



SP-401H SOLAR RUNWAY THRESHOLD LIGHT

HIGH INTENSITY



		Compliance: ICAO Annex 14 Vol. I (7th. Edition, July 2016)
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FEATURES

- Applicable for IFR Runways (CAT I, II, III)
- Controlled via wireless mesh type network
- Operates on solar energy
- Hybrid version available: solar + 230 VAC / 6.6A

APPLICATION

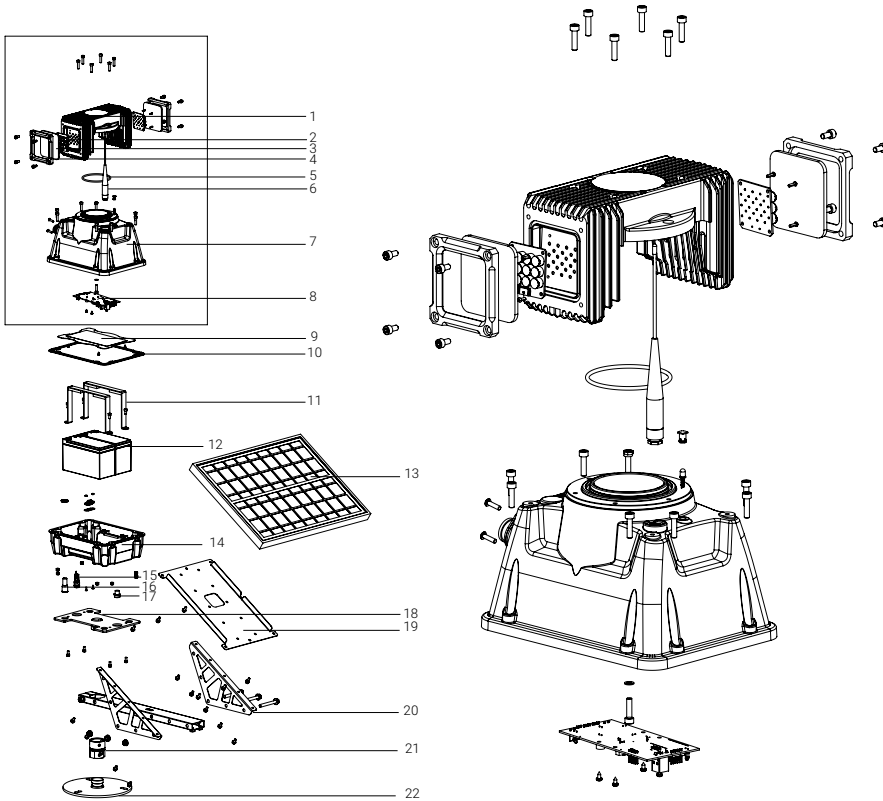
Unidirectional optics; designed for permanent usage on Precision Approach Runways (CAT I, II, III) in regions without access to electricity.

TECHNICAL SPECIFICATIONS

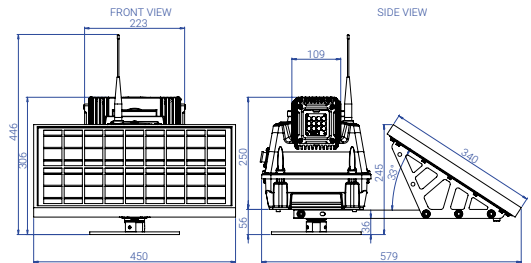
Optics	
	<ul style="list-style-type: none"> • 11.400 cd light output (tested by accredited laboratory) • Unidirectional type • LED lifespan: 100.000 hrs • Maximum power consumption: 23 W • Color: green • User-replaceable
Battery	
Standard battery	<ul style="list-style-type: none"> • 2x built-in batteries, user-replaceable, air transportable • Autonomy: 250 hrs (minimum intensity) • Total capacity: 216W (2x9Ah/12V) • Deep-cycle VRLA, 12V/9Ah (available worldwide) • Lifespan: 1.200 cycles (designed for 4-5 years)
Cyclon battery (Arctic Pack)	<ul style="list-style-type: none"> • 1x built-in battery, user-replaceable, air transportable • Autonomy: 140 hrs (minimum intensity) • Total capacity: 120W (10Ah/12V) • Lifespan: 300 cycles (designed for 10-15 years)
Solar Power Supply	
	<ul style="list-style-type: none"> • 20W solar panel, separately installed • Polycrystalline type (optional: monocrystalline) • Lifespan: 15 years • MPPT-Temp / Built-in inverter 12-36V/2A
Control & Monitoring	
	<ul style="list-style-type: none"> • Wireless mesh type network • Operating frequency: 868 MHz (optional 2.4GHz or 433 Mhz) • Operating range: up to 1.5 km, relayed (each light is a repeater) • Operating Modes: <ul style="list-style-type: none"> Steady / Flashing / Dusk till dawn Visible / Infrared (optional) / Visible + Infrared (optional) • Activation options: <ul style="list-style-type: none"> Via ALCMS Computer Interface (requires UR-201) Via UR-201 Control & Monitoring Unit Via UR-101 Handheld Controller
Casing & Components	
	<ul style="list-style-type: none"> • Materials <ul style="list-style-type: none"> Optical head: aluminum, glass covered by antireflective layer Casing: Lexan polycarbonate, UV-stabilized, color: aviation yellow Mounting: galvanized steel (optional: marine grade stainless steel) Frangible mounting: aluminum (tested by accredited laboratory) • Detachable antenna • Pressure stabilizing valve, transportation fuse • Battery level indicator • Carrying handle (optional) • Casing lifespan: 15 years • Dimensions (LxWxH): 579 mm x 450 mm x 306 mm • Weight: 14,1 kg

Safety & Reliability	
	<ul style="list-style-type: none"> • Five levels of protection against system failure • Secondary power supply: backup battery • Real-time monitoring via ALCMS (Airfield Lighting Control and Monitoring System) • Emergency ON/OFF button
Environmental Conditions	
	<ul style="list-style-type: none"> • Temperature range: -20 to 50 °C (-4 to 122 °F) Optional: -40 to 80 °C (-40 to 176 °F) • Ingress protection: IP-67 (tested by accredited laboratory) • Jet blast resistance: 240 kph (tested by accredited laboratory)
Compliance	
Photometric & Chromaticity	ICAO, Annex 14th, Volume I, 7th Edition dated July 2016, clause 5.3.10.10 & clause 5.3.1.11 (green direction), Appendix 1, Figure A1-1b
Jet Blast Resistance	ICAO, Annex 14th, Volume I, 8th Edition dated July 2018. Doc 9157, Part 6, clause 3.2.2 & clause 4.9.1 FAA AC 150/5345-50B dated September 2007, clause 3.2.2
Frangibility	ICAO Doc 9157 AN901 Aerodrome Design Manual Part 6, 1st Edition dated 2006, clause 4.9 ICAO, Annex 14th, Volume I, 8th Edition dated July 2018, clause 5.3.1.3 FAA AC 150-5345-46E clause 3.4.2.1 FAA AC 150/5220-23, clause 3.2
Secondary Power Supply	ICAO, Annex 14th, Volume I, 7th Edition dated July 2016, clause 8.1.8 - 8.1.9 & clause 8.1.11
CE Declaration of Conformity	2014/53/UE RED Directive, clauses 3.1a, 3.1b, 3.2 2011/65/UE ROHS Directive, clause 4.1
Accredited Laboratory Testing	
Photometric & Chromaticity	Intertek Laboratory
Jet Blast Resistance	Warsaw Institute of Aviation The Laboratory of Aerodynamics
Frangibility	Laborex Research Laboratory
Ingress Protection	EMAG Institute of Innovative Technologies
Electromagnetic Compatibility	Military Institute of Armament Technology

TECHNICAL DRAWING



1. Aluminum radiator
2. LED optics
3. Front glass
4. Protective frame
5. O-ring under the aluminum dome
6. Radio antenna for wireless control & monitoring
7. Casing upper part
8. Micro-computer with integrated radio transceiver
9. Protective plate
10. Rubber gasket
11. Battery holder
12. 2 x batteries built-in, VRLA type 12V/9Ah
13. 20W Solar panel with standard optimal inclination
14. Casing bottom part
15. Emergency ON/OFF button
16. Transportation fuse
17. Pressure stabilizing valve
18. Mounting plate
19. Holding frame for solar panel
20. Holder for solar panel frame
21. Frangible mounting
22. Base plate



PHOTOMETRIC PERFORMANCE

SP-401 RUNWAY THRESHOLD CAT I, CAT II, CAT III																								
TEST AREA		REQUIRED								RESULTS														
14°	Green																							
13,5°																								
13°																								
12,5°																								
12°																								
11,5°																								
11°																								
10,5°																								
10°																								
9,5°																								
9°																								
8,5°																								
8°																								
7,5°																								
7°																								
6,5°																								
6°																								
5,5°	4760	5250	5738	6868	8224	9427	9946	10390	10995	11320	11437	11480	11411	11093	10546	9775	8527	7848	7155	5879	5384	4933	4140	
5°	4745	5220	5707	6821	8168	9404	9928	10372	10948	11248	11430	11441	11346	11087	10558	9757	8540	7823	7111	5885	5374	4906	4136	
4,5°	4688	5148	5646	6766	8106	9391	9881	10309	10916	11207	11375	11429	11334	11043	10467	9659	8450	7721	7043	5835	5310	4860	4087	
4°		5084	5562	6640	7945	9208	9741	10174	10793	11102	11286	11355	11228	10924	10354	9530	8269	7564	6916	5757	5243	4805		
3,5°		4990	5455	6490	7725	8998	9541	9990	10628	11011	11213	11236	11122	10820	10227	9349	8069	7398	6763	5631	5146	4712		
3°		4873	5301	6304	7489	8701	9240	9743	10410	10856	11066	11064	10910	10612	9981	9040	7802	7157	6545	5467	5019	4606		
2,5°		4736	5145	6071	7161	8334	8888	9377	10119	10627	10843	10855	10691	10356	9669	8693	7514	6869	6305	5293	4865	4476		
2°		4572	4959	5829	6822	7922	8436	8962	9748	10271	10548	10531	10369	9966	9257	8262	7127	6575	6057	5129	4708	4337		
1,5°			4774	5585	6495	7483	7989	8486	9321	9861	10129	10164	9957	9531	8770	7790	6739	6227	5765	4911	4524			
1°			4597	5333	6170	7045	7500	7944	8754	9361	9657	9695	9473	9004	8234	7314	6358	5891	5473	4693	4337			
0,5°				5054	5800	6597	6994	7415	8131	8713	9056	9098	8860	8372	7657	6826	5980	5571	5190	4483				
0°					4768	5427	6151	6499	6863	7515	8023	8339	8419	8182	7755	7097	6369	5624	5252	4903	4262			
V/H		-9	-8	-7,5	-7	-6	-5,5	-5	-4	-3	-2	-1	0	1	2	3	4	5	5,5	6	7	7,5	8	9

SHIPPING DATA

Item	Dimensions of Package (LxWxH)	Gross Weight
SP-401 Lighting Unit	490 mm x 360 mm x 570 mm	16 kg
SP-401 Lighting Unit, NO BATTERIES	490 mm x 360 mm x 570 mm	10,8 kg