# KRA 405B RADAR ALTIMETER

Dependable, accurate altitude

Honeywell

# 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.**

## INDUSTRY-PROVEN

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, even in the modern 5G environment.

The KRA 450B Radar Altimeter systems include the KRA45B Receiver/ Transmitter, and optional KNI 415 (fixed wing) or KNI 416 (helicopter) Radar Altimeter Indicators, 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.)

## 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 reduce 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.


*The number of primary circuit boards in the KRA 405B has been reduced from seven to two, helping make the unit easier to trouble-shoot and repair, while increasing unit efficiency.*


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

### 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)
- Ready-now path to Alternative Means of Compliance (AMOC) to FAA's 5G Interference Airworthiness Directives 2021-23-12 (fixed-wing) and 2021-23-13 (helicopters)


*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.*

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.

## 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 the 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.

## PERFORMANCE WITHIN 5G CELLULAR ENVIRONMENT

In collaboration with the FAA and RTCA, Honeywell has performed radio frequency testing on the KRA-405B radar altimeter to assess its ability to meet its minimum operating performance specifications when subjected to radio frequency energy from 5G cellular base stations. The KRA-405B requires the installation of an external bandpass filter between the radar altimeter receive antenna and the radar altimeter receive input. The external bandpass filter reduces the unit's susceptibility to interference from 5G base stations.

Aircraft using the KRA-405B radar altimeter with the external bandpass filter are able to obtain Alternative Means of Compliance (AMOC) to the FAA Airworthiness Directives 2021-23-12 (fixed-wing) and 2021-23-13 (helicopters) that were introduced by FAA in December 2021. The bandpass filter is part number 68013467-001 and is available from Honeywell today.

Contact your Honeywell sales manager or approved Dealer for bandpass filter pricing and availability.

| SPECIFICATIONS | |
|---|---|
| TSO Compliance | C8 |
| **SYSTEM WEIGHT** | |
| 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 |
| **DIMENSIONS** | |
| **KRA 405B (includes rack)** | |
| Length | 11.00 in. (27.95cm) |
| Width | 3.00 in. (7.62cm) |
| Height | 3.50 in. (8.89cm) |
| **KNI 415/KNI 416** | |
| Length | 6.69 in. (16.98cm max.) |
| Width | 3.26 in. (8.28cm) |
| Height | 3.26 in. (8.28cm) |
| **KA 54A** | |
| Length | 3.65 in. (9.3cm) |
| Width | 3.50 in. (8.9cm) |
| Height | 0.73 in. (1.85cm) |
| **OPERATING TEMPERATURE** | |
| 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 |
| **OPERATING ALTITUDE** | |
| 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 | |
|---|---|
| **ALTITUDE ACCURACY** | |
| System | ± 5ft (1.5m) or +/- 5% (whichever is greater)<br>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)<br>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)<br>at 0 to 500 feet and ± 5% at 500 to 2,500 feet |
| **POWER REQUIREMENTS** | |
| Primary power | 27.5V dc ± 20% at 850 V dc mA nominal |
| Panel Lamps<br>28 volt units:<br>5 volt units: | <br>28 V dc ± 10% at 120 mA<br>+5 V dc ± 10% or 5 V ac ± 10% at 575 mA |
| **TRANSMITTER OUTPUT** | |
| power | 60mW nominal, FMCW |
| Centre Frequency | 4300 ± 15 Mhz |
| Modulation Frequency<br>Primary R/T:<br>Secondary R/T: | <br>100 Hz nominal<br>105 Hz nominal (dual installation) |
| **WARNING SYSTEM** | |
| FCS Warn<br>Normal Operation:<br>Warn Condition: | <br>±18 to 32V dc at less than 250 mA<br>Less than 10˚A |
| Altimeter Valid<br>Normal Operation:<br>Warn Condition: | <br>±18 to 32V dc at less than 250 mA<br>Less than 10˚A |
| RAD-ALT VALID<br>Normal Operation:<br>Warn Condition: | <br>±18 to 32V dc at less than 250 mA<br>Less than 10˚A |
| **ALTITUDE TRIPS** | |
| Tripped (Locked R/T):<br>Untripped (Unlocked R/T) : | +0.5 V dc maximum at less than 250 mA<br>10 A maximum at less than 30 V dc |

**Honeywell Aerospace**
1944 East Sky Harbor Circle
Phoenix, Arizona 85034
aerospace.honeywell.com

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