



DEFENDER SERIES

X-BAND



Magnetron X-Band

Single and dual-polarity configurations • 200kW of radiated power

PROTECTING PEOPLE AND ASSETS®

eecweathertech.com

X-BAND SYSTEMS FROM EEC

The perfect, practical, precise solution

EEC's Defender X-Band weather radar system is ideal for short and medium applications that require any combination of accuracy, mobility, and of course, reliability.

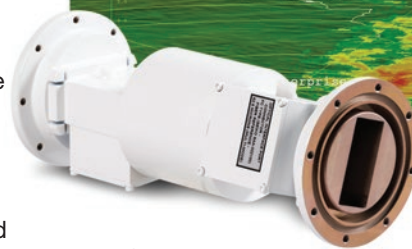
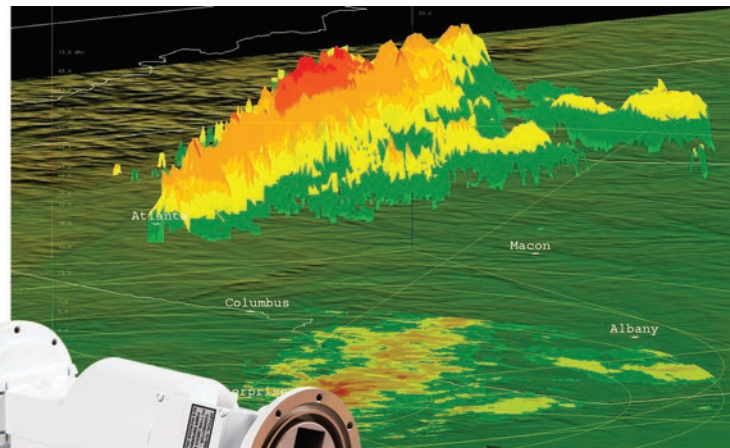
For short to mid-range accuracy, X marks the spot

EEC's shorter wavelength X-Band weather radar can detect even tiny particles such as high altitude water droplets or light snow. The compact size of this complete X-Band system makes it the perfect choice for portable applications and "filling-in" geographical areas that S-Band and C-Band skip over. Dual-polarity capabilities are standard features for this system.

DEFENDER X200: Powering its 200kW output with dependable magnetron technology, EEC's Defender X200 is the accurate and reliable workhorse of X-Band; used all over the world for mobile research and in permanent installations. Configuring a Defender X200 system to your exact specifications is simplified with our turn-key design, manufacturing, and installation processes. Our many options include a variety of full-featured control and display systems, and precise data processing through our super-sensitive IQ2 digital receiver and signal processor.

EEC X-BAND SYSTEM ADVANTAGES

- Algorithms developed and specifically tuned for performance at X-Band
- Designed for fixed-site and transportable configurations
- High resolution data optimized for short and medium range weather detection
- Innovative architecture provides the highest receiver sensitivity
- Advanced radar motion control system provides better spatial resolution resulting in more accurate data
- Industry leading clutter suppression technology
- Patented fiber-optic technology provides noise free, ultra-high speed data throughput
- Adaptive spectrum-based clutter mitigation algorithms
- Improved data quality achieved through advanced continuous calibration techniques
- Advanced Polarimetric rainfall estimation and attenuation correction techniques
- Super-high resolution IQ2 16-bit digital signal-processor
- Over 500 configurable diagnostic points monitored in real-time
- Systems configured with IQ data recording and playback



Fiber Optic Rotary Joint

The Fiber Optic Rotary Joint is an exclusive EEC design innovation. By providing ultra-high speed data throughput, it completes the link into our ultra low loss, high stability receiver/signal processor architecture, enabling EEC's advanced software analysis technology to produce the highest resolution and most accurate display on the market.

Dual-polarization – The future is here today

Over 15 years ago, EEC pioneered dual-polarity radar. Today, our Defender X200 radar comes with a 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, 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 magnetron systems. The final result is obvious – EEC dual-polarization systems provide the best weather detection capability in the industry today.

SYSTEM DEFENDER X200

Operating Frequency	8500-9600 MHz
Pulse Width	0.2 – 2.0 usec
Range Resolution	Minimum 16m
Pulse Repetition Frequency	200-2400 Hz, user selectable
Range	Minimum 600km
Maximum Velocity (Unambiguous)	Up to 64 m/s
Sensitivity-Reflectivity	-18 dBz at 30km
Clutter Suppression Capability	≥ 46dB
Data Output	UZ, Z, V, SW (dual-polarization moments Zdr, Phv, Φdp, KDP, LDR)

ANTENNA/PEDESTAL

Type	Parabolic, Prime Focus Reflector
Reflector Diameter	2.4m (typical) – other sizes available
Gain-Minimum	> 45.0 dB
Half Power Beam Width (typical)	0.95°
Polarization	Linear Horizontal Feed Horn Dual-Polarization Linear Horizontal/Vertical
Angular Positioning Accuracy	≤ 0.05°
Scanning Speed	Up to 10 rpm

TRANSMITTER

Type	High-Power Coaxial Magnetron
Peak Power (per channel/total)	200kW

RECEIVER

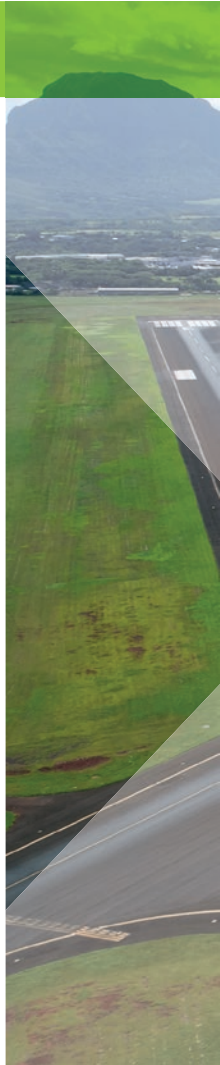
Type	Superheterodyne, Single or Dual Down Conversion with Image Reject Mixing
Minimum Discernible Signal	-114 dBm typical
Linear Dynamic Range	Up to 105 dB

DIGITAL RECEIVER/ SIGNAL PROCESSOR

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

METEOROLOGICAL USER SOFTWARE

METEOROLOGICAL USER SOFTWARE	PULSE
Computer System	Commercial Off-the-Shelf PC
Meteorological Products	See PULSE Data Sheet for additional details.



PERFECT APPLICATION FOR RESEARCH, REGIONAL AIRPORTS, WATER MANAGEMENT AND MUCH MORE



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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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