



SP-401H SOLAR RUNWAY THRESHOLD END 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

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

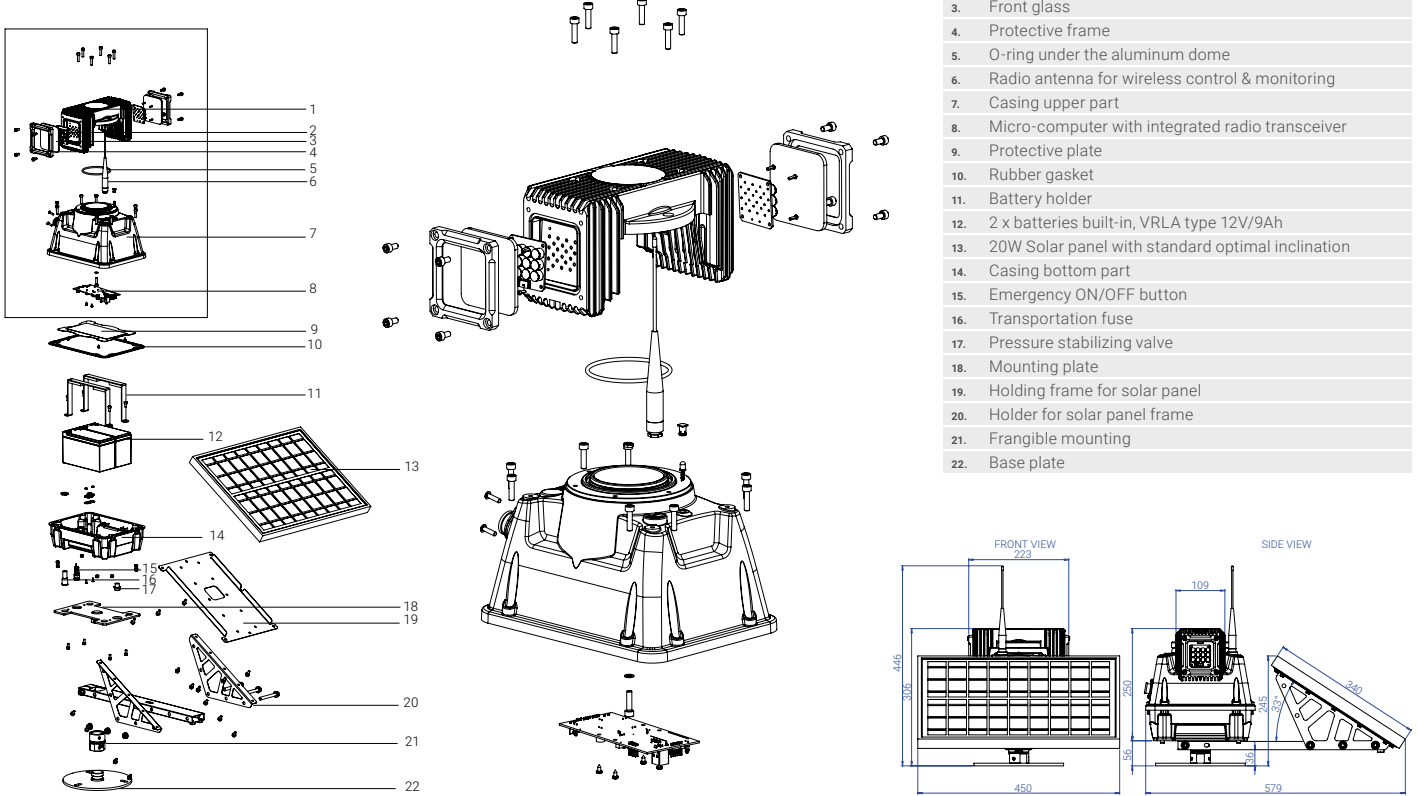
TECHNICAL SPECIFICATIONS

Optics	
<ul style="list-style-type: none"> • 2.700 (red) / 11.400 (green) cd light output (tested by accredited laboratory) • Bidirectional type • LED lifespan: 100.000 hrs • Maximum power consumption: 28 W • Color: red/green • User-replaceable 	
Battery	
Standard battery	<ul style="list-style-type: none"> • 2x built-in batteries, user-replaceable, air transportable • Autonomy: 380 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: 210 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: Steady / Flashing / Dusk till dawn Visible / Infrared (optional) / Visible + Infrared (optional) • Activation options: 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 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: 480 kph (tested by accredited laboratory) 	
Compliance	
Photometric & Chromaticity	ICAO, Annex 14th, Volume I, 7th Edition dated July 2016, clause 5.3.11.5 & clause 5.3.1.11 (red direction), 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

Green	4738	5074	5186	5174	5073	4887	5041
14°	5074	5186	5174	5073	4887	5041	
13.5°	5074	5186	5174	5073	4887	5041	
13°	5074	5186	5174	5073	4887	5041	
12.5°	5074	5186	5174	5073	4887	5041	
12°	5074	5186	5174	5073	4887	5041	
11.5°	5139	5354	5606	5873	6343	6706	6902
11°	5139	5354	5606	5873	6343	6706	6902
10.5°	5139	5354	5606	5873	6343	6706	6902
10°	5139	5354	5606	5873	6343	6706	6902
9.5°	4840	5641	6560	7517	7990	8467	9244
9°	4840	5641	6560	7517	7990	8467	9244
8.5°	4783	5211	6119	7198	8346	8872	9344
8°	4935	5377	6361	7485	8707	9226	9702
7.5°	5046	5518	6549	7733	8950	9497	9936
7°	5146	5631	6694	7952	9187	9707	10111
6.5°	5197	5690	6814	8093	9349	9859	10283
6°	5224	5736	6870	8190	9418	9951	10366
5.5°	4760	5250	5738	6868	8224	9427	9946
5°	4745	5220	5707	6821	8168	9404	9928
4.5°	4688	5148	5646	6766	8106	9391	9881
4°	4688	5148	5646	6766	8106	9391	9881
3.5°	4990	5455	6490	7725	8998	9541	9990
3°	4873	5301	6304	7489	8701	9240	9743
2.5°	4736	5145	6071	7161	8334	8888	9377
2°	4572	4959	5829	6822	7922	8436	8962
1.5°	4774	5585	6495	7483	7989	8486	9221
1°	4597	5333	6170	7045	7500	7944	8374
0.5°	5054	5800	6597	7394	7813	8213	8566
0°	4768	5427	6151	6899	7663	8419	9182
V/H	-9	-8	-7,5	-7	-6	-5,5	-5

			SP-401 RUNWAY THRESHOLD CAT I, CAT II, CAT III								
TEST AREA	REQUIRED	RESULTS	4	5	5,5	6	7	7,5	8	9	
AREA 1 (MAIN BEAM) (PINK PART)	MIN. 5000 CD	MIN. 8239,56 CD	9302	8081	7377	6747	6242	5825	5479	5188	
	AVERAGE MIN. 10000 CD	AVG. 10408,04 CD	9646	8467	7725	7055	6492	5994	5548	5143	
AREA 2 (YELLOW PART)	MIN. 1000 CD	MIN. 5310,11 CD	9714	8570	7817	7104	6491	5933	5424	4936	
AREA 3 (BLUE PART)	MIN. 500 CD	MIN. 4086,84 CD	9714	8570	7817	7104	6491	5933	5424	4936	

			SP-401 RUNWAY END CAT I, CAT II, CAT III								
TEST AREA	REQUIRED	RESULTS	4	5	5,5	6	7	7,5	8	9	
AREA 1 (MAIN BEAM) (PINK PART)	MIN. 1250 CD	MIN. 2131,85 CD	2057	2385	2263	2132	1840	1695	1562	1302	
	AVERAGE MIN. 2500 CD	AVG. 2629,53 CD	2579	2396	2270	2140	1843	1698	1560		
AREA 2 (YELLOW PART)	MIN. 250 CD	MIN. 1745,65 CD	2579	2396	2270	2140	1843	1698	1560		
AREA 3 (BLUE PART)	MIN. 125 CD	MIN. 1281,30 CD	2579	2396	2270	2140	1843	1698	1560		

SHIPPING DATA

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