



Optical Pick-Up Unit

P/N: 007923

Optical Speed and Phase Measurement

Designed by Aircraft Engineers for Aircraft Engineers

Description

The Helitune Optical Pick-Up Unit may be used to produce a 'one-per-rev' signal from a rotating component for timing and indexing purposes. It has been specifically designed for use on helicopter tail rotors and high speed transmission shafts.

The optical pick-up unit works by transmitting a beam of infrared light onto a target of reflective tape or reflective paint. An electrical pulse is produced each time the target comes into view. The interval between successive pulses may be measured to determine the shaft speed and the edge of the pulse may be used to determine a phase reference.

Features

The system operates at high speeds over large sensing distances and with very high angular resolution. True TTL output is produced over the entire operating range which avoids the triggering problems associated with many other types of sensor.

High noise immunity: The system utilises sophisticated pulse encoding techniques and automatic threshold control to reject interference from sunlight and reflections to produce a signal of high integrity and reliability.

Automatic and dynamic adjustment: There is no need for any adjustment by the operator or installer. Sensitivity is set automatically and changes dynamically in flight to cater for changes in ambient light and reflections.

Reliability and robustness: The rugged and sealed construction is specifically designed for aircraft installation to operate over a wide temperature range.



Pin-outs

- A - +VSUP (+12V)
- B - 0V
- C - +VSUP (+28V)
- D - TTL OUT

Technical Specification

Sensing Speed Range	3 to 50,000 rpm (subject to min. target passing period of 50µs)
Sensing Distance	20 to 1000 mm for reflective tape with 25x25 mm target 75 to 200 mm for reflective paint with 25x25 mm target
Timing resolution	0.25° (<6000 rpm), 7µs (>6000 rpm) @ 120 mm with reflective paint
MTBF	38,000 hours
Operating temperature range	-40°C to +70°C
Indicator	Red in presence of target.
EMC	RTCA/DO-160G

Electrical Specification

Connector	MIL-DTL-26482 (Example mating connector: 62GB-51T08-04S)
Electrical Interface	One TTL compatible output. (Max sink/source current 10mA)
Power supply	+10 to +30V DC, at 100mA max. Reverse polarity protection.
Isolation	10MΩ @ 100V (case to electronics)

Physical Specification

Size (LxWxD)	56 mm (Including stud) x 48 mm (excluding mating connector) x 25 mm
Weight	83 grams, including 2 locking nuts
Fixing	16 mm long stud concentric with the sensing elements with 5/8 UNF thread
Sealing	DIN 40 050 IP65
Helitune Part Number	007923



Helitune's Quality Management System is certified to BS EN ISO9001:2008 and AS9100

This document is not contractual. Helitune maintain a policy of continuous product development and improvement. This specification may change without notice.

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Helitune UK
Hatchmoor Industrial Estate, Torrington
Devon EX38 7HP, UK

Phone +44(0)1805 624650, Fax +44(0)1805 624 689
Registered in England & Wales, No. 3979088
VAT Reg. No. 762 442 630

Helitune Germany
Lilienthalstraße 2a
82205 Gilching, Germany

Helitune USA
190 Gordon Street
Elk Grove Village, IL 60007-1120, USA

Helitune Italy
Via Ferrarese, 3
40128 Bologna, Italy

www.helitune.com