



PROTECTING PEOPLE AND ASSETS™



RANGER™

X1 & X5 Models

Affordable 100W or 500W dual-polarity X-Band
Ideal for short and medium range applications
Compact design for permanent or portable installation



eecradar.com

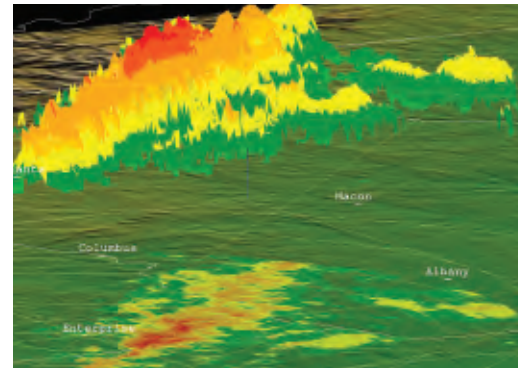
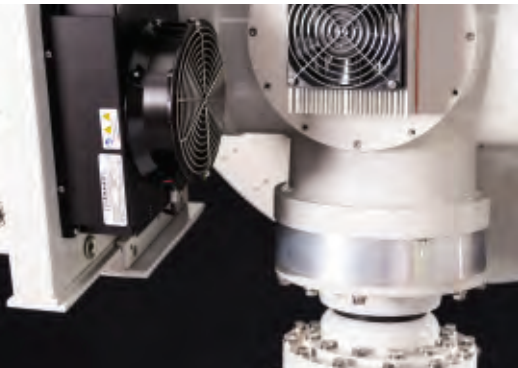


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THE NEW RANGER™ FROM EEC

This is the future of X-Band

The new era of X-Band is here! Everything you want in an X-Band is in EEC's new Ranger weather radar system. Designed in collaboration with the Advanced Radar Research Center at the University of Oklahoma, the Ranger system features dual-polarity accuracy, solid-state transmitters, and low power consumption, all in one affordable and portable unit.



Put the accuracy of dual-polarity to work anywhere

Operating on the shorter X-Band wavelength, EEC's Ranger weather radars have dual-polarity built-in so they can detect even tiny particles such as high altitude water droplets or light snow at short to mid-range distances. The Ranger's compact size means you can install it in a hard-to-reach permanent location or take it almost anywhere, anytime as a truly portable unit. And with a very affordable price, EEC's new Ranger is the ideal solution for everything from small airports to offshore oil platforms to rapid deployment military maneuvers.

Dual-polarization – The future is here today

Over 15 years ago, EEC pioneered dual-polarity radar. Today, all of our Ranger models are equipped with our new, highly advanced dual-polarization system incorporating features that are years ahead of anything else on the market.

Working with world-renowned experts and the University of Oklahoma's Advanced Radar Research Center, we have developed better algorithms and end-to-end dual-polarization measurements. This not only results in more accurate estimates of rainfall, but also provides better discrimination between different types of precipitation and non-meteorological signals, such as birds, insects, dust storms, or even the debris field of an approaching tornado.

We have also developed proprietary technology to significantly improve clutter suppression performance in our popular and dependable solid-state systems. The final result is clearly obvious – EEC dual-polarity systems provide the highest resolution data available in the industry.

THE RANGER X1 & X5: This is what X-Band should be! Developed by EEC in collaboration with the prestigious Advanced Radar Research Center at the University of Oklahoma, the affordable Ranger X1 is a compact system weighing less than 400 lbs/180kg yet featuring a 100 watt dual-polarity, advanced solid-state transmitter and very low power consumption.

Whether you choose the Ranger X1 or Ranger X5 with more radiated power, EEC's turn-key design, manufacturing, and installation processes allow us to configure your system to your exact specifications. Among the many options are a variety of full-featured control and display systems, and precise Doppler processing through our super-sensitive digital receivers. You can even choose permanent or mobile installation options.

RANGER SYSTEM ADVANTAGES

- Algorithms developed and specifically tuned for performance at X-Band
- Advanced technologies in a compact and light-weight design
- Ultra high resolution data for short and medium range weather detection
- Designed for fixed installations or rapid mobile deployment
- Dual transmitter design:
 - Allows for simultaneous or alternating dual-polarization modes
 - High availability
- Low maintenance and Life-cycle costs
 - Simplified design removes complex wave guide and switches
 - Decreased system power consumption
 - Patent-pending revolutionary sealed bearing design
- The most efficient pulse compression techniques available
- Super-high resolution IQ2 16-bit digital signal-processor

| SYSTEM | RANGER X1 | RANGER X5 |
|---------------------------------|--|--|
| Operating Frequency | 9200-9700 | 9200-9700 |
| Pulse Width | 0.4-100.0 usec | 0.4-100.0 usec |
| Pulse Repetition Frequency | 100-2500 PRF | 100-2500 PRF |
| Transmitter Output Power | 100 Watts | 500 Watts |
| Maximum Velocity (unambiguous) | 64 m/s | 64 m/s |
| Sensitivity-reflectivity | 18dBz at 50km | 18dBz at 120km |
| Data Output | UZ (h/v), Z (h/v), V, SW, Zdr, Phv, Φ_{dp} , KDP, LDR | UZ (h/v), Z (h/v), V, SW, Zdr, Phv, Φ_{dp} , KDP, LDR |
| Max. Sustained Wind Performance | 65kts / 120km/hr | 65kts / 120km/hr |
| Max. Wind Gust Performance | 78kts / 144km/hr | 78kts / 144km/hr |
| Max Wind Survival | 130kts / 240km/hr | 130kts / 240km/hr |
| Max Operating Temperature | 60° C (140° F) | 60° C (140° F) |

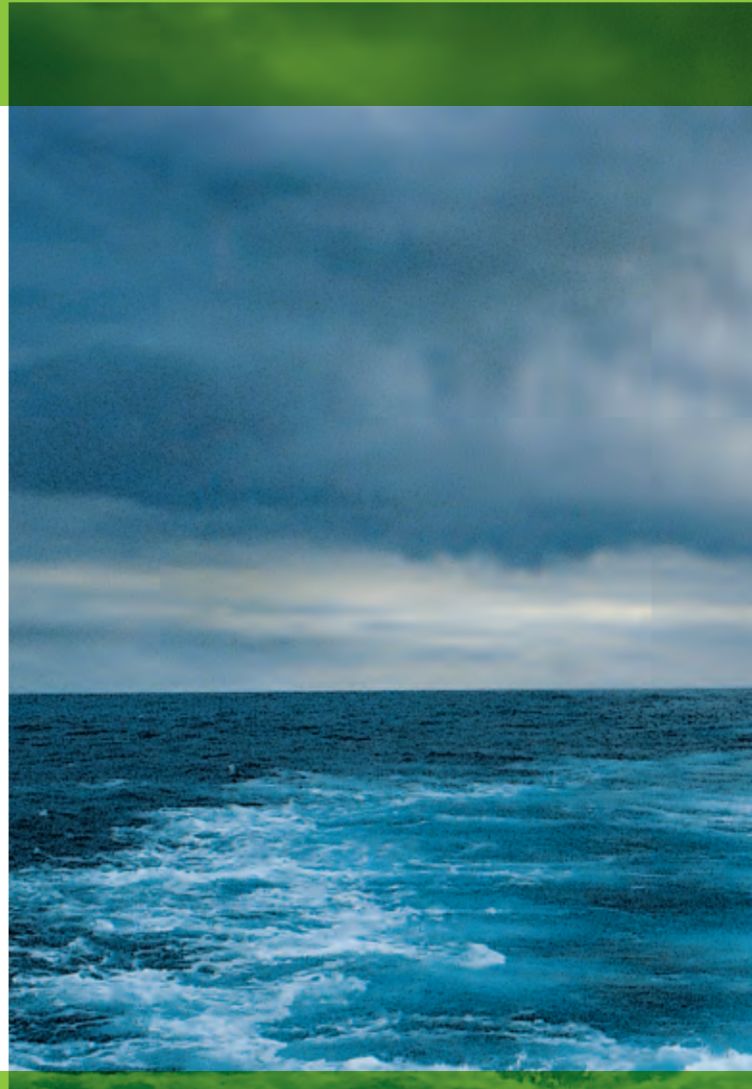
| ANTENNA/PEDESTAL | 1m / 2.44m | | 1m / 2.44m | |
|---|--|--|--|--|
| Type | Parabolic, Prime Focus Reflector | Parabolic, Prime Focus Reflector | Parabolic, Prime Focus Reflector | Parabolic, Prime Focus Reflector |
| Gain-Minimum | ≥ 37.3 dB | ≥ 45.0 dB | ≥ 37.3 dB | ≥ 45.0 dB |
| Half Power Beam Width (typical) | $\leq 2.3^\circ$ | $\leq 0.95^\circ$ | $\leq 2.3^\circ$ | $\leq 0.95^\circ$ |
| Polarization | Dual Polarization Orthogonal Feed (Simultaneous H + V) | Dual Polarization Orthogonal Feed (Simultaneous H + V) | Dual Polarization Orthogonal Feed (Simultaneous H + V) | Dual Polarization Orthogonal Feed (Simultaneous H + V) |
| Transportability | supports land, sea, and air deployment environments | | supports land, sea, and air deployment environments | |
| Mounting Configurations | guyed pole, tower, vehicle, skid, trailer or conventional fixed installation | | guyed pole, tower, vehicle, skid, trailer or conventional fixed installation | |
| Max Az & El Torque | 350 ft-lbs (477 Nm) | | 350 ft-lbs (477 Nm) | |
| Continuous Az & El Torque | 92 ft-lbs (126 Nm) | | 92 ft-lbs (126 Nm) | |
| Antenna/Pedestal System Weight | 170kg (375 lbs) | | 170kg (375 lbs) | |
| Angle Span (azimuth) | Continuous 360° | | Continuous 360° | |
| Angle Span (elevation) | -12° to +109° | | -12° to +109° | |
| Positioning Accuracy | $\leq 0.05^\circ$ | | $\leq 0.05^\circ$ | |
| Scanning Speed | 0 to 8 rpm | | 0 to 8 rpm | |
| Drive and Bearing Continuous Service Life | ≥ 10 years with no maintenance or lubrication required | | ≥ 10 years with no maintenance or lubrication required | |

| TRANSMITTER | | |
|--------------------------------|---|--|
| Type | Solid State | Solid State |
| Peak Power (per channel/total) | 100 Watts/200 Watts 2 Transmitters (H/V) | 500 Watts/1000 Watts 2 Transmitters (H/V) |

| RECEIVER | | |
|----------------------------|------------------------|------------------------|
| Type | Frequency Programmable | Frequency Programmable |
| Minimum Discernible Signal | -114 dBm typical | -114 dBm typical |
| Linear Dynamic Range | ≥ 95 dB | ≥ 95 dB |

| DIGITAL RECEIVER/ SIGNAL PROCESSOR | | |
|---------------------------------------|--|--|
| Type | 16-bit Modular, multi-channel Digital Receiver, Signal Processor | 16-bit Modular, multi-channel Digital Receiver, Signal Processor |
| Maximum No. of Processed Range Bins | up to 8192 | up to 8192 |
| Minimum Processing Resolution | as low as 16 meters | as low as 16 meters |
| Clutter Filters | Time Domain or Spectrum-Based Time Estimation and Processing (STEP) - An advanced adaptive clutter identification and mitigation and noise reduction algorithm | Time Domain or Spectrum-Based Time Estimation and Processing (STEP) - An advanced adaptive clutter identification and mitigation and noise reduction algorithm |

| METEOROLOGICAL USER SOFTWARE | | |
|------------------------------|---|---|
| METEOROLOGICAL USER SOFTWARE | EDGE | EDGE |
| Computer System | Commercial off-the-Shelf PC | Commercial off-the-Shelf PC |
| Meteorological Products | See EDGE Data Sheet for additional details. | See EDGE Data Sheet for additional details. |



**PERFECT APPLICATION FOR OFFSHORE OIL PLATFORMS, RAPID DEPLOYMENT EXERCISES,
REGIONAL AIRPORTS, WATER MANAGEMENT AND MUCH MORE**

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This publication is issued to provide limited information regarding the product or model number specified and is supplied without liability for errors or omissions. We reserve the right to modify OR revise all or part of this document without notice. For detailed information regarding the radar model mentioned in this publication, write or e-mail EEC at the address provided.

SIDPOL™ Radar is patented technology, covered by U.S. Patent No. 6,859,163 B2, U.S. Patent No. 7,049,997, U.S. Patent No. 7,439,899, U.S. Patent No. 7,551,123, U.S. Patent No. 7,683,828, U.S. Patent No. 7,750,573, U.S. Patent No. 7,760,129, U.S. Patent No. 7,880,665, U.S. Patent No. 7,450,693, U.S. Patent No. 7,369,082, 13041 (OAPI Region), 009250 (Eurasia) and 009249 (Eurasia).

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