Approach

EL 210

PAPI – Precision Approach Path Indicator

EL 218-PAPI
PAPI with two Projectors

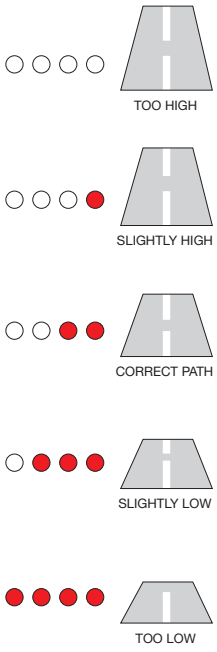
EL 219-PAPI
PAPI with three Projectors

General

The PAPI (Precision Approach Path Indicator) system is a simple and efficient, positive visual aid to the pilot on final approach. The PAPI system consists of a line of four units at 90° to the runway centreline which are typically spaced at 9 metres apart. Units are identical, producing a beam of light of which the upper portion is white and the lower red. A pilot sees the four individual lights in a combination of red and white depending on his vertical position. Typically the elevation settings of each unit vary by 20 minutes of arc, the nominal 3° glideslope angles being midway between the centre pair. The system is easily set for other glideslope angles. Using a PAPI system it is possible to follow the glideslope to less than 300 metres from touchdown (approximately 15 metres height).

An ERNI PAPI may have either two or three projectors. The two projector PAPI meets both ICAO and FAA performance specifications. The three projector PAPI is used to comply with specific local regulations and military applications. The three projector PAPI maintains its performance exceeding international specifications even if one lamp fails.

PAPI System Visual Indications



The Modular Concept

The ERNI PAPI with its modular design is unique. Interchangeable pre-aligned projectors can be easily fitted onto a variety of bases for both fixed and portable applications.

- **Proven Design**
Over ten thousand projectors installed around the world in over thirty countries for both civil and military use.

- **Interchangeable Projectors**
The individual projectors are fully interchangeable which simplifies maintenance and spares management.

- **Field Maintenance**
With no need for realignment, lamps and filters can be replaced and optics cleaned. A defective projector can be quickly replaced with a spare and then serviced in the ideal conditions of the workshop.

- **Stable Reference**
Projectors are mounted on a rigid aluminium casting which has integral clinometer reference pads. This casting is the optical base that is adjusted for cross level and elevation. Subsequent replacement of pre-aligned projectors does not require base readjustment, the unit retaining its correct settings.

- **Compact Size**
Large enough to provide optical precision but small enough to minimise the effect of jet blast. Easy storage and handling.

- **Instant Projector Change**
Quick release fasteners are used. No need for any special tools or realignment.

- **Corrosion Resistance**
All projectors are manufactured from light anodised alloy. All fasteners are stainless steel.

The Projector

Projector design is fundamental to PAPI performance. The projector has been specifically designed for the PAPI and has not been merely adapted from existing light units.

Parabolic reflector projectors require only a single lens which minimises internal components and realises maximum optical efficiency.

- **High Intensity Output**

Every element in an optical system will absorb some of the light passing through it and reduces effective range and contrast. Therefore, the optical elements have been reduced to a minimum.

- **Positive Signal**

The highest technology double coated dichroic filters which are used transmit 25% compared with only 16% for the normally used mass coloured glass filters. The signal from the PAPI is bright and clear for maximum effective range.

- **Uniform Colour**

With its parallel light beam through the dichroic filter, the PAPI projects clear consistent signal colours to the extreme of azimuth.

- **Sharp Transition**

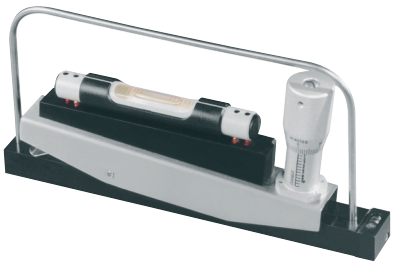
Rapid colour change is achieved with the use of dichroic filters and parabolic reflectors.

- **Azimuth Range**

The units exceed all international standards with effective azimuth ranges to 15 degrees. There is no sudden loss of signal at the beam edges, thus preventing an effect which at best is disconcerting and at worst confusing.

- **No Heater**

Due to the compact size and single lens optical system, rapid demisting can be achieved without the need for heating circuits.



Clinometer

A precision Clinometer has been specifically designed. It has a longitudinal spirit level with a micrometer type screw calibrated in degrees and minutes. Over all accuracy is better than one minute of arc.

The FAA approved Clinometer has a broad temperature operating range (-50°C to +70°C), being constructed in aluminium and stainless steel. No electrical supply required. The Clinometer is supplied in a fitted protective case.

All systems are supplied with an illustrated Installation and Maintenance Manual.

PAPI Technical Data

Optical characteristics comply with ICAO and FAA requirements.

Photometric data on various configurations of projectors and lamps are available on request.

Typical characteristics are:

Azimuth Range ± A10°
(± A15° available)

Vertical adjustment up to 10°

Transition 2 minutes of arc

Filter transmission 25%

Halogen lamp options:

- 200W and 100W PK30d
- 200W and 100W PG16
- 50W 12V lamps available for portable units
- Lamp type must be specified when ordering

Dimensions/Weights

Article	Weight	Packing (cardboard box)
2 Projector Unit (EL 218-PAPI)	10,0 kg	450 x 610 x 170 mm
3 Projector Unit (EL 219-PAPI)	15,0 kg	640 x 670 x 170 mm
Clinometer	1,0 kg	260 x 130 x 355 mm

Accessories

Tool Kit including all tools for installation and maintenance of the PAPI system.

Subject to change

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