Southeast Aerospace

Honeywell RDR-7000 Weather Radar Comm Helo Program

Honeywell Aerospace

RDR-7000
Equipment and Technology

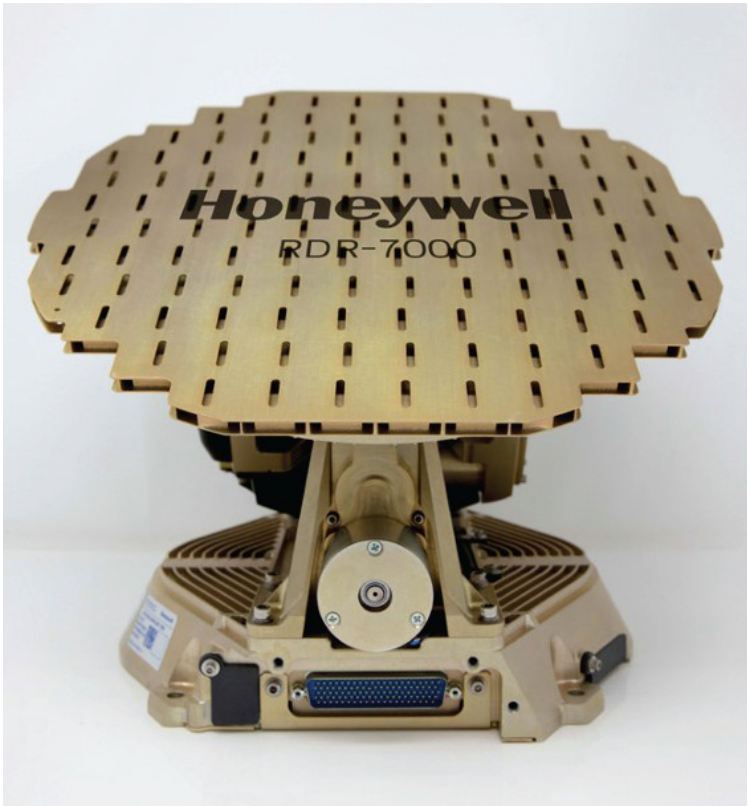
Equipment Description

System Components:

ART-7000 Antenna Receiver Transmitter: Primary unit located in the radome; transmits, receives, and processes radar data while managing system modes, built-in testing, and display formatting.

Flat Plate Antenna (FP-7000): Available in 12-inch and 18-inch configurations, supporting varying detection ranges.

Control Panels & Displays: Compatible with multiple controllers and display systems. The RDR 7000 can show two different radar display views simultaneously. Each side can be operated independently, allowing for enhanced situational awareness.



Operating Configuration

Real-Beam Only Mode

The "Real-Beam Weather" configuration is a near direct drop-in replacement for the Honeywell Primus® 880/660/440 (Primus® 864) radars. It involves traditional radar operation without terrain database or advanced processing. Requires manual tilt control, similar to legacy Primus® systems, but includes optional auto-tilt and ground mapping with target detection. Real-Beam modes are traditional radar modes where the tilt knob controls the antenna position. It does not work with the P660 WX Controller. That unit would need to be replaced with a P880 series WX Controller. There are no software enhancement features in Real-Beam mode.

Compatibility & Integration

Compatible mounting and interfaces minimize modification requirements. Available installation kits were designed to permit near plug and play capability for legacy Honeywell Primus® Weather Radars. The bolt patterns mirror the P660. The RDR-7000 installation is also simplified by eliminating the waveguide.

Specs and Performance

Certification Level: TSO-C63f Equipment Classes A, B, C, D

Transmitter/Receiver Type: Solid State Gallium Nitride (GaN) with Pulse Compression

Antenna System: 12" Flat Plate

RDR-7000 Specifications	
Weight	13 lbs. (5.9 kg) (Without Antenna)
Input Power	28 VDC
Power Dissipated	70 W (LRU Consumption) 32.4 W transmitted
Environmental	DO-160G (-55°C to +70°C)
Software	RTCA DO-178C

System Specifications	
Max Detection Ranges	190 nm 18 inch/ 120 nm with 12-inch FP - Weather and Ground Map 60 nm Turbulence
Azimuth Coverage	+/- 60 degs - Weather and Ground Map
Elevation Coverage	0 to 60,000 feet

Unique Technologies

Core Capabilities

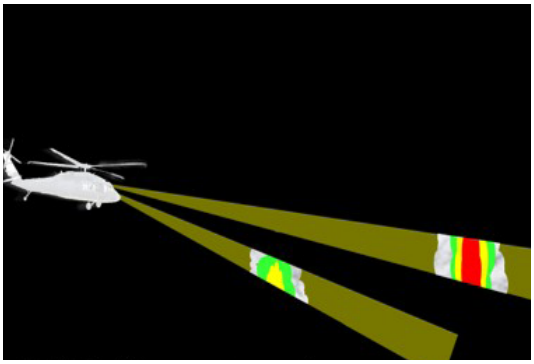
Ground Clutter Elimination
Uses an internal terrain database to remove ground returns, ensuring only weather is displayed without loss of real weather data.

Pulse Compression
Enables simultaneous long-range detection and high-resolution imaging.

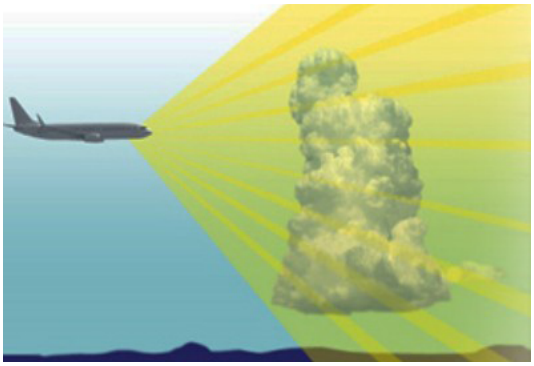
3D Volumetric Buffer
Stores weather data in three dimensions, allowing accurate display relative to the aircraft's flight path.

Advanced Antenna
Direct-drive system improves reliability, reduces noise, and increases scan speed and precision.

Other Radars:



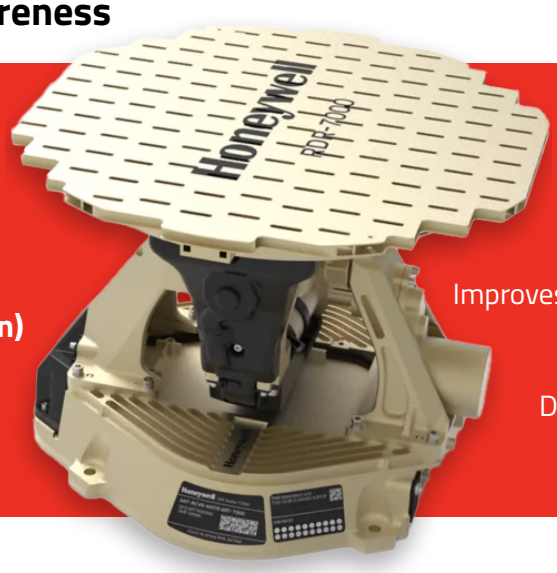
IntuVue™ RDR-7000:



Hazard Detection and Awareness

Predictive Hail & Lightning
Indicates potential convective hazards using storm structure and temperature data.

REACT (Attenuation Compensation)
Highlights areas where heavy precipitation may obscure stronger weather.



Automatic Threat Analysis
Identifies weather hazards based on projected flight path.

Sea Clutter Reduction (SCR)
Improves clarity in maritime environments.

Turbulence Detection
Detects turbulence up to 40–60 nm ahead, including in low moisture environments.

Operational Modes

AUTO Mode
Fully automated display of weather, turbulence, and wind shear.

MAN Mode
Altitude-based weather analysis from 0 to 60,000 ft.

Ground Mapping (GMAP)
Buffered terrain mapping for navigation and situational awareness.

GMAP 1: *Long-range terrain mapping with no tilt adjustment and reduced weather interference.*

GMAP 2 (Maritime Mode): *Detects vessels and offshore structures with target tracking, sector scan, and clutter reduction.*