

APPROACH LIGHTING

PU3L

Precision Approach Path Indicator



Compliance with Standards

ICAO: Annex 14 Volume I Paragraph 5.3.4 for use in CAT I, II and III, Annex 14 Volume II Paragraph 5.3.4

FAA: L-880 and L-881 AC 150/5345-28D

CAP 168: On request

BS 3224

Uses

The PU3L is an equipment to be used as a Visual Precision Approach Path Indicator system units, in PAPI (four units) and APAPI (two units), .

The PAPI system allows the pilot to have the necessary visual information to place the aircraft on the ideal approach slope and can be used by day or night. The system can be used by all aircraft as soon as it is set up since it does not require any airborne instrumentation.

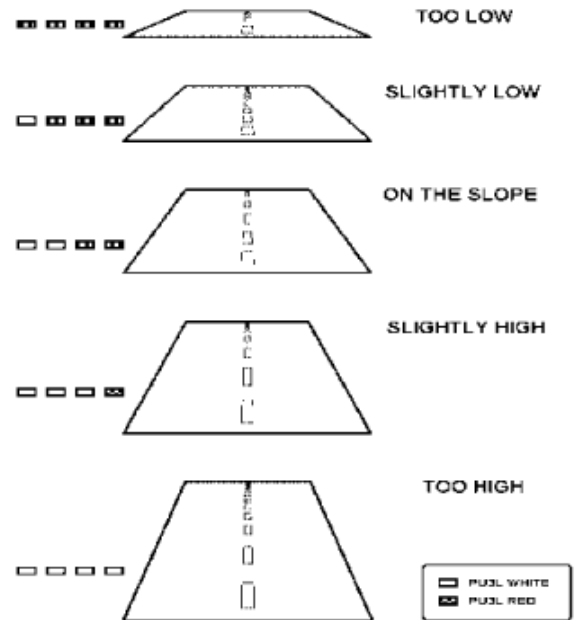
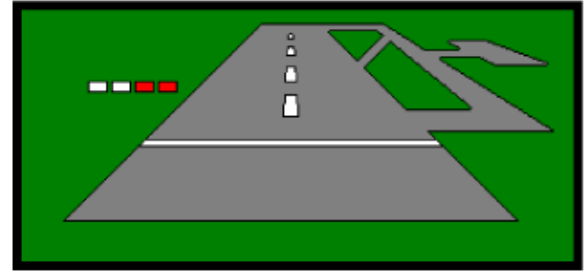
One system normally comprises of four identical indicators, each one producing a white beam above a certain angle and a red one underneath.

Red to white transition is accurate since it does not exceed 3 minutes.

Four indicators, once installed, form one single wing bar on the left side of the runway. They are adjusted according to the different site angles, this angle increasing from the farthest indicator to the nearest one, from the runway. The difference of site angle between two consecutive units is generally 20 minutes.

Two symmetrical wing bars (that means 8 indicators) are recommended when no horizontal indication can be given to pilots.

APAPI system is used as PAPI system but it is composed of one wing bar formed by just two units.

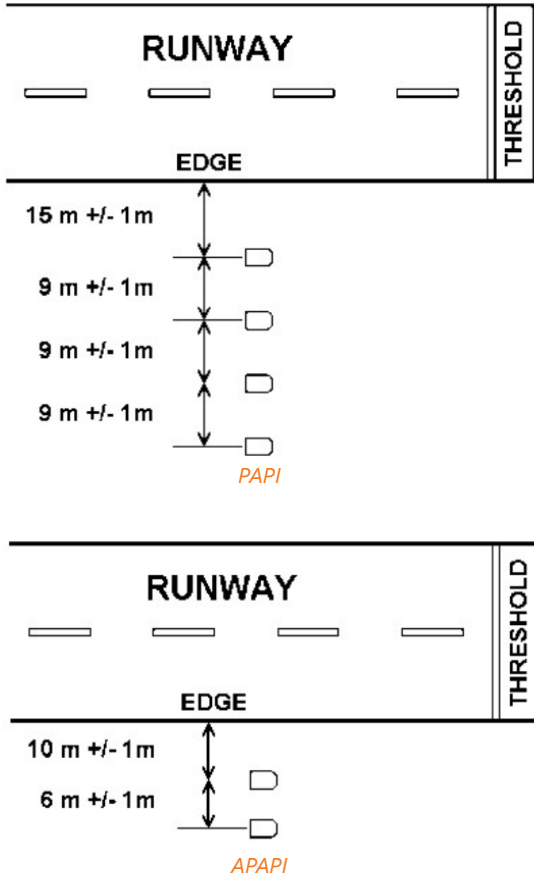


Visual Precision Approach Path Indicator Systems - PAPI or APAPI

APPROACH LIGHTING

PU3L

Location on the field



Features and Benefits

- The PU3L exist in three- and two-lamps versions.
- The unit is mounted in standard on three legs, mounting on four legs is possible.
- Only one lens to one lamp is necessary.
- Clear transition from white to red with value not exceeding 3 minutes.
- Excellent frangibility without sacrifice of any stability.
- Front glass protecting lenses against sand, wind and engine blast.
- Very easy site adjustment by using a clinometer - precision 1 minute.
- Design ensures very good water-tightness, IP54, and protection against corrosion.
- Easy replacement of lamps and front glass, does not require either unit adjustment or any special tools.
- Very easy access to all components by removing the cover.
- Use of dichroic filters with high transmission factor and good thermal resistance.
- The units of a system could be, as an option, fitted with tilt switch sub-assembly devices.
- The units of a system could be, as an option, fitted with heating resistors for use in cold or wet areas.
- Light weight: Less than 15kg.

Packaging

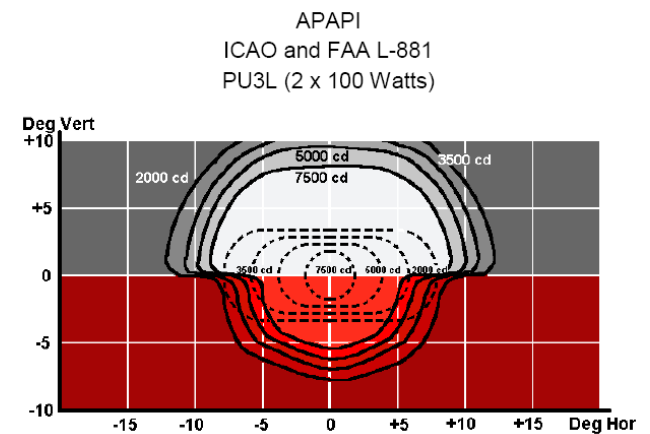
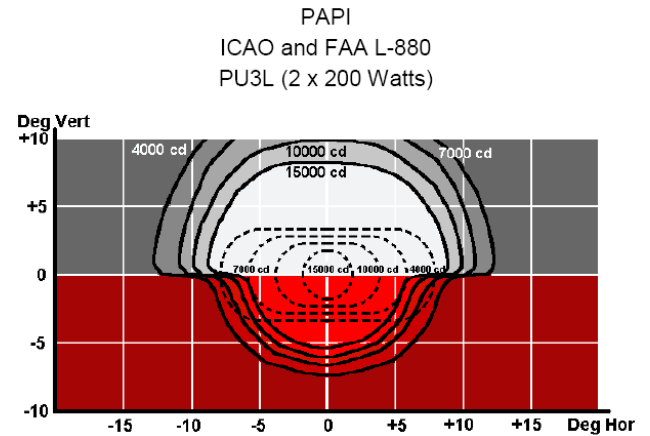
Designation	Volume (m ³)	Dimensions (mm)	Weight (kg)
PU3L box alone	0.144	580 × 225 × 800	17
Pk30d lamp (× 100)	0.115	1000 × 500 × 230	1.8
Set of three complete legs	0.025	560 × 180 × 250	7.5
Frangible coupling	0.002	115 × 115 × 100	0.8
Tripod stand (× 8)	0.053	220 × 220 × 170	3.1
Sealing rods (× 100)	0.005	205 × 205 × 170	8.5
Heating resistor kit			
Tilt switch device			
Setting tools suitcase	0.001	355 × 300 × 90	2

Technical Data

Component	Description
Lamp:	Two or three, 6.6 Amps (200W or 150W for PAPI or 100W for APAPI) pre-focused halogen lamps with Pk30d sockets. Lamp life greater than 1.000 hours at 6.6 Amps.
Colored filter:	Red dichroic filter complying with Appendix 2 of ICAO Annex 14 recommendations.
Photometry:	Each unit are compliant with ICAO requirements and supplies a luminous intensity exceeding 15,000 cd in red from -2° to +2° horizontal wide beam and from -2° to +2° vertical wide beam.
Visual range:	More than 11 km by day and 30 km by night (meteorological visibility 14 km).
Safety:	The unit is mounted on three (or four) frangible legs.
Working temperature:	Between -35° and +55°C the units could be fitted with heating resistors, with independent power supply, for use in very cold or wet areas.
Electrical supply:	Two or three, two-pole secondary cables (one/lamp) must be mounted and connected to the unit.
Tilt switch:	To comply with FAA 150/5345-28D L880 and L-881, the units of the system must be equipped with tilt-switch sub-assembly devices (one unit is the Master and the three others are the Slaves). This tilt-switch option allows the system to power-off when one of the four units is miss-aligned (for safety reasons).
Finish:	The cover and the legs are made of phosphated aluminum alloy painted in aviation yellow by an electrostatic process, powder coating. The base plate is made of anodized tempered aluminum alloy casting. All fixings and fastenings are stainless steel.

Photometric Data

This section includes photometric examples of different light configurations.



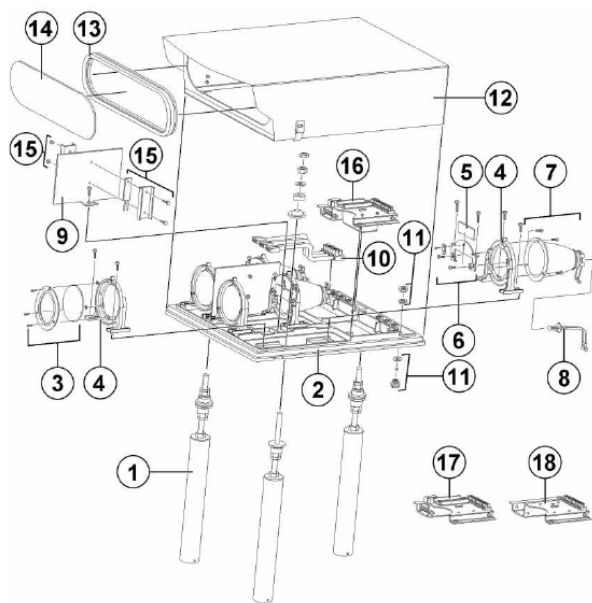
APPROACH LIGHTING

PU3L

Construction

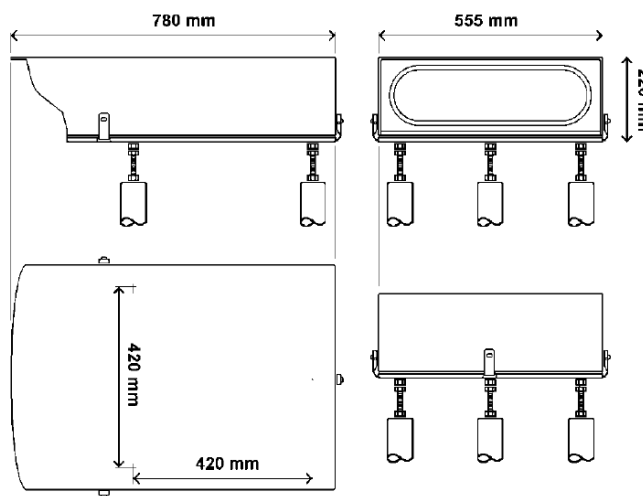
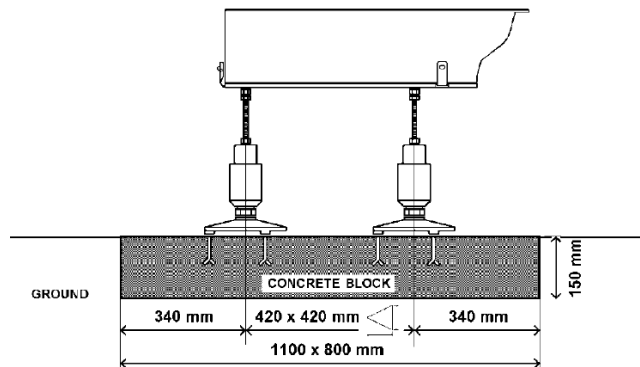
Table 1: Components PU3L

1	PU3L complete leg (x3 or x4)
2	PU3L base plate
3	Lens and fixation accessories
4	Lens/ reflector support and fixing screws
5	Dichroic red filter
6	Filter support and fixing screws
7	Aluminum reflector and fixing screws
8	Pk30d type halogen lamp
9	Separating screen
10	Primary circuits connection terminal
11	Compression packer for cables entry
12	PU3L cover
13	Protection front glass gasket
14	Protection front glass
Options	
15	Heating resistor
16	Tilt switch master device
17	Tilt switch slave device
18	Heating resistor terminal plate



PU3L

Installation

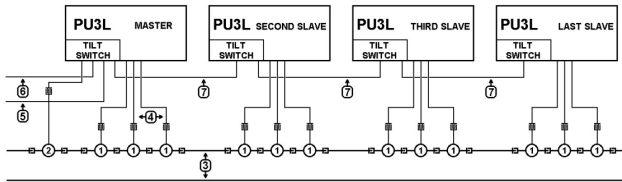


Sizes

Connection of Optional Tilt Switch

A PAPI system complying with FAA AC 150/5345-28D L-880 and L-881 can be supplied. In this case all the units of the system have to be equipped with optional tilt switch sub-assembly devices which de-energize all the lamps of the system when the optical pattern of at least "one" unit is inadvertently lowered between $\frac{1}{4}$ and $\frac{1}{2}$ degree or raised between $\frac{1}{2}$ and 1 degree with respect to the pre-set aiming angle.

A complete PAPI tilt switch system is composed of one PU3L *master* and three PU3L *slaves*. The supply of tilt switch devices requires one supplementary isolating transformer connected to the master PU3L.



Wiring overview

1. Isolating transformer for the lamps
2. Isolating transformer for the supply of the Master tilt switch devices
3. Primary cable
4. Secondary cable
5. Heating resistors supply 230 Vac (option)
6. Alarm feedback cable (option) Primary Cable
7. Cable for mercury contacts loop
 - a. relays supply (+12 Vdc)
 - b. heating resistors supply (option)

Connection of Optional Heating Resistor

In order to operate in very low temperature or in high humidity conditions without loss of performance, the PU3L unit can be equipped with additional heating resistor.

As the heating effect must be efficient even if PAPI system is switched off, the resistor has to be connected to an independent power supply (120 to 230 Vac 50/60 Hz).

Ordering Codes

Component	Description	Order code
PU3L Box (alone)		
ICAO Standard		
2 lamps	PU3L+IC+2L	SGEPU3L.12888
3 lamps	PU3L+IC+3L	SGEPU3L.12889
British Standard		
2 lamps	PU3L+BS+2L	On request
3 lamps	PU3L+BS+3L	On request
Accessories		
Lamps (2 or 3 per PU3L):		
100W PK30d lamp	Pk30d/100W	IDM11988
150W PK30d lamp	Pk30d/150W	IDM11989
200W PK30d lamp	Pk30d/200W	IDM11990
Mounting accessories		
Set of three complete legs (tube diameter 60 mm length = 400 mm + threaded rods)	PU3L_TRIP/LEG+H400mm	SGEPU3L.12887
2" NPS frangible coupling (3 per PU3L)	EL/2"NPS/COUPLING	SGE.SP10148
2" BSP frangible coupling (3 per PU3L)	EL/2"BSP/COUPLING	SGE.SP12533
2" NPS tripod stand (3 per PU3L)	EL/2"NPS/TRIPODE_STAND	SGE.SP12532
2" BSP tripod stand (3 per PU3L)	EL/2"BSP/ TRIPODE _STAND	SGE.SP12534
Optional accessories		
Heating resistor (1 kit per PU3L):		
Heating resistor kit		SGE.SP12945
Tilt switch device (1 per PU3L):		
Master tilt switch device (1per PAPI)	PU3L/TILT/SWITCH/MASTER	SGE.SP24841
Slave tilt switch device (3 per PAPI)	PU3L/TILT/SWITCH/SLAVE	SGE.SP24842
Setting tools		
Setting tools suitcase	PU3L/CLINOMETER/SET	SG12490

APPROACH LIGHTING

PU3L

Note: All descriptions and photometric characteristics in this publication present only general particulars and shall not form part of any contract. The right is reserved to change them without prior notification.