



PROTECTING PEOPLE AND ASSETS™



## C-BAND

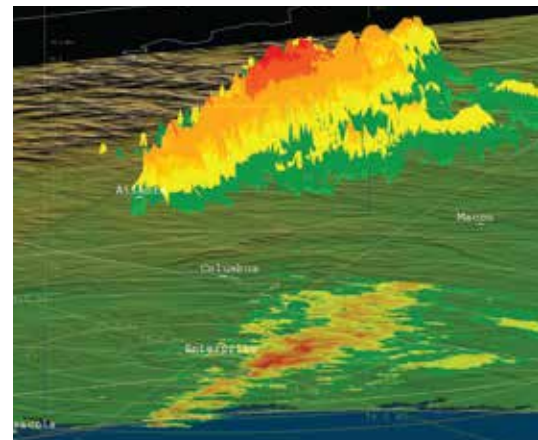
**DWSR-2501C, DWSR-2501C/K,  
DWSR-3501C, DWSR-5001C, DWSR-10001C**

Magnetron and Klystron models / Single and dual-polarity configurations  
250 kW to 1MW of radiated power

# C-BAND SYSTEMS FROM EEC

## The global choice for protection

For geographic areas with diverse and dynamic weather conditions, nothing offers greater value for the money than EEC's line-up of popular C-Band weather radars. The choice of weather services, national governments, broadcasters, and businesses around the world, EEC can custom configure a C-Band solution for almost every need.



## EEC C-Band radar - the benchmark standard around the world

For most areas of the world, nothing offers a better value than the proven line-up of C-Band radar systems from EEC. Even in challenging environments, our C-Band systems provide powerful and accurate information. Perhaps most importantly, the specifications of our C-Band radars can be customized to meet a wide range of demands and uses.

### **DWSR-2501C, DWSR-2501C/K, DWSR-3501C:**

With years of innovation and refinement behind them, the EEC 250kW and 350kW C-Band radars are now among the most popular radars in the world. Thanks to their perfect balance of power and effective range, these systems have evolved to become the ideal choice for customers with a diverse set of weather detection demands. You can choose to equip them with either reliable magnetrons or klystrons and in either single or dual-polarity configurations.

**DWSR-5001C:** The idea behind the ingenious DWSR-5001C is simple: If 250kW is the most popular, most practical single-pole configuration; then the best configuration for dual-polarity applications should be 250kW of power delivered in both the horizontal and vertical plane. Developed specifically for the most effective dual-polarization performance, this 500kW magnetron system is the radar for both today's needs and tomorrow's technology.

**DWSR-10001C:** The most powerful C-Band in use, with an incredible 1MW of power, the DWSR-10001C is the choice of local and national TV broadcasters looking for that extra edge in weather detection. Utilizing this powerful system broadcasters can now detect, depict and warn viewers of approaching severe weather while providing a dramatic and visually stunning data display.

With any EEC C-Band radar, our turn-key design, manufacturing, and installation processes allow us to configure your system to your exact specifications. Among the many options are single or dual-polarity transmitters and a variety of full-featured control and display systems. For a clean and true picture of mid to long range weather events, we will match your EEC C-Band system with the precise Doppler processing of our super-sensitive IQ2 signal processor and digital receiver. You can even choose the installation and radome that best fits your environmental needs.



## Dual-polarization – the future is here today.

Over 15 years ago, EEC pioneered the world's first dual-polarity radar. Today, all of our C-Band models are available with either EEC's industry-standard single-polarization or with our new, highly advanced dual-polarization system incorporating features that are years ahead of anything else on the market. And our DWSR-5001C has been designed from the ground up as a dual-polarization system.

Working with world-renowned experts and the University of Oklahoma, we have developed better algorithms tuned specifically for C-Band radar 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.



### **IQ2 Digital Receiver Signal Processor**

*The latest design available in the weather radar market today employs cutting-edge hardware and software technology to achieve the highest data resolution in the industry.*



### **Fiber Optic Rotary Joint**

*An exclusive EEC design innovation that enables an ultra low loss, high stability receiver/signal processor architecture.*

## **EEC C-BAND SYSTEM ADVANTAGES**

- Systems are available in magnetron, klystron and solid-state transmitter configurations
- Algorithms developed and specifically tuned for performance at C-Band
- Designed for high-resolution medium to long 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
- Flexible configuration options that maximize available bandwidth on any standard TCP/IP network.
- Comprehensive suite of radar data exchange protocols

SYSTEM	DWSR-2501C/DWSR-3501C	DWSR-5001C
Operating Frequency	5200 - 5700 MHz	5400 - 5900 MHz
Pulse Width	0.2 - 2.0 usec	0.2 - 3.0 usec
Range Resolution	Minimum 16m	Minimum 16m
Pulse Repetition Frequency	200-2400 Hz, user selectable	200-2400 Hz, user selectable
Range	Minimum 600km	Minimum 600km
Maximum Velocity (unambiguous)	up to 128 m/s	up to 128 m/s
Sensitivity-reflectivity	- 18 dBz at 30 km	- 22 dBz at 30 km
Clutter Suppression Capability	≥ 46 dB	≥ 46 dB
Data Output	UZ, Z, V, SW (dual-polarization moments Zdr, Phv, Φdp, KDP, LDR)	UZ, Z, V, SW (dual-polarization moments Zdr, Phv, Φdp, KDP, LDR)

ANTENNA/PEDESTAL		
Type	Parabolic, Prime Focus Reflector	Parabolic, Prime Focus Reflector
Reflector Diameter	4.2m (typical) - other sizes available	4.2m (typical) - other sizes available
Gain-Minimum	> 45.0 dB	> 45.0 dB
Half Power Beam Width (typical)	0.95°	0.95°
Polarization	Single Polarization - Linear Horizontal Dual-Polarization - Linear Horizontal/Vertical	Single Polarization - Linear Horizontal Dual-Polarization - Linear Horizontal/Vertical
Angular Positioning Accuracy	≤ 0.05°	≤ 0.05°
Scanning Speed	Up to 10 rpm	Up to 10 rpm

TRANSMITTER		
Type	High-Power Coaxial Magnetron	High-Power Coaxial Magnetron
Peak Power	250 kW and 350 kW	500 kW

RECEIVER		
Type	Superheterodyne, Single or Dual Down Conversion with Image Reject Mixing	Superheterodyne, Single or Dual Down Conversion with Image Reject Mixing
Minimum Discernible Signal	- 114 dBm typical	- 114 dBm typical
Linear Dynamic Range	Up to 105 dB	Up to 105 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 16m	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	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	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.

SYSTEM	DWSR-10001C	DWSR-2501 C/K
Operating Frequency	5400 - 5900 MHz	5600 - 5650 MHz
Pulse Width	0.2 - 3.0 usec	0.4 - 4.5 usec
Range Resolution	Minimum 16m	Minimum 16m
Pulse Repetition Frequency	200-2400 Hz, user selectable	200-2400 Hz, user selectable
Range	Minimum 600km	Minimum 600km
Maximum Velocity (unambiguous)	up to 128 m/s	up to 128 m/s
Sensitivity-reflectivity	- 24 dBz at 30 km	- 18 dBz at 30 km
Clutter Suppression Capability	≥ 46 dB	≥ 55 dB
Data Output	UZ, Z, V, SW (dual-polarization moments Zdr, Phv, $\Phi_{dp}$ , KDP, LDR)	UZ, Z, V, SW (dual-polarization moments Zdr, Phv, $\Phi_{dp}$ , KDP, LDR)

ANTENNA/PEDESTAL		
Type	Parabolic, Prime Focus Reflector	Parabolic, Prime Focus Reflector
Reflector Diameter	4.2m (typical) - other sizes available	4.2m (typical) - other sizes available
Gain-Minimum	> 45.0 dB	> 45.0 dB
Half Power Beam Width (typical)	0.95°	0.95°
Polarization	Single Polarization - Linear Horizontal Dual-Polarization - Linear Horizontal/Vertical	Single Polarization - Linear Horizontal Dual-Polarization - Linear Horizontal/Vertical
Angular Positioning Accuracy	≤ 0.05°	≤ 0.05°
Scanning Speed	Up to 10 rpm	Up to 10 rpm

TRANSMITTER		
Type	High-Power Coaxial Magnetron	Klystron
Peak Power	1000 kW	250 kW

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

DIGITAL RECEIVER/ SIGNAL PROCESSOR		
Type	16-bit Modular, multi-channel Digital Receiver, Signal Processor	16-bit Modular, multi-channel Digital Receiver, Signal Processor
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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.



## THE NEW GERMAN DWD-RADAR NETWORK, MANUFACTURED, INSTALLED AND SUPPORTED BY EEC

EEC is an ISO 9001: 2008 company.

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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