**PURCHASE SPECIFICATIONS FOR AN AIRFIELD CONTROL & MONITORING SYSTEM FOR S4GA RADIO CONTROLLED EQUIPMENT**

**MODEL: ALCMS BASIC**

**Control & Monitoring System**

Control & Monitoring system shall consist of two elements:

* Control & Monitoring Unit
* Airfield Lighting Control and Monitoring System

Control & Monitoring Unit Specification

Control & Monitoring Unit shall allow for:

* Remote control and monitoring for Solar Airfield Lighting System and other S4GA radio controlled equipment,
* 3-way remote control over airfield lighting:
* Manually – by using knobs located on the control unit front panel,
* Via Air-Band Radio: frequency range 118-136 Mhz,
* Via GSM Phone (voice call or SMS);
* Independent control (activation and change of brilliancy) over minimum 3 separate groups of airfield lighting (for example Runway + Approach, Taxiway, PAPI).
* In case of Wireless signal failure the light shall allow for manual activation using Emergency On/Off Button,
* Automatic Alarm SMS: in case of light’s critical failure (e.g. lack of wireless control over the light or low battery) – user will automatically receive alarming sms informing about critical failure.

Control & Monitoring Unit shall offer the following features:

* Rechargeable back-up battery providing minimum 24 hrs of autonomy (with all functions operations at all times),
* Power via 90-240 VAC,
* Detachable antennas,
* Externally mounted (on the high mast) antenna for optimal radio range,
* Immediate and simultaneous on/off control of the airfield lights ,
* Grouping entire airfield lighting/equipment in at least 3 major groups (controlled separately),
* Control of entirely lighting system or separate groups of lights,
* Selecting preferable operating modes such as dusk-till-dawn, remote (allows for remote activation of lights) or flash,
* Ability to remotely activate the system via VHF, GSM and manual switches,
* Minimum 3-step intensity level of group of lights,
* Setting timer for remotely activated lights,
* Built-in circuit breaker protecting against short circuit / overload,
* Built in antennas lighting strike arresters,
* Built-in transportation fuse,
* Built-in USB port / HDMI Port.

**Airport Lighting Control & Monitoring Interface**

Computer Interface is software-based visual interface allowing user to control & monitor entire airfield lighting system using touchscreen monitor.

Interface software shall have password protection for User and Administrator modes.

Software interface shall enable individual control & monitoring capability for individual light unit:

At least following parameters of light shall be monitored

* Battery level in %,
* Operating time left on battery only (per light/equipment / per group / per system,
* Co2 savings calculation by using solar powered equipment,
* Solar Panel Charging efficiency in %,
* Equipment internal temperature in Celsius or Fahrenheit,
* Charging source (wire/solar),
* Online connection status,
* Total equipment up-time,
* Total lights illumination time,
* Battery preventive maintenance scheduling (days and battery cycles used).

Computer Interface shall offer the following features:

* Grouping entire airfield lighting in maximum 150 x individual groups,
* Control of entirely lighting system or separate groups of lights,
* Minimum 5-step intensity level of group of lights (optionally up to 8-steps),
* Selecting preferable operating modes such as dusk-till-dawn, NVG (noctovision) or remote activation mode (via GSM, via VHF radio),
* Enabling or disabling remote activation (via GSM or VHF radio),
* Setting timer for remotely activated lights,
* Individual light status – providing user with real-time monitoring of each individual lights’ parameters (battery level, charging status, online connection, solar panel charging level, maintenance requirements, etc.),
* Monitoring of Control unit (GSM signal, back-up battery level, power connection),
* Alarm log that stores every critical failure of the system,
* Colors of interface indicating general status of lights (red: critical fault, amber: requires attention).

**Wireless Control Range**

The system shall be capable of reliable wireless control up to a 1,5 kilometers line-of-sight distance between the controller and any light.

**Hardware Specs.**

**HMI Workstation – specs**

**Processor -**Intel Core i5-9400 (6 cores, from 2.90 GHz to 4.10 GHz, 9 MB cache)

**Chipset -**Intel H370

**RAM memory -**16 GB (DDR4 DIMM, 2666 MHz)

**Graphics card – supporting FullHD technology** Intel UHD Graphics 630

**M.2 SSD -**256 GB

**Sound -**Integrated sound card

**Connectivity -**Wi-Fi 4 (802.11 b / g / n) , LAN 10/100/1000 Mbps

**Connectors -**USB 3.0 - x2, USB 3.0 - x2, Audio input / output - 3  RJ-45 (LAN) - 1  VGA (D- sub ) - 1  HDMI - 1  AC-in (power input ) - 1.

**Monitor Touch 31.5 inch Elo 3202L Touch Screen Monitor IDS - specs**

**Border color**- black

**Active display area -**698.4 mm (H) x 392.9 mm (V) or 27.49 inches (H) x 15.47 inches (V)

**Dimensions**- **IR model**: 762.8 mm (length) X 457.3 mm (height) X 61.6 mm (depth) Or 30.03 inches (height) X 18.00 inches (height) X 2.43 inches (D.)

**LCD technology -**TFT LCD active matrix

**Mounting options**  - VESA MOUNT PER MIS-F, 400,400,6MM

**Input / output ports**- Input : power input, USB type B (on touch), VGA, 2x HDMI, GPIO, DisplayPort , Audio Line in Outputs : Audio headphone output, RJ45 (for optional OSD remote control)

**Resolution**- **1920x1080 at 60Hz**

**Aspect ratio**- 16: 9

**Workstation UPS: PowerWalker LINE-INTERACTIVE (1500VA 1350W 8xIEC AVR Rack) - specs**

**Topology**- Line-Interactive

**Apparent power**- 1500 VA

**Effective power**- 1350W

**Input voltage -**0 - 300 V

**Output voltage shape -**Sinusoidal

**Output sockets -**IEC - 8  RJ-11 (in / out) RJ-45 (in / out)

**Switching time -**2 - 6 ms

**Average charging time -**4 hours

**Communication**interface **-**RS232 , USB

**Work signaling -**LCD display , LED diodes

**Enclosure type -**Tower , Rack

**Additional information -**Automatic Voltage Regulation (AVR) , Function Emergency Power Off EPO ( Emergency Power Off)

**Mouse and keyboard set - Logitech MK120 Wired Desktop - specs**

**Type of switches -**membrane

**Connectivity -**wired

**Interface -**USB

**Numeric keys -**Yes

**Color -**black

**Cable length -**1.5m, 1.8m

**Mouse included -**Yes

**Mouse sensor -**optical

**Mouse profile -**universal

**Mouse resolution -**1000 DPI