

**Honeywell**

# **PRIMUS<sup>®</sup> 440, 660 & 880 WEATHER RADARS**

Reliable Weather Avoidance Radar



# Commercial Aviation's Most Powerful Integrated RTA Weather Radar with Turbulence Detection.

Operators want quality radar performance, improved reliability and advanced features – they also want a light integrated receiver/transmitter/antenna (RTA) architecture that's easy to install. Honeywell's Primus® 440/660/880 family of radars meet these requirements and are by far the most powerful, feature-packed weather radars on the market.

## The Primus 440, 660 and 880 all offer: Performance and Reliability

The Primus 440, 660 and 880 are designed using all of Honeywell's weather radar expertise to provide the ultimate in both performance and reliability. The Primus 440, 660 and 880 excel in all three weather radar performance categories. Transmitter power: 10 kilowatts of power allows for unsurpassed range in class.

*Pulse width: Primus 440, 660 and 880's narrow pulse width provides better resolution of the reflected signal which makes it easier to distinguish ground from weather.*

*Receiver sensitivity: Primus 440, 660 and 880's high receiver sensitivity allows the radar to detect extremely weak signals from distant storms.*

**Honeywell, the world's leader in avionics continues to set the standard in weather radar systems with the Primus® 440, 660 and 880 family of radars.**

## Primus 440, 660 & 880 vs. Its Hostile Environment

A radar system is installed in one of the most hostile environments on an aircraft—the nose. Water in the radome can cause weather radar problems. Primus 440, 660 & 880 has been designed to work in the worst of all environments, even a direct shower.

## Installation

Since the Primus 440, 660 & 880 are RTA-style radar, installation is straight-forward. The system requires only a display and a control panel to complete the package.

## Weather Detection

Rainfall intensity levels are displayed in four brilliant colors contrasted against a black background. The result is a crisp display that makes any target readable under any cockpit lighting conditions. Magenta represents areas of severe rainfall, red shows heavy rainfall, yellow represents medium rainfall and green indicates light rain. To help in analyzing the storm, Honeywell's Primus 440, 660 and 880 informs pilots of the operating mode, distance to each range mark and antenna tilt angle.

## Displays

Primus 440, 660 and 880 naturally integrate with EFIS as well as a number of stand-alone radar displays and multifunction displays.



## REACT

Honeywell's exclusive Rain Echo Attenuation Compensation Technique (REACT) safety feature alerts pilots to areas where storms may be hidden behind other storms. REACT performs three distinct functions. First, it maintains target calibration by compensating for attenuation caused by intervening rainfall. Second, REACT advises pilots of areas where target calibration cannot be maintained by changing the screen background to blue, warning that attenuation may be hiding areas of severe weather. Third, any target displayed in the blue field will appear in magenta to alert the pilot to its probable severity.

## BITE

Built-In Test Equipment (BITE) features complete RF loop-back which continuously tests the transmitter power and receiver sensitivity and reports any faults to the pilot. BITE also monitors the time of operation in every mode, the time at incremental altitudes and the time at incremental temperature to help service technicians identify any faults.

## LIGHTNING SENSOR SYSTEM

Honeywell's optional LSZ-860 Lightning Sensor System (LSS) protects aircraft from the inherent hazards of lightning. The overlay of lightning information onto the precipitation/turbulence display of the Primus 440/660/880 provides the safest and most powerful severe weather avoidance tool available today.

## THE PRIMUS 660 AND 880 ADDITIONAL FEATURES INCLUDE: Target Alert

Target Alert (TGT) notifies the pilot of potentially hazardous targets directly in front of the aircraft that are not yet within the selected range. When "T" is displayed in green, Target Alert is armed. When the yellow "TGT" is displayed (left), the pilot is warned of a red level target directly in front of the aircraft (within  $\pm 7.5^\circ$  of the aircraft's nose).

## Dual Mode

Dual Mode With two controllers, Primus 660 and 880 can be operated like two separate radars. The pilot's controller settings are used for one sweep, then the co-pilot's are used for the subsequent sweep.

## Sector Scan

In normal mode, Primus 660 and 880 scans once every four seconds. In Sector Scan (SECT) mode, the scan rate increases to two seconds when faster updates are needed due to storm activity directly ahead on short range.

## THE PRIMUS 880 ADDITIONAL FEATURES INCLUDE:

### Ground Mapping

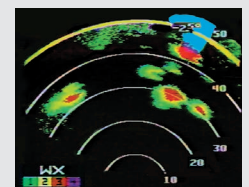
Ground mapping (GMAP) is a navigation aid, and the Primus 880 has a mode specifically for depicting terrain features.

### Turbulence Detection

Turbulence exposes pilots, passengers and aircraft to unnecessary risk that may be present in any level of precipitation – even those with weak radar returns that may appear safe to fly through. The Primus 880 radar uses advanced Doppler "pulse pair processing" techniques to detect spectrum spreading caused by turbulence within any storm cell – regardless of rainfall rates. Once detected, the turbulent areas are displayed in white on all ranges up to 50 nautical miles. This allows pilots to safely maneuver around uncomfortable, possibly hazardous weather.

### Altitude Compensated Tilt (ACT)

ACT allows easier detection of weather that may affect the aircraft in an en route condition and reduces the amount of tilt management required by the pilot. When ACT is selected, the Primus 880 reads the altitude and selected range, then points the antenna at the ground just inside the selected range. ACT automatically adjusts the tilt with any change in altitude. ACT also changes the tilt control from the normal  $\pm 15^\circ$  to  $\pm 2^\circ$  for finer control.



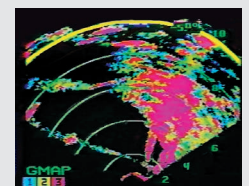
REACT



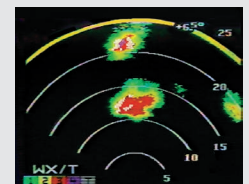
Target Alert



Sector Scan



Ground Mapping



Turbulence Detection

*Primus 440, 660 and 880's narrow pulse width provides better resolution of the reflected signal which makes it easier to distinguish ground from weather.*

## Feature Comparison:

FEATURE	P-880	P-660	P-440
TRANSMITTER POWER	10,000 W	10,000 W	10,000 W
PULSE WIDTH	1 or 2 usec	1 or 2 usec	1 or 2 usec
RECEIVER SENSITIVITY	-118 dBm	-118 dBm	-118 dBm
REACT	Yes	Yes	Yes
ADVANCED BITE	Yes	Yes	Yes
TURBULENCE DETECTION	Yes	No	No
ALTITUDE COMPENSATED TILT (ACT)	Yes	No	No
AVAILABLE ANTENNA SIZE	10",12",15",18",24"	10",12",15",18"	10",12"
MAXIMUM SCAN ANGLE	120°	120°	120°
STABILIZED ANTENNA	Yes	Yes	Yes
TARGET ALERT	Yes	Yes	No
REDUCED SECTOR SCAN	Yes	Yes	No
MAX DISPLAY RNG (WXPD MODE ONLY)	300 NM	300 NM	200 NM
MAX DISPLAY RNG (ARINC 453 MODE ONLY)	320 NM	320 NM	240 NM
GROUND MAP MODE	Yes	Yes	No
DUAL CONTROL	Yes	Yes	No
VOLTAGE	28VDC	28VDC	28VDC

*Primus 440, 660 and 880's high receiver sensitivity allows the radar to detect extremely weak signals from distant storms.*

## Supporting the System

Honeywell's avionics are based on proven technology to provide you with exceptionally high reliability and simplified maintenance.

Our award-winning product support services include regularly scheduled training classes offered worldwide for both flight crews and maintenance personnel. When service is needed, a global dealer network is the front line for the Primus 880. Honeywell's Customer and Product Support organization is committed to keeping your weather radar operating day and night, around the world.

### Find Out More

For additional information, please visit  
[aerospace.honeywell.com](http://aerospace.honeywell.com)

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N61-1682-000-000 | 12/16  
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