Bay lighting application, with options tailored for both new fixture constructions and field installation applications.

CAUTION:

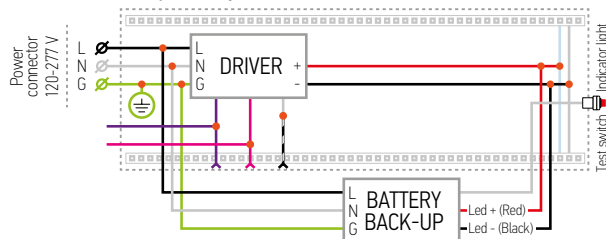
- Before performing a high-voltage insulation test, ensure the battery pack is removed and that there is no contact between the battery pack and the LED drivers.
- After testing, disconnect the battery pack unit connector before shipping and storing.
- During storage, the battery pack will need 24 hours of charging every 3 months.

Emergency operation:

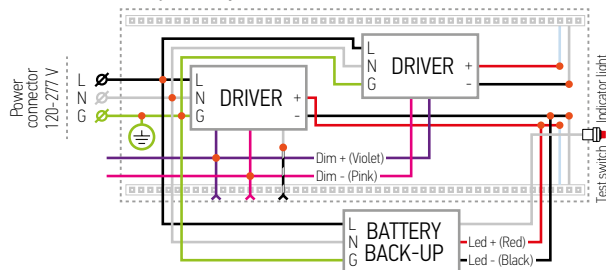
During AC operation, the red indicator light will remain on. During emergency operation, the indicator light will flash slowly (on for 2 seconds, off for 2 seconds). In the event of a failure, the indicator light will flash rapidly (on for 0.2 seconds, off for 0.2 seconds).

Specifications	ASD-EMK20W-WHB5A	ASD-EMK20W-WHB5B	ASD-EMK30W-WHB5A
Input voltage	120-277 V 50/60 Hz		
Input current	100 mA max.		
Input power	7.0W max.		
Output voltage	81 - 155 Vdc	156 - 230 Vdc	156 - 230 Vdc
Output power	20W	20W	30W
Lumens	3,189 lm	3,189 lm	4,783 lm
Emergency time	≥ 1.5 hours		
Indicator light	Illuminated test switch, red, indicator light		
Battery type	Li-ion		
Charging time	≥ 24 hours		
Ambient temperature	-22°F to 122°F (-30°C to 50°C)		
Dimensions	9-5/8" x 4-5/8" x 1-7/8"		
Warranty	5 years		

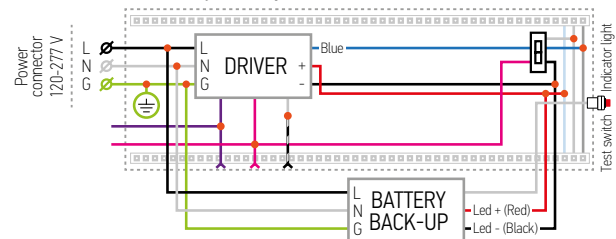
WHB5A with battery back-up kit (100-320W)



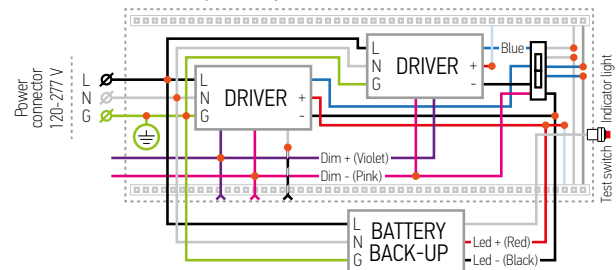
WHB5A with battery back-up kit (400-500W)



WHB5A-PRO with battery back-up kit (100-320W)



WHB5A-PRO with battery back-up kit (500W)



For most up-to-date spec sheets please refer to asd-lighting.com

ASD LIGHTING CORP

E-mail: orders@asd-lighting.com | Web site: www.asd-lighting.com

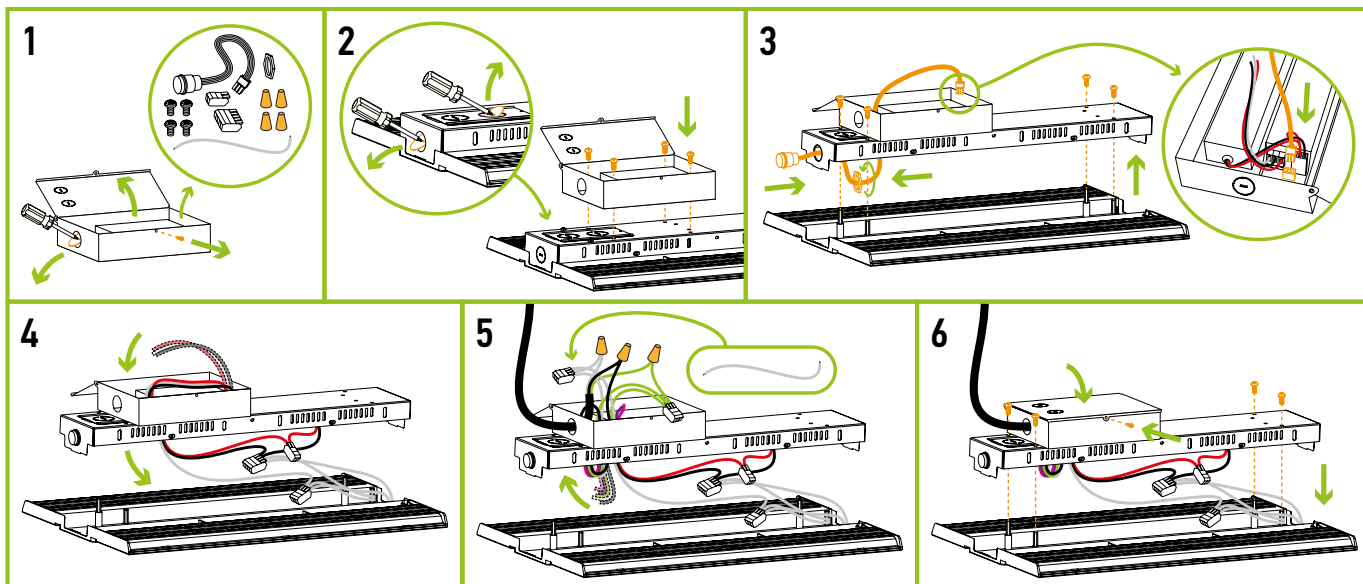




LED LINEAR HIGH BAY WITH Q-BASE

INSTALLATION STEPS:

1. Unscrew and open Battery back-up kit.
2. Remove one knockout on the top and one on the side of the driver box. Attach the battery backup kit to the driver box of the fixture with 4 screws.
3. Unscrew 4 screws and open driver box of the fixture. Install battery back-up button into the side knockout of the fixture and secure it with washer (included). Then pull the button wire into the battery back-up kit and plug it into the battery controller.
4. Connect battery back-up kit to the fixture by:
 - a. Pulling the Red wire (DRIVER +) from battery back-up into the fixture and connecting it to the Red wire (Driver output +);
 - b. Pull the Black wire (LED- / DRIVER -) from battery back-up into the fixture and connect it with the Black wire (Driver output -), Led1 (input -) and Led2 (-) using one connector (included);
 - c. Pull the White wire (LED +) from battery back-up into the fixture and connect it with the Led1 (+) and Led2 (+) using one connector (included);
5. Pull the White (N), Black (L), Green (G), Pink (Dim-) and Violet (Dim+) wires from the fixture into the battery back-up kit and connect them with the wires of battery back-up and external power source: Black with Black, White with White, Green with Green, according to the wiring schematic. Use white extension wire (included) if needed. Use pink (Dim-) and violet (Dim+) dimming wires if needed to connect to the dimmer.
6. Attach fixture driver box cover with battery back-up kit to the fixture and secure it with screws.



For most up-to-date spec sheets please refer to asd-lighting.com

ASD LIGHTING CORP

E-mail: orders@asd-lighting.com | Web site: www.asd-lighting.com





LED LINEAR HIGH BAY WITH Q-BASE

INSTALLATION GUIDE

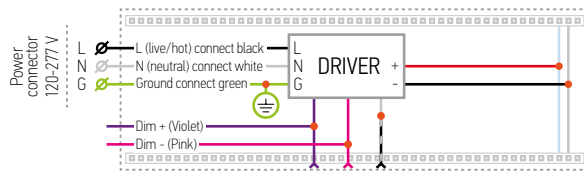
IMPORTANT SAFETY INFORMATION:

Please read all the instructions below before installation.

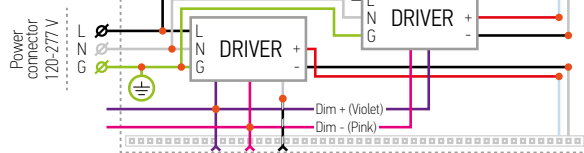
- ▶ Make sure that the supply voltage corresponds to the rated product voltage.
- ▶ The product must be installed by a qualified electrician in accordance with the National Electrical Code and corresponding local codes.
- ▶ If the product is damaged, do not use it.

ELECTRICAL SCHEMATIC DIAGRAM:

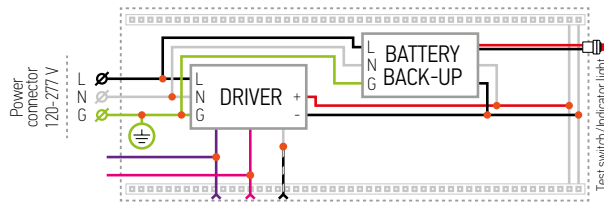
WHB5A (100-320W)



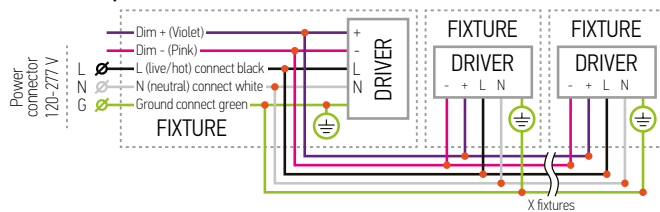
WHB5A (400-500W)



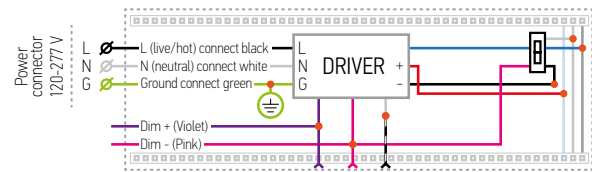
WHB5A with battery back-up



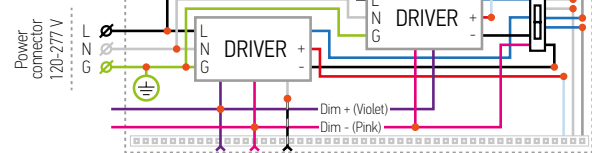
WHB5A multiple fixture connection



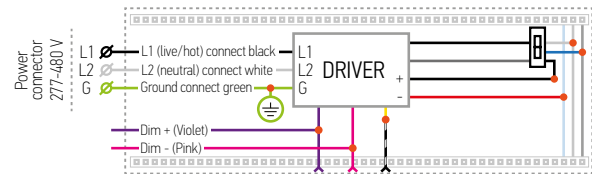
WHB5A-PRO (100-320W)



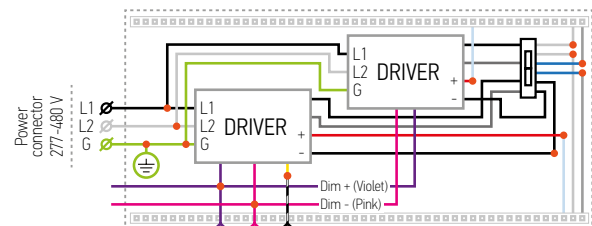
WHB5A-PRO (500W)



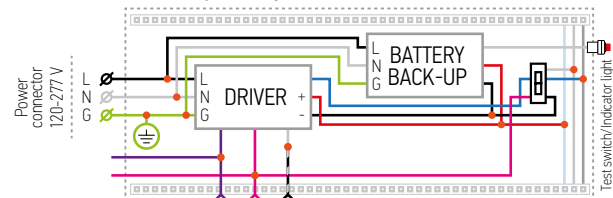
WHB5A-HV-PRO (220-320W)



WHB5A-HV-PRO (500W)



WHB5A-PRO with battery back-up



⚠ WARNING

RISK OF PERSONAL INJURY – READ and follow all WARNINGS and installation instructions. Keep or give to the owner for future reference.

Risk of cuts: Wear gloves to prevent cuts or abrasions when removing from carton, handling, installing, and maintaining this product.

Risk of electric shock: This product must be installed in accordance with the applicable installation code by a person familiar with the construction and operation of the product and the hazards involved.

Risk of Fire: Minimum 194°F supply conductors. Consult a qualified electrician to ensure correct branch circuit conductor.

ASD® assumes no responsibility for claims arising out of improper or careless Installation or handling of this product.

For most up-to-date spec sheets please refer to asd-lighting.com

ASD LIGHTING CORP

E-mail: orders@asd-lighting.com | Web site: www.asd-lighting.com

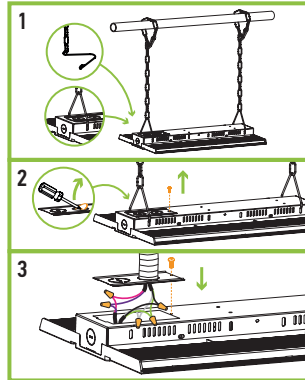




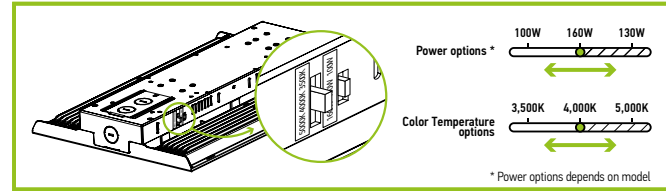
LED LINEAR HIGH BAY WITH Q-BASE

INSTALLATION STEPS:

1. Insert V-hooks into both ends of the fixture. Secure chain to ceiling, beam or other mounting surface.
2. Unscrew and open backplate, use screwdriver to open one knockout.
3. Connect the wires: Black to Black, White to White, Green to Green. If you are not using the dimming wires cap them off but not together. Reattach knockout plate to top of the fixture and secure with screw.



POWER AND COLOR TEMPERATURE SETTINGS:



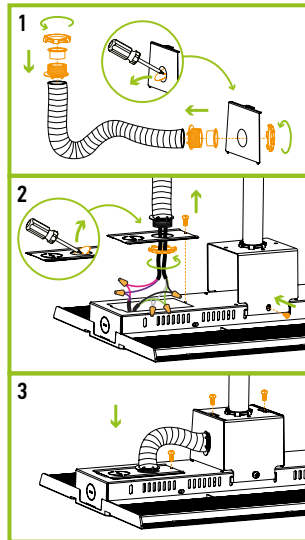
PENDANT MOUNT

ASD-PMB1-WHB5

ASD-PMB2-WHB5

sold separately:

1. Assemble metal hose with connectors and attach bracket's side plate to one side. Install the bracket on 3/4" NPT pipe. Bracket does not include nuts or screws for mounting to surface.
2. Unscrew and take off fixture's backplate, open one knockout using screwdriver. Then attach backplate to free end of the metal hose. Attach the bracket by putting the bracket's hooks into the slots in the center of the housing. Secure the bracket with screws. Connect the wires: Black to Black, White to White, Green to Green.
3. Reattach the backplate in its place and secure with screw. Align the studs of the side plate with the slots in the housing, place the side plates, and secure them with screws.



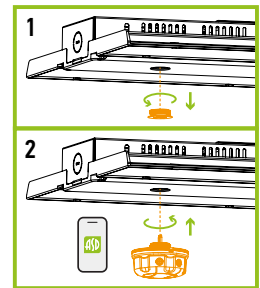
MOTION SENSOR INSTALLATION

ASD-09MW ASD-09MW-NLS

ASD-09IR ASD-09IR-NLS

ASD-09IR50 **sold separately:**

1. Unscrew the microwave sensor base cap.
 2. Insert and twist the sensor until it is tight on the base surface.
- For ASD-NLS sensors download ASD NLS app and add the fixture to it according to the manual (download manuals and app from the links or scan the QR codes below).



[Desktop manual](#)



[Smartphone manual](#)

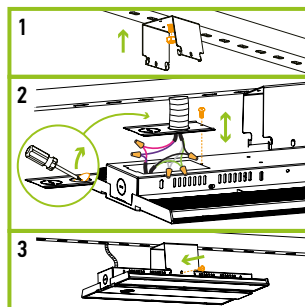


SURFACE MOUNT

ASD-SMB1-WHB5

sold separately:

1. Secure the brackets to ceiling, beam, joist or rail. (bolts not included).
2. Connect the wires: Black to Black, White to White, Green to Green.
3. Attach the fixture to the bracket and secure with one screw per each side of the bracket.



[ASD NLS app download Android](#)



[ASD NLS app download iOS](#)



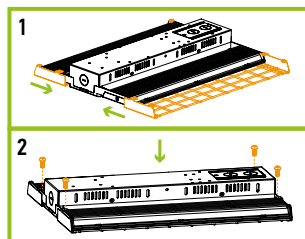
WIRE GUARD

ASD-WG14-WHB5

ASD-WG20-WHB5

sold separately:

1. Slide the wire guard from the side to the bottom.
2. Secure the wire guard with screws on both sides.



For most up-to-date spec sheets please refer to asd-lighting.com

ASD LIGHTING CORP

E-mail: orders@asd-lighting.com

Web site: www.asd-lighting.com





LED LINEAR HIGH BAY WITH Q-BASE

ORDERING INFORMATION

Model	UPC	Pcs. per carton	Carton size	Carton weight
WHB5A 150lm/W				
ASD-WHB5A-100D50	810050738705	1	14.8" x 10.6" x 2.4"	5 lbs
ASD-WHB5A-160D50	810050738712	1	14.8" x 10.6" x 2.4"	5 lbs
ASD-WHB5A-220D50	810050738729	1	20.3" x 12.6" x 3"	7.6 lbs
ASD-WHB5A-320D50	810050738736	1	40" x 12.6" x 3"	14.9 lbs
ASD-WHB5A-400D50	810050738743	1	40" x 12.6" x 3"	14.9 lbs
ASD-WHB5A-500D50	810050739863	1	40" x 12.6" x 3"	15.2 lbs
ASD-WHB5A-A160DAC	810050739870	1	14.8" x 10.6" x 2.4"	5.1 lbs
ASD-WHB5A-A320DAC	810128111072	1	40" x 12.6" x 3"	15.2 lbs
ASD-WHB5A-A500DAC	810128111089	1	40" x 12.6" x 3"	16.3 lbs
WHB5A-EM WITH BATTERY BACK-UP 150lm/W				
ASD-WHB5A-160D50-20EM	819201020799	1	14.8" x 10.6" x 3.4"	6.3 lbs
ASD-WHB5A-220D50-20EM	810050739894	1	20.3" x 12.6" x 3"	8.8 lbs
ASD-WHB5A-A160DAC-20EM	810128111805	1	14.8" x 10.6" x 3.4"	6.4 lbs
ASD-WHB5A-A220DAC-20EM	810128111812	1	20.3" x 12.6" x 3"	9 lbs

Model	UPC	Pcs. per carton	Carton size	Carton weight
WHB5A-PRO 170lm/W				
ASD-WHB5A-PRO-100	810128111065	1	14.8" x 10.6" x 2.4"	5.3 lbs
ASD-WHB5A-PRO-160	810128113656	1	20.3" x 12.6" x 3"	7.7 lbs
ASD-WHB5A-PRO-220	810128110648	1	20.3" x 12.6" x 3"	7.9 lbs
ASD-WHB5A-PRO-320	810128113663	1	40" x 12.6" x 3"	14.8 lbs
ASD-WHB5A-PRO-500	810128113670	1	40" x 12.6" x 3"	15.2 lbs
WHB5A-HV-PRO HIGH VOLTAGE 170lm/W				
ASD-WHB5A-HV-PRO-220	810128113625	1	20.3" x 12.6" x 3"	7.9 lbs
ASD-WHB5A-HV-PRO-320	810128113632	1	40" x 12.6" x 3"	14.8 lbs
ASD-WHB5A-HV-PRO-500	810128113649	1	40" x 12.6" x 3"	15.2 lbs
WHB5A-PRO-EM WITH BATTERY BACK-UP 170lm/W				
ASD-WHB5A-PRO-160-EM	810128113205	1	20.3" x 12.6" x 3"	9 lbs
ASD-WHB5A-PRO-220-EM	810128113212	1	20.3" x 12.6" x 3"	9.3 lbs

ACCESSORIES:

Model	Description	UPC	Pcs. in middle box	Middle box size	Middle box weight	GTIN 14 in middle box	Pcs. per carton	Carton size	Carton weight	GTIN 14
ASD-09MW-WH	Microwave motion sensor 3pin white	810128113700	10	5.5" x 2.6" x 11.4"	1.2 lbs	20810128113704	120	17.3" x 11.8" x 11"	12.1 lbs	30810128113701
ASD-09MW-BK	Microwave motion sensor 3pin black	810128113717	10	5.5" x 2.6" x 11.4"	1.2 lbs	20810128113711	120	17.3" x 11.8" x 11"	12.1 lbs	30810128113718
ASD-09IR-WH	Infrared motion sensor 3pin white	810128113694	10	5.5" x 2.6" x 11.4"	1.2 lbs	20810128113698	120	17.3" x 11.8" x 11"	12.1 lbs	30810128113695
ASD-09IR-BK	Infrared motion sensor 3pin black	810128114349	10	5.5" x 2.6" x 11.4"	1.2 lbs	20810128114343	120	17.3" x 11.8" x 11"	12.1 lbs	30810128114340
ASD-09IR50-WH	Infrared motion sensor 3pin 50ft white	810128116794	10	5.5" x 2.6" x 11.4"	0.9 lbs	10810128116791	120	17.3" x 11.8" x 11"	10.7 lbs	20810128116798
ASD-06RC	Remote control for motion sensor	810128114370	10	6.3" x 2.9" x 11.4"	0.5 lbs	30810128114371	60	15.8" x 11.8" x 9.3"	24.7 lbs	40810128114378
ASD-09MW-NLS-WH	Microwave motion sensor smart 3pin white	810128113762	10	5.5" x 2.6" x 11.4"	1.2 lbs	20810128113766	120	17.3" x 11.8" x 11"	12.1 lbs	30810128113763
ASD-09IR-NLS-WH	Infrared motion sensor smart 3pin white	810128113755	10	5.5" x 2.6" x 11.4"	1.2 lbs	20810128113759	120	17.3" x 11.8" x 11"	12.1 lbs	30810128113756
ASD-06RC-NLS	Remote control for motion sensor smart	810128114387	10	6.3" x 2.9" x 11.4"	0.5 lbs	20810128114381	60	15.8" x 11.8" x 9.3"	24.7 lbs	30810128114388
ASD-EMK20W-WHB5A	Battery back-up kit 20W	810050737333	-	-	-	-	10	10.5" x 10.2" x 11.5"	26.5 lbs	10810050737330
ASD-EMK20W-WHB5B	Battery back-up kit 20W	810128113977	-	-	-	-	10	10.5" x 10.2" x 11.5"	26.5 lbs	10810128113974
ASD-EMK30W-WHB5A	Battery back-up kit 30W	810050735933	-	-	-	-	10	10.5" x 10.2" x 11.5"	26.5 lbs	10810050735930
ASD-SMB1-WHB5	Surface mount bracket	810050739764	-	-	-	-	50	22.8" x 7.9" x 20.9"	24.3 lbs	20810050739768
ASD-PMB1-WHB5	Pendant mounting bracket for 100/160/220W	810050739757	-	-	-	-	50	22.8" x 7.9" x 20.9"	34.2 lbs	20810050739751
ASD-PMB2-WHB5	Pendant mounting bracket for 320/400/500W	810050739771	-	-	-	-	50	22.8" x 7.9" x 20.9"	34.2 lbs	20810050739775
ASD-WG14-WHB5	Wire guard 14"	810050739733	-	-	-	-	50	15.8" x 14.6" x 14.6"	27.6 lbs	20810050739737
ASD-WG20-WHB5	Wire guard 20"	810050739740	-	-	-	-	50	21.1" x 20.9" x 11.4"	39.7 lbs	20810050739744

For most up-to-date spec sheets please refer to asd-lighting.com

ASD LIGHTING CORP

E-mail: orders@asd-lighting.com | Web site: www.asd-lighting.com





LED LINEAR HIGH BAY WITH Q-BASE

ANNEX 1

Model	Watts	3,500 K	4,000 K	5,000 K
ASD-WHB5A-100D50	100W	-	-	15,230 lm
ASD-WHB5A-160D50	160W	-	-	24,087 lm
ASD-WHB5A-160D50-20EM	160W	-	-	21,657 lm
ASD-WHB5A-220D50	220W	-	-	29,434 lm
ASD-WHB5A-320D50	320W	-	-	43,638 lm
ASD-WHB5A-400D50	400W	-	-	53,082 lm
ASD-WHB5A-500D50	500W	-	-	73,306 lm
ASD-WHB5A-A160DAC ASD-WHB5A-A160DAC-20EM	100W	15,027 lm	15,647 lm	15,414 lm
	130W	18,411 lm	19,441 lm	18,869 lm
	160W	21,763 lm	23,257 lm	22,284 lm
ASD-WHB5A-A220DAC-20EM	130W	19,287 lm	19,861 lm	20,066 lm
	160W	22,815 lm	23,574 lm	22,951 lm
	220W	29,845 lm	31,097 lm	30,734 lm
ASD-WHB5A-A320DAC	220W	32,683 lm	33,553 lm	33,400 lm
	260W	38,575 lm	39,786 lm	39,082 lm
	320W	44,761 lm	47,277 lm	46,135 lm
ASD-WHB5A-A500DAC	320W	47,792 lm	49,639 lm	48,783 lm
	400W	57,592 lm	59,486 lm	57,946 lm
	500W	67,079 lm	69,834 lm	67,311 lm

Model	Watts	3,500 K	4,000 K	5,000 K
ASD-WHB5A-PRO-100	60W	10,008 lm	9,943 lm	10,045 lm
	80W	12,682 lm	12,968 lm	12,732 lm
	100W	15,919 lm	16,401 lm	16,552 lm
ASD-WHB5A-PRO-160 ASD-WHB5A-PRO-160-EM	100W	16,792 lm	16,880 lm	16,931 lm
	130W	20,902 lm	21,152 lm	21,046 lm
	160W	25,304 lm	26,206 lm	26,276 lm
ASD-WHB5A-PRO-220 ASD-WHB5A-PRO-220-EM	130W	20,883 lm	21,307 lm	21,641 lm
	160W	25,622 lm	26,486 lm	26,827 lm
	220W	33,988 lm	35,215 lm	35,088 lm
ASD-WHB5A-PRO-320	220W	34,867 lm	34,801 lm	34,806 lm
	260W	39,833 lm	40,121 lm	40,320 lm
	320W	49,440 lm	50,958 lm	51,291 lm
ASD-WHB5A-PRO-500	320W	50,026 lm	50,648 lm	51,881 lm
	400W	60,147 lm	61,382 lm	62,475 lm
	500W	76,511 lm	80,269 lm	76,972 lm
ASD-WHB5A-HV-PRO-220	130W	21,526 lm	22,095 lm	22,397 lm
	160W	25,982 lm	26,713 lm	26,714 lm
	220W	34,396 lm	36,018 lm	35,470 lm
ASD-WHB5A-HV-PRO-320	200W	36,189 lm	36,081 lm	35,868 lm
	260W	41,070 lm	40,995 lm	40,382 lm
	320W	50,461 lm	50,940 lm	50,675 lm
ASD-WHB5A-HV-PRO-500	320W	49,527 lm	49,768 lm	50,669 lm
	400W	61,684 lm	63,126 lm	63,296 lm
	500W	76,180 lm	80,049 lm	78,753 lm

For most up-to-date spec sheets please refer to asd-lighting.com

ASD LIGHTING CORP

E-mail: orders@asd-lighting.com | Web site: www.asd-lighting.com

