



LED PAPI Voltage Powered Systems
FAA Style A & ICAO
Purchase Specification

Note: Modify items as needed according to your specific project requirements.

Description

<LINE ITEM> The item shall include supplying and installing the LED Precision Approach Path Indicator (PAPI) as per these specifications.

This item shall also consist of all incidentals to complete the installation including but not limited to all wires and cable connections, the furnishing and installing of all necessary conduits and fittings and all necessary mounting structures. This item shall also include the commissioning and testing of the installation and all related items necessary to put the LED PAPI system in operation to the satisfaction of the Project Engineer.

This item shall conform to the requirements of FAA Advisory Circular 150/ 5345-28 (latest edition), "Precision Approach Path Indicator Systems." and/or ICAO Annex 14 Part 1 Chapter 5 (latest edition) The LED PAPI shall be ETL certified to L-880/881, listed AC 150/5345-53 Addendum (latest edition), listed on the Nationwide Buy American Waiver listing (latest edition) and/or a third party TVOC for ICAO photometric and chromaticity. The LED PAPI shall be as manufactured by Avlite Systems (www.avlite.com) or approved equal.

Equipment

The LED PAPI system shall consist of the following classifications:

- a. Type.
 - {L-880 - System consisting of 4 Light Units
 - or
 - L-881 - System consisting of 2 Light Units}
- b. Style.
 - {Style A - Voltage powered
- c. Class.
 - Class I - Operation down to -31F (-35C)

The system shall also include an Installation Kit and one Installation and Maintenance Manual (per system) and the ability to download a digital version of from their web site.

LED PAPI Light Head Assembly (LHA)

The PAPI LHA shall use a Light Emitting Diode (LED) optics to reduce energy consumption and maintenance. To maximize optical efficiency, the optical system shall consist of a sealed optical chamber. The LED assembly and front glass shall be easily replaceable without requiring Light Unit re-calibration. Each LHA power requirement shall not exceed 75VA including the artic kit.

The LHA shall be compact and easy to handle not exceeding the following dimensions per unit: H 14.2" (36.07cm) x W 13.22" (33.57cm) X L 26.47" (67.23cm) and weight no more than 17.8lbs (8.07Kg)

The outer optical lens shall be protected from sandblasting by a separate, hardened front glass which is temperature controlled and is designed to ensure that the outer glass is clear of frost/dew.

The average intensity in red light will be at least 15,000 Cd for a horizontal beam spread of -6° to $+6^{\circ}$ and a vertical angle of 3.5° below transition. The transition sector will not exceed 3 minutes of arc over the full beam width.

The average intensity in the white light will be at least 30,000 Cd for a horizontal beam spread of -6° to $+6^{\circ}$ and a vertical angle of 3.5° above transition. The transition sector will not exceed 3 minutes of arc over the full beam width.

Additionally for ICAO, the intensity value in the white sector of the beam shall not be less than 2 and shall not exceed 6.5 times the corresponding intensity in the red sector.

Each PAPI LHA shall have a tilt sensor. The unit design shall ensure all lamps in the system are de-energized when one light unit is lowered more than $\frac{1}{4}$ degree or raised greater than $\frac{1}{2}$ degree. The light unit tilt sensing shall be fail-safe so any malfunction, including loss of input power, de-energizes the PAPI light units.

Each PAPI LHA shall be constructed as follows:

The PAPI LHA shall be made from folded aluminum sheet fully protected against corrosion. The PAPI LHA shall be fully weatherproof. For ease of alignment, the PAPI LHA shall be mounted using only three mounting legs. Precision elevation adjustment shall be possible in less than 10 minutes per unit, making use of the supplied inclinometer (one per system)

Style A System Requirements

The Light Units shall connect to a separate Power Control Unit (PCU). Input power to the PCU shall be 94-265 VAC, 50/60Hz. For any system configuration, the input power required by the PAPI shall be 350 VA maximum.

The intensity of the PAPI system shall be automatically selected (to high intensity during the day and low intensity at night) using a photocell connected to the PCU.

Remote Control Options:

- The FAA L-880/881 versions shall use a photocell for Day night determination and remote control for Night intensities only 5% or 20% intensities.
- ICAO or non-FAA installations shall allow for control up to 5 intensities.
- Powered from a continuous 50/60 Hz AC voltage source. A hard wired connection to the PCU shall provide for On/Off control and intensity selection via remote control per FAA or ICAO.
- Powered from a continuous 50/60 Hz AC voltage source. Provides On/Off control through current sensing of the runway series circuit during nighttime operations. During daytime, light units are activated at the 100% step via control from the photocell (current sensing input is not used). Nighttime intensity is automatically set to 5% or 20% (field selectable).

Construction Methods

Installing the PAPI LHAs and PCU

The contractor shall furnish and install the LED PAPI system as specified in the proposal and shown in the plans. The LED PAPI shall be mounted {on a concrete base} at the location shown on the plans. The LED PAPI shall be vertically aligned according to the requirements in the plans using the aiming procedures detailed by the manufacturer. The tilt sensor shall be set on all LED PAPI LHAs according to the manufacturer's instructions.

Tests

The completed system shall be fully tested by continuous operation for not less than 24 hours prior to acceptance. The test shall include the functioning of each intensity control in both Remote and Local not less than 10 times at the beginning and end of the 24-hour test. The test shall insure the tilt switch is operational and all units turn off when the signal is opened.

Method of Measurement

The quantity of lights to be paid for under this item shall be for one LED PAPI system, one Installation Kit and one Installation and Installation and Maintenance Manual installed and accepted as a system ready for operation.

Basis For Payment

Payment will be made at the contract unit price for the completed LED PAPI system installed, in place by the Contractor, and accepted by the Engineer. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item.

Payment will be made under:

LED PAPI system, in Place—per each

End of Item

