

**Honeywell**

# **KRA 405B RADAR ALTIMETER**

Dependable, accurate altitude.



# The KRA 405B Radar Altimeter.

The KRA-405B radar altimeter (RADALT) is a lightweight, solid-state, airborne altimeter that provides accurate altitude measurements above terrain during various portions of flight. With more than 10,000 produced and sold to date and more than four million service hours, the KRA-405B RADALT has proven to be one of the most reliable and industry proven radar altimeters available.

The KRA 405B Radar Altimeter systems includes the KRA45B Receiver/Transmitter, a KNI 415 (fixed wing) or KNI 416 (helicopter) Radar Altimeter Indicator, two KA 54A antennas, and an optional CM 2000 Configuration Module. (This module is only needed for installations where trip points will be set to values other than the factory settings, or for installations requiring a zero feet offset.)

The KRA 405B System provides the pilot with dependable, accurate altitude Above Ground Level (AGL) information during approach, and outputs this information as analog voltages, and ARINC 429 digital format, which makes it ideal for both retrofit and new installations.

Additional output capability allows the KRA 405B to interface with more components (GPWS, TCAS and autopilot enunciators, etc) than ever before.



*The two KA 54A Antennas (one receives and the other transmits) are the "eyes" of the KRA 405B Radar Altimeter.*

*The number of primary circuit boards in the KRA 45B has been reduced from seven to two, helping make the unit easier to troubleshoot and repair, while increasing unit efficiency.*

## Easier to Install

The KRA 405B Receiver / Transmitter can be rigid or shock mounted, and it can be mounted using the same rack as the KRA 405. In addition, the unit can be easily mounted directly onto the airframe, increasing your mounting options, and helping make valuable space available for other avionics equipment. And, because the KRA 405B is much easier to install, it can reduced your installation costs.

But, the biggest benefit to installing the KRA 405B is that aircraft downtime is minimized, and that can save you money. During installation, the KRA 405B can be calibrated to zero feed radar altitude when the aircraft is on the ground. The KRA 405B can also be set to accommodate installations for which the operator prefers the indicator to read zero feet when the wheels first touch down.





**Key Benefits:**

- Frequency: 4.2 GHz to 4.4 GHz
- Operating range: 0 to +2500 feet
- Accuracy: ± 3 ft or ±3%, < 500ft. ±5%, >500ft.
- Analog and digital outputs
- Temperature range: -55°C to 70°C (operating), -55°C to 85°C (non-operating)
- Size: 3"x3.5"x11
- TSO C87/ETSO-2C87 (1997) airborne low-range radio altimeter
- DO-160B (environmental conditions and test procedures for airborne equipment)
- DO-155 (minimum performance specification - airborne low-range altimeters)
- DO-178B Level A (software considerations in airborne systems and equipment certification)

**Reduced Form Factor**

The width and length of the KRA 450B are the same as the KRA 405. However, the height of the unit has been reduced by 1 3/4". This new size provides you with additional mounting options.

**More Reliable Than Ever**

The reliability of the KRA 405 has been documented for over a quarter of a century. But the KRA 405B takes this proven reliability to a new level by reducing the number of primary circuit boards from seven to two, reducing overall weight of the receiver / transmitter by 50%, increasing the power of the KRA 405B, and by designing the unit into a sturdy, one-piece chassis. Add our updated software and you are sure to see why the KRA 405B makes an excellent candidate for everything from Level 1 landings to search and rescue operations.

The KNI 415 gives accurate altitude indications from -20 to +2000 feet, which the KNI 416 gives accurate altitude indications from -10 to +2000 feet. A Self-Test Button is used to test the Radar Altimeter R/T and indicator. And the DH Lamp lights when the Decision Height is reached.

Note that the lamp can be turned off by pushing the lamp in, and can be turned on, when below the Decision Height, by depressing the lamp a second time. Once turned off the DH Lamp will be automatically armed upon climb out as the aircraft passes through the DH altitude. Pressing the Self-Test Button will also turn the DH Lamp on if the DH bug is set above 50 feet.

**The KRA 405B System provides the pilot with dependable, accurate altitude Above Ground Level (AGL) information during approach, and outputs this information as analog voltages, and ARINC 429 digital format**



The KNI 416 Altitude Scale (helicopter presentation) gives accurate indication from -10 to +2000 feet.



The KRA 405B is only 3.00 in by 3.50 in, allowing you greater installation flexibility.

SPECIFICATIONS	
<b>TSO COMPLIANCE</b>	C8
<b>SYSTEM WEIGHT</b>	
KRA 405B (INCLUDES RACK)	3.0lbs (1.36kg)
KNI 415/KNI 416	1.7lbs (0.77kg)
KA 54A (2 REQUIRED)	0.2lbs (0.09kgs) each
<b>DIMENSIONS</b>	
<b>KRA 405B (INCLUDES RACK)</b>	
LENGTH	11.00 in. (27.95cm)
WIDTH	3.00 in. (7.62cm)
HEIGHT	3.50 in. (8.89cm)
<b>KNI 415/KNI 416</b>	
LENGTH	6.69 in. (16.98cm max.)
WIDTH	3.26 in. (8.28cm)
HEIGHT	3.26 in. (8.28cm)
<b>KA 54A</b>	
LENGTH	3.65 in. (9.3cm)
WIDTH	3.50 in. (8.9cm)
HEIGHT	0.73 in. (1.85cm)
<b>OPERATING TEMPERATURE</b>	
KRA 405B R/T	-55°C to +70°C
KNI 415/KNI 416	-20°C to +71°C
KA 54A	-54°C to +85°C
<b>OPERATING ALTITUDE</b>	
KRA 405B R/T	55,000 feet (16,764m)
KNI 415/KNI 416	55,000 feet (16,764m)
KA 54A	60,000 feet (18,281m)

SPECIFICATIONS	
<b>ALTITUDE ACCURACY</b>	
SYSTEM	± 5ft (1.5m) or +/- 5% (whichever is greater) at 0 to 500 feet and ± 7% at 500 to 2,500 feet
KRA 405B R/T	3ft (0.91m) or ± 4% (whichever is greater) at 0 to 500 feet and ± 5% at 500 to 2,500 feet
KNI 415/KNI 416	±4ft (1.22m) or ± 4% (whichever is greater) at 0 to 500 feet and ± 5% at 500 to 2,500 feet
<b>POWER REQUIREMENTS</b>	
PRIMARY POWER	27.5V dc ± 20% at 850 V dc mA nominal
PANEL LAMPS	
28 volt units:	28 V dc ± 10% at 120 mA
5 volt units:	+5 V dc ± 10% or 5 V ac ± 10% at 575 mA
<b>TRANSMITTER OUTPUT</b>	
POWER	60mW nominal, FMCW
CENTRE FREQUENCY	4300 ± 15 Mhz
MODULATION FREQUENCY	
Primary R/T:	100 Hz nominal
Secondary R/T:	105 Hz nominal (dual installation)
<b>WARNING SYSTEM</b>	
FCS WARN	
Normal Operation:	±18 to 32V dc at less than 250 mA
Warn Condition:	Less than 10µA
ALTIMETER VALID	
Normal Operation:	±18 to 32V dc at less than 250 mA
Warn Condition:	Less than 10µA
RAD-ALT VALID	
Normal Operation:	±18 to 32V dc at less than 250 mA
Warn Condition:	Less than 10µA
<b>ALTITUDE TRIPS</b>	
Tripped (Locked R/T):	+0.5 V dc maximum at less than 250 mA
Untripped (Unlocked R/T):	10 A maximum at less than 30 V dc