MIGRO ARAY

Instruction manual and datasheet

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STOP – Please read all these instructions carefully especially the safety section before unboxing and assembling

Safety

Please read this manual thoroughly before assembling and installing the MIGRO grow lights system

Please retain this manual for reference for the lifetime for the product

The MIGRO system limits the voltage in the grow room to 96Vdc and has built in protection for overcurrent, shorts or overheating. However, to minimise any remaining risk please switch the power off while installing and adjusting the MIGRO system. If the mains plug needs to be changed to suit your power socket only a qualified person should carry out this work, in accordance with your local codes.
The MIGRO system will operate on a supply voltage ranging from 100V to 277V AC and from 50 to 60Hz frequency. Any other supply voltage will damage the lighting system.
The grow light and the cabling from the LED driver to the grow light is IP66 rated and can be used in a wet area. The mains power plug is not IP rated for a wet area and should be located in a dry area outside of the grow room. If the cable insulation or glands are damaged switch off the system immediately and return to us for repair.

The MIGRO grow light has a highly efficient and passive cooling heatsink. In order to function correctly air must be able to flow freely across the fins of the heatsink. Do not cover the grow light and restrict the airflow across the heatsink under any circumstances. This will result in heat build up which may damage the grow light and/or cause a fire.
Do not put the grow light down on any surface when the light is on. The light intensity and radiated heat may damage the surface.

The light intensity from each MIGRO grow light is very high. If you look directly at the light source from less than 20cm or 9” away the intensity is equivalent to the sun. To protect your eyes do not look directly at the light source when less than 60cm or 2 feet away.

ARAY 2, 3 & 4 setup instructions

Connect the LED bars together with the connector brackets provided. Centre the bracket along the length of the LED bar (line it up with the Cable gland) and screw in place using the allen key provided.

Attach the ratchet hangers to the grow light at the cable splitter splitter.

ARAY 2 & 3

Attach 2 x ratchet hangers to each light fixture

ARAY 4

Attach the 2 x clips to each cable splitter and attach a single ratchet hanger to each cable

ARAY 4X4 and 5X5

Unfold the grow light carefully and rest on a flat clean surface with the LEDs facing down.

Attach the hanging clips to each end.
Attach a hanging ratchet to each end and raise the light into position.

LED Driver mounting

Hang the LED driver using the S hook or Carabiner clip. You can also fix the LED drive to the wall using the fixing points provided.

Dimmer adjustment - ARAY 2,3,4, 4X4 & 5X5

Caution: Do not run 2 led bars only from the larger power ARAY 4, 8 & 12 driver. The LEDs will be overpowered and will be damaged. Only run 4 bars with the splitter cable.

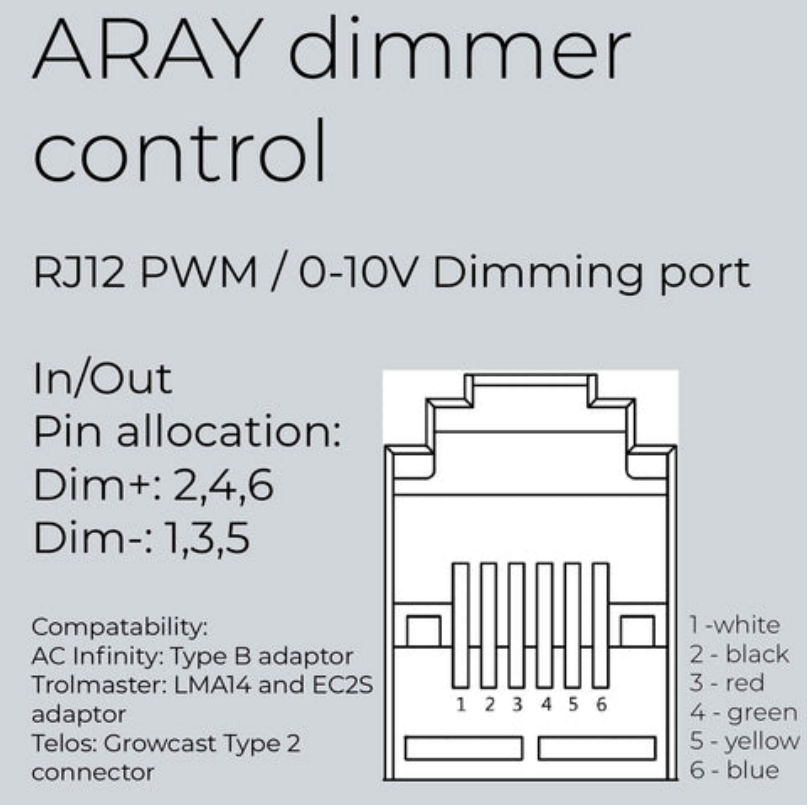
Adjust the Light intensity using the dimmer control on the LED driver. Set the dimmer switch to ON or Local to enable the on board dimmer control. Set the Dimmer switch to Off/Remote to operate from an external dimmer signal.

Stage	Seedlings		Vegetative		Flowering	
Week	1 to 2		week 3 to flowering		12 hour cycle	
	Hanging height	Dimmer setting	Hanging height	Dimmer setting	Hanging height	Dimmer setting
ARAY 1	14" or 35cm	80%	14" or 35cm	100%	14" or 35cm	100%
ARAY 2	10" or 25cm	40%	8" or 20cm	60% to 100%	6" or 18cm	100%
ARAY 3	15" or 38cm	40%	16" or 40cm	60% to 100%	11" or 28cm	100%
ARAY 4	14" or 35cm	40%	20" or 50cm	60% to 100%	10" or 25cm	100%
ARAY 4X4	12" or 30cm	40%	12" or 30cm	60% to 100%	12" or 30cm	100%
ARAY 5X5	12" or 30cm	40%	12" or 30cm	60% to 100%	12" or 30cm	100%

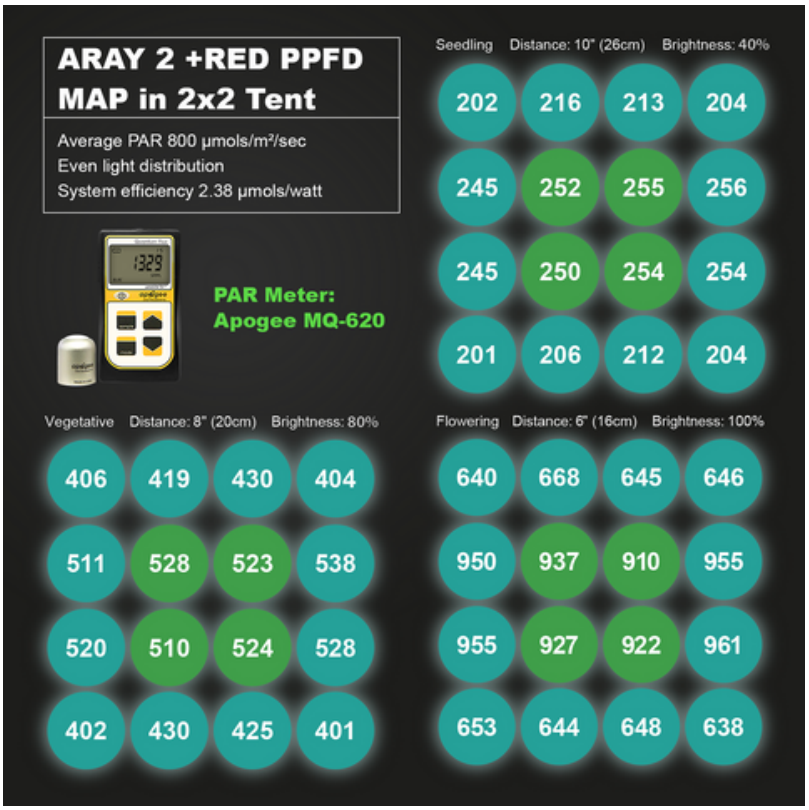
After initial setup check them after a few hours. Look for signs of plant stress; curled leave tips, yellowing leaf tips etc. If you see these signs reduce dimmer by 1/5 turn and monitor.

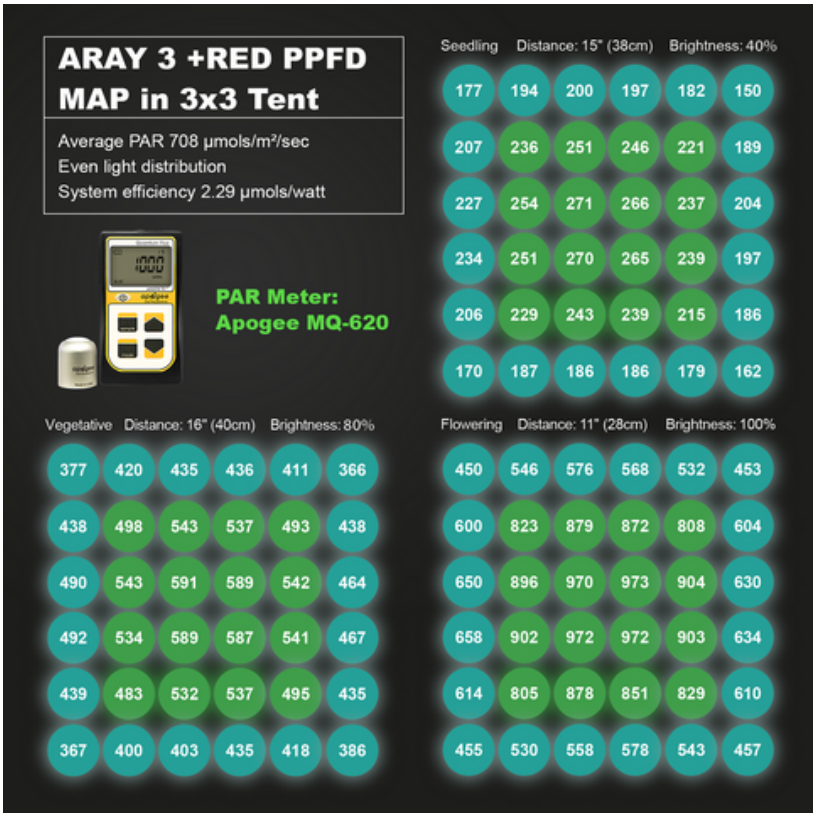
External controller connection

You can connect to any external 0-10V analog or PWM controller with RJ11 or RJ12 connectors with the following pin configuration



PAR charts


ARAY 2 +RED PPFD MAP in 2x2 Tent
Average PAR 800 µmols/m²/sec
Even light distribution
System efficiency 2.38 µmols/watt
PAR Meter: Apogee MQ-620
Seedling Distance: 10" (26cm) Brightness: 40%
202 216 213 204
245 252 255 256
245 250 254 254
201 206 212 204
Vegetative Distance: 8" (20cm) Brightness: 80%
406 419 430 404
511 528 523 538
520 510 524 528
402 430 425 401
Flowering Distance: 6" (16cm) Brightness: 100%
640 668 645 646
950 937 910 955
955 927 922 961
653 644 648 638


ARAY 3 +RED PPFD MAP in 3x3 Tent
Average PAR 708 µmols/m²/sec
Even light distribution
System efficiency 2.29 µmols/watt
PAR Meter: Apogee MQ-620
Seedling Distance: 15" (38cm) Brightness: 40%
177 194 200 197 182 150
207 236 251 246 221 189
227 254 271 266 237 204
234 251 270 265 239 197
206 229 243 239 215 186
170 187 186 186 179 162
Vegetative Distance: 16" (40cm) Brightness: 80%
377 420 435 436 411 366
438 498 543 537 493 438
490 543 591 589 542 464
492 534 589 587 541 467
439 483 532 537 495 435
367 400 403 435 418 386
Flowering Distance: 11" (28cm) Brightness: 100%
450 546 576 568 532 453
600 823 879 872 808 604
650 896 970 973 904 630
658 902 972 972 903 634
614 805 878 851 829 610
455 530 558 578 543 457

PAR Meter: Apogee MQ-620

ARAY 4 +RED PPFD MAP in 2x4 Tent

Average PAR 813 µmols/m²/sec
Even light distribution
System efficiency 2.34 µmols/watt

Seedling Distance: 14" (35cm) Brightness: 40%

220	228	230	232	232	228	218	214
244	245	254	256	259	255	242	239
237	239	249	251	254	252	241	241
209	210	215	217	227	214	209	208

Vegetative Distance: 20" (50cm) Brightness: 80%

496	530	558	556	551	547	515	483
523	541	580	585	576	564	536	500
511	552	596	589	579	565	540	511
490	517	550	518	510	506	516	480

Flowering Distance: 10" (25cm) Brightness: 100%

734	690	726	718	710	712	688	740
930	874	914	926	926	932	878	933
911	868	918	914	910	932	880	936
737	690	715	720	700	715	687	743

ARAY 4x4 PPFD MAP in 4x4 Tent

Average PAR 815 µmols/m²/sec
Even light distribution
System efficiency 2.7 umols/watt

PAR Meter: Apogee MQ-620

Distance: 12" (30cm) Brightness: 100%

657	840	912	926	949	918	855	677
736	1007	1098	1081	1069	1060	966	750
730	996	1083	1070	1053	1045	953	730
660	835	935	936	922	907	820	650
673	866	960	956	944	916	838	634
756	991	1121	1099	1077	1070	984	726
763	1017	1132	1097	1067	1072	975	758
680	871	933	930	938	911	843	676

Distance: 12" (30cm) Brightness: 40%

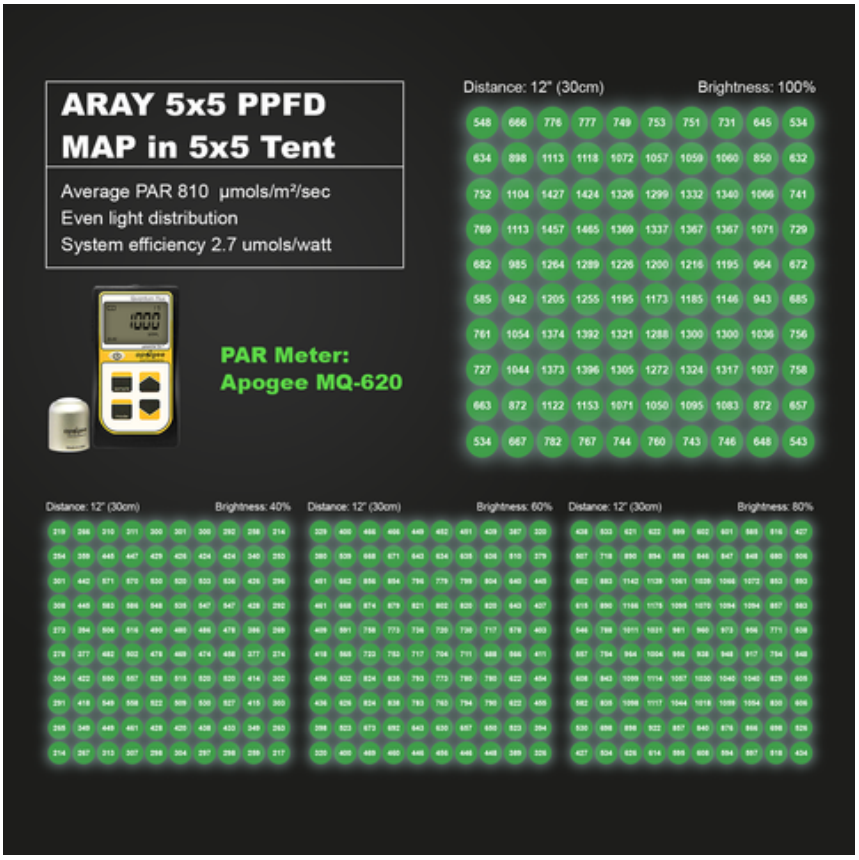
263	336	365	370	380	367	342	271
294	403	439	432	428	424	386	300
292	398	435	428	421	418	381	292
264	334	374	374	369	363	328	260
269	346	384	382	378	366	335	254
302	396	448	440	431	428	394	290
305	407	453	439	427	429	390	303
272	348	373	372	375	364	337	279

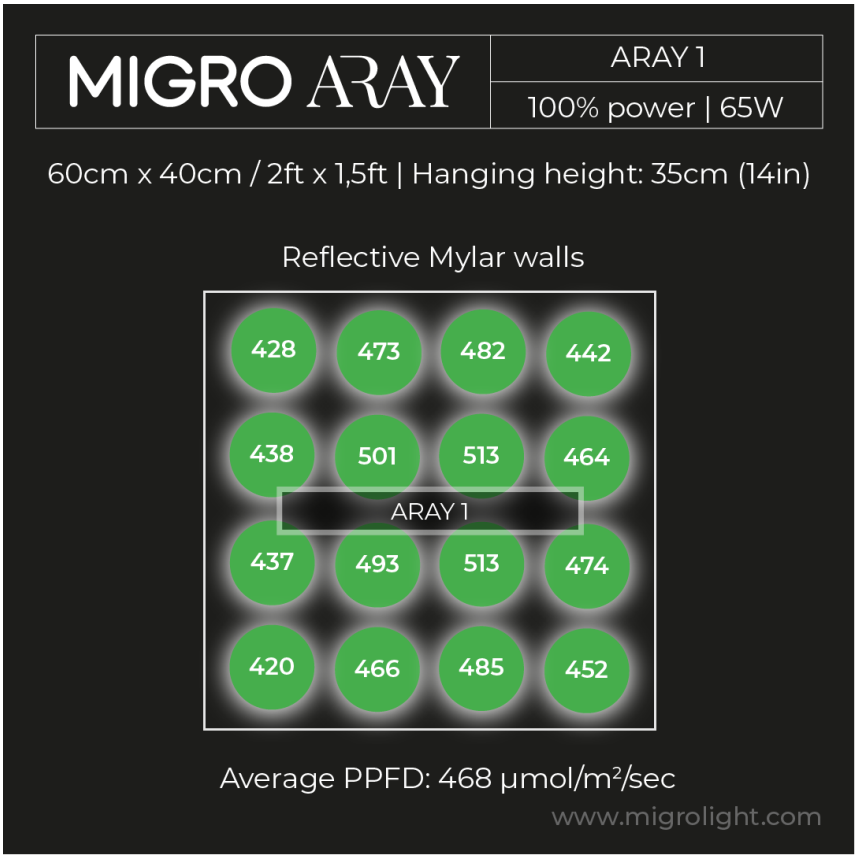
Distance: 12" (30cm) Brightness: 60%

394	504	547	556	569	551	513	406
442	604	659	649	641	636	580	450
438	598	650	642	632	627	572	438
396	501	561	562	553	544	492	390
404	520	576	574	566	550	503	380
454	595	673	659	646	642	590	436
458	610	679	658	640	643	585	455
408	523	580	558	563	547	506	406

Distance: 12" (30cm) Brightness: 80%

526	672	730	741	759	734	684	542
589	806	878	865	855	848	773	600
584	797	866	856	842	836	762	584
528	668	748	749	738	726	686	520
538	693	768	765	755	733	670	507
606	793	897	879	862	856	787	581
610	814	906	878	854	858	780	606
544	697	746	744	750	729	674	541


ARAY 5x5 PPFD MAP in 5x5 Tent
Average PAR 810 µmols/m²/sec
Even light distribution
System efficiency 2.7 umols/watt
PAR Meter: Apogee MQ-620
Distance: 12" (30cm)
Brightness: 100%
548 666 776 777 749 753 751 731 645 534
634 898 1113 1118 1072 1057 1059 1060 850 632
752 1104 1427 1424 1326 1299 1332 1340 1066 741
769 1113 1457 1465 1369 1337 1367 1367 1071 729
682 985 1264 1289 1226 1200 1216 1195 964 672
585 942 1205 1255 1195 1173 1185 1146 943 685
761 1054 1374 1392 1321 1288 1300 1300 1036 756
727 1044 1373 1396 1305 1272 1324 1317 1037 758
663 872 1122 1153 1071 1050 1095 1083 872 657
534 667 782 767 744 760 743 746 648 543
Distance: 12" (30cm)
Brightness: 40%
Distance: 12" (30cm)
Brightness: 60%
Distance: 12" (30cm)
Brightness: 80%


MIGRO ARAY
ARAY 1
100% power | 65W
60cm x 40cm / 2ft x 1,5ft | Hanging height: 35cm (14in)
Reflective Mylar walls
428 473 482 442
438 501 513 464
ARAY 1
437 493 513 474
420 466 485 452
Average PPFD: 468 µmol/m²/sec
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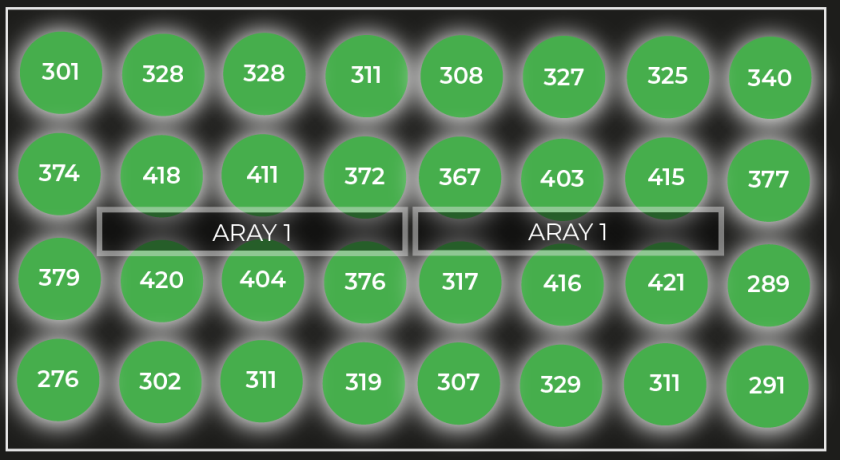
MIGRO ARAY

2 x ARAY 1

100% power | 130W

120cm x 60cm / 4ft x 2ft | Hanging height: 45cm (14in)

Reflective Mylar walls



Average PPFD: 349 µmol/m²/sec

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MIGRO ARAY

2 x ARAY 1

100% power | 130W

90cm x 60cm / 3ft x 2ft | Hanging height: 35cm (14in)

Reflective Mylar walls

Average PPFD: 449 µmol/m²/sec

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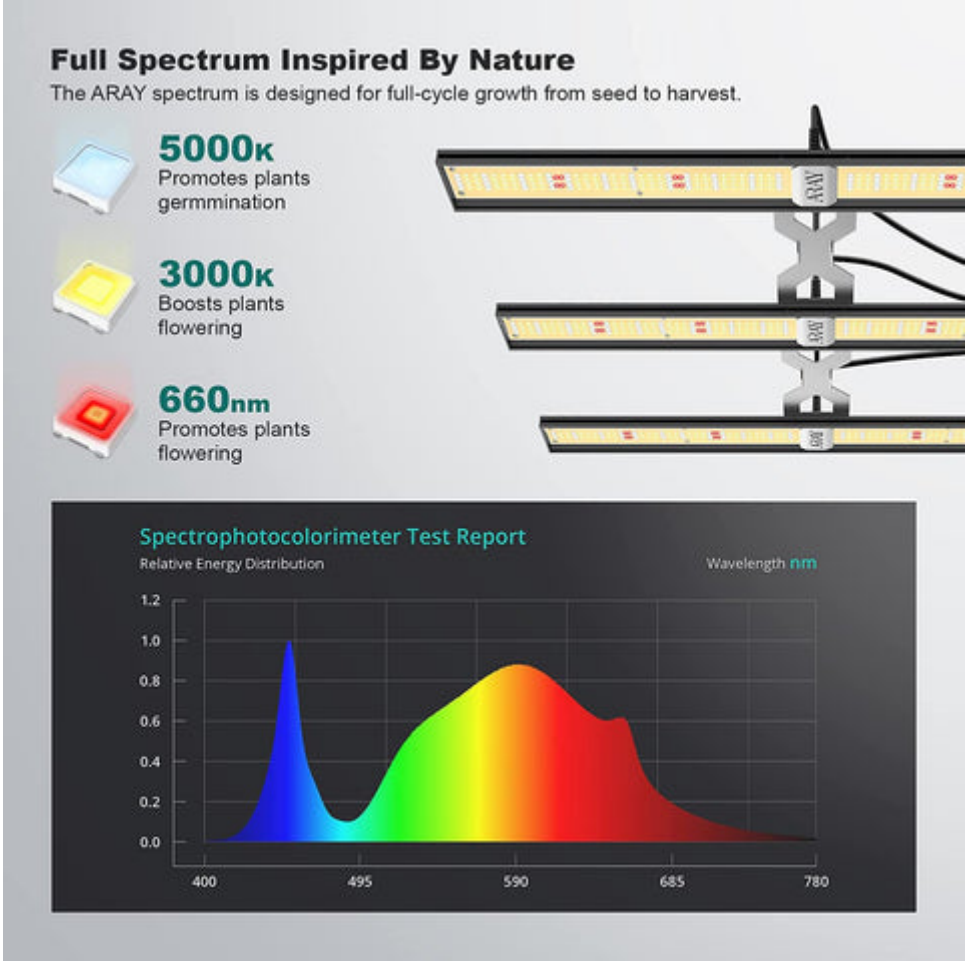
Light Spectrum

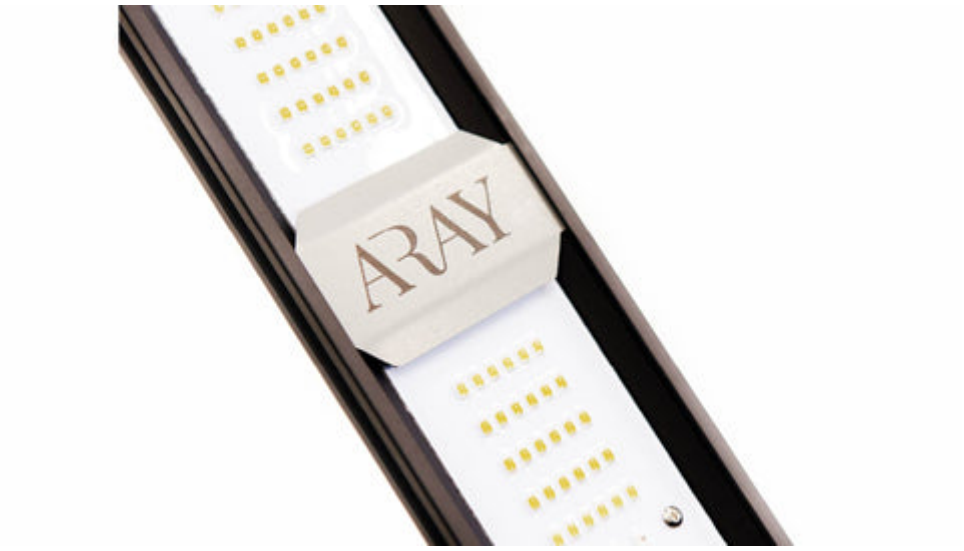


Hardware overview

LED bar

The small LEDs (surface mounted diodes, SMDs) are delicate and can be easily damaged.
Take care putting them down and during assembly.

The LEDs are protected from water and dust with a conformal coating so they can be wiped clean of dust and dirt.



LED driver

The LED driver is highly efficient and reliable constant current transformer and has inbuilt protection from:

- Output over voltage
- Over temperature
- Short circuit
- In the event of any of the above the driver will shut down. The driver will automatically restart if the conditions return to normal.

The driver and the mains plug connection should be located outside of the grow area in a dry and safe position with adequate ventilation.

The life of the LED driver is related to its operating temperature. Keeping it as cool as possible will extend its life.

The driver is dimmer controlled and has an inbuilt dial for adjusting the output from 20% to 100%.
Up to 15 drivers can be connected together in daisy chain connection for simultaneous dimming control.

Set the toggle switch on for master dimmer driver and off for slave dimmer drivers.

Airflow and ventilation

Whatever position the grow light is fixed always ensure there is adequate room for airflow around the heatsink to prevent heat buildup. There should be at least 5cm or 2” clearance on three sides of the heatsink.
The heatsink is a ‘fast flow’ passive heatsink allowing air to move quickly over the heatsink surface and remove the heat at a high rate.

Driver and Lamp operating temperature

Both the led bar heatsink and led driver both operate at about 25 deg. C or 45 F above ambient temperature. So at 25 degrees C or 77 F room temp the driver and heatsink will be about 50 deg. C or 122 F. This is perfectly normal and safe.
To minimise the temperature locate the driver down low at the air intake and have the out take moving air across the heatsink.
If the driver case temperature gets to 90 DegC or 195 F the output current will be reduced. If the temperature does not reduce then it powers off until temperatures have reduced.

Maintenance

The MIGRO grow light system requires almost no maintenance. In ordinary use the only maintenance required is to keep the heatsink and the led surface clean. This will ensure the cooling performance and light output are maintained, respectively.

To clean all of the components switch off the power and use warm water and soap with a damp cloth. Do not under any circumstances use a solvent, acid based or an abrasive cleaner on any of the components. Doing so may damage the finish of the product and the electrical and led coating

Typical Package contents:

Email: info@migrolight.com
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Youtube: MIGRO channel – optimise your grow light setup

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