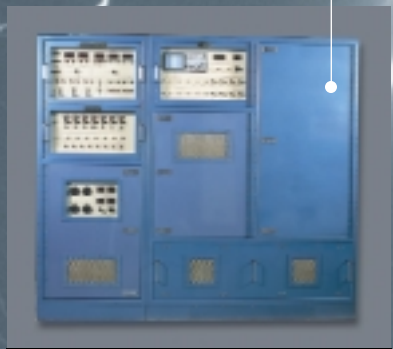




KLYSTRON WEATHER RADAR SOLUTIONS FOR TODAY AND TOMORROW

ANTENNA/PEDESTAL SYSTEMS

TRANSMITTER/RECEIVER



Unequaled Long Range Detection  
 250 KW Fully Coherent Transmitter  
 Long-Life Klystron  
 Super-Sensitive Analog or Digital Receiver  
 Extremely Stable Master Oscillator  
 > 60 dB Coherency  
 > 99% System Availability



Precise, reliable, low maintenance antenna/  
 pedestal subsystems. Available in sizes to fit every  
 application. Dual Polarization option available.

See More Clearly

Enterprise Electronics Corporation is proud to introduce the DWSR-2500C/K, a world class fully coherent commercial C-Band Doppler weather radar. A direct development from our field proven DWSR-2500 series radar systems, the DWSR-2500C/K extends and expands the EEC tradition of excellence with state-of-the-art design. The system includes a precise solid-state high voltage modulator, a choice of digital or analog receivers, proven antenna systems with sealed planetary pedestal drive trains and brushless drive motors, the best BITE subsystem available anywhere and a choice of full-featured control and display systems. With more than 250 Kilowatts peak radiated power and unprecedented transmitter stability, the DWSR-2500C/K provides the best possible clutter rejection and C-Band range performance for observing multiple long-range weather phenomena. The DWSR-2500C/K routinely reaches levels of coherence that required the invention of new techniques for proper measurement. Precise Doppler processing eliminates virtually all false echoes and ground clutter from the radar screen, leaving a clean, high definition picture of the rain and wind at the longest useful ranges. The power amplifier architecture permits coding of the radiated pulse, a technique used for identification of second trip echoes.

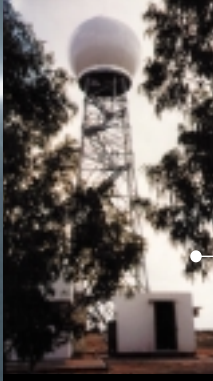
RADAR CONTROL PROCESSOR



Precision Video Processors  
 • EDRP-8 - Pulse-Pair & FFT Algorithms  
 • ESP-7 - Pulse-Pair  
 • Rainfall Intensity  
 • Doppler Wind Velocity  
 • Storm Turbulence  
 • > 50 dB Clutter Rejection  
 Radar and Antenna Controller  
 Built-In Ethernet Networking Versatility

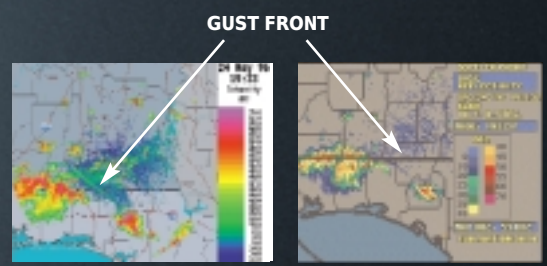
RADOMES

TOWERS



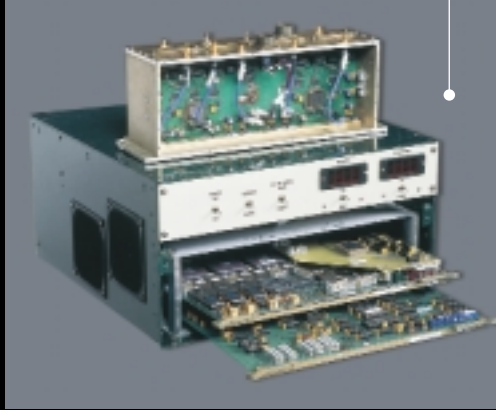
Custom Radomes,  
 Towers, and Shelters  
 designed for  
 weather radar.

FIDELITY MONITOR PANEL



EEC C-Band System      Nexrad  
 Real Time Corrected Intensity

## DIGITAL RECEIVER CHASSIS



## ANALOG RECEIVER CHASSIS



### RECEIVER SPECIFICATIONS

	Analog Receiver	EDRP-8 Digital Receiver
Associated Signal Processor	ESP-7	EDRP-8 Processor Section
IF Amplifiers	Logarithmic and Linear	Not Required
IF Bandwidth @ 0.8 $\mu$ sec @ 2.0 $\mu$ sec	1.5 MHz $\pm$ 250 KHz 0.750 MHz $\pm$ 250 KHz	1.5 MHz $\pm$ 250 KHz 0.750 MHz $\pm$ 250 KHz
Dynamic Range Logarithmic Linear	$\geq$ 90 dB 60 dB to 90 dB with AGC	$\geq$ 100 dB $\geq$ 100 dB
Sensitivity @ 0.8 $\mu$ sec @ 2.0 $\mu$ sec	-110 dBm -113 dBm	-110 dBm -113 dBm
Video Types Intensity Velocity	Logarithmic  I (In Phase) & Q (Phase Shifted)	Reflectivity Power derived by EDRP-8 Processor  I & Q Digital

## CUSTOMIZED CONFIGURATIONS

The DWSR-2500C/K is available with either a conventional super-heterodyne analog receiver or an EDRP-8 digital receiver. Both provide superb performance with the selection determined by available maintenance resources and budgets.

## HV SECTION

The DWSR-2500C/K uses a fully solid-state modulator to provide the  $> 47$  kV pulse to the klystron tube. The high voltage section is optimized to provide current pulses of sufficient width to produce the standard RF pulse widths of 0.8  $\mu$ sec and 2.0  $\mu$ sec. Customized pulse widths to meet special requirements are available as an optional configuration.





## RADAR CONTROL PROCESSOR



The BITE 2100 subsystem is a standard feature of the DWSR-2500C/K providing comprehensive system status monitoring to operators and troubleshooting assistance to maintenance personnel. Ease of use and practical, helpful information are the most prominent features. Other features include Graphical User Interface, Touch-Screen or mouse control menus, one touch automatic system calibration, automatic audible and visual warnings to all operator stations, Pentium PC processor, and MS Windows or NT Operating System.

The BITE processing and control is a sub function of the RADSYS 3000 Maintenance Control and Display System. RADSYS 3000 provides full radar control functions and real time product generation. Intended as a maintenance tool in the DWSR-2500C/K, RADSYS 3000 is powerful enough to provide full system operation in a backup role. RADSYS 3000 is fully compatible with the EEC EDGE primary data processing system and can display real-time raw data while EDGE is processing data and generating products.

## KLYSTRON AMPLIFIER

The DWSR-2500C/K is a true Master Oscillator Power Amplifier using the VKS-8387 klystron as the primary amplification device. The standard klystron operates in the 5600-5650 MHz frequency band. Other 50 MHz operating bands are available as optional configurations.



## KLYSTRON REMOVAL

The DWSR-2500C/K is designed to reduce the time and expense required for maintenance. Highly reliable precision components, minimal alignment and adjustment and easy access cabinet design contribute to low life cycle costs. The most critical component, the klystron amplifier and focus assembly, can be removed and replaced by one engineer in less than one hour using the equipment provided.



EEC's development of the first commercially available Doppler weather radar in 1981 made the science of advanced weather analysis readily available. Unlike conventional radar, the EEC DWSR-2500C/K Doppler systems measure both the intensity of rainfall and the radial velocity of the storm. The EEC radar

control and display software permits the DWSR-2500C/K to also predict the likelihood of hazardous activity, detect the conditions for hail, forecast floods, and, perhaps most importantly, analyze the behavior of winds inside a storm for early detection and tracking of tornadoes and severe storms.

RADSYS 3000™



WEATHER WINDOWS™



EDGE™



THREE LEVELS OF SOFTWARE-BASED RADAR CONTROL AND DISPLAY

FULL SERVICE RADAR APPLICATIONS

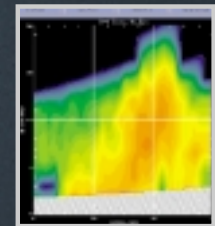
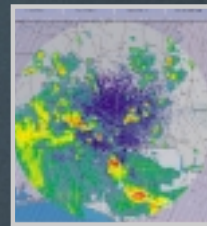
- Research - Precise Weather Analysis
- Airport Protection- Windshear Detection and Warning
- Gust Front Detection
- Flight Level Weather Warnings
- Weather Forecasting - Unprecedented Accuracy

REAL-TIME RADAR DISPLAY PRESENTATIONS

- PPI - RHI - Sector Scan

HYDROLOGY APPLICATIONS

- Flood and Flash Flood Warnings
- Wide Area Rainfall Accumulation Measurements
- River and Drainage Basin Accumulation



DWSR-2500C/K SYSTEM LEVEL CHARACTERISTICS		
Transmitter Frequency & Power	5600-5650 MHz	250 KW
Maximum Range	Intensity	Velocity
RADSYS 3000 & Weather Windows	480 KM	120 KM
EDGE	Variable to 550 KM	Variable to 250 KM
Max Unambiguous Velocity @ 5600 MHz		
No Unfolding	~35 MPH	~16 M/S
3:2 Unfolding	~70 MPH	~32 M/S
4:3 Unfolding	~105 MPH	~48 M/S
Clutter Suppression	-50 dB Minimum	

TRANSMITTER-RECEIVER SUBSYSTEM CHARACTERISTICS	
Transmitter	
Klystron Type	High power linear beam amplifier - VKC8387
Beam Current Modulator Type	Solid-State Cathode Pulser
Pulse Repetition	Intensity      Velocity
Frequency	250 PPS      786, 885, or 1180 PPS
RADSYS 3000	
Weather Windows	
EDGE	Variable 250 - 1200 PPS
Phase Jitter	< 0.18°
Frequency Stability	< 1 part in 10 <sup>9</sup>
Pulse Duration	0.8 µsec & 2.0 µsec
Peak Power	250 kW Minimum
Receiver Front End	
Input Noise Factor	≤3 dB Maximum
Mixers	Balanced Coaxial
Master Oscillator	Frequency Synthesizer with AFC
Intermediate Frequency (IF)	30 MHz

ANTENNA SUBSYSTEM CHARACTERISTICS	
Reflector Type	Solid-Surface Parabolic
Feed Horn	Standard Rectangular Horn
	Typical
Diameters Available	Beam widths      Gain
12'(3.22M)	1.10° ± 0.10°      44 dB
14'(4.27M)	1.00° ± 0.10°      45 dB
20'(6.10M)	0.65° ± 0.10°      48 dB
25'(7.62M)	0.55° ± 0.10°      50 dB
Polarization	Linear Horizontal Optional Dual Polarization
Side Lobes	≥25 dB down from main lobe
Azimuth Acceleration/Deceleration	> 15° sec <sup>2</sup>
Azimuth Rotation	360° Continuous, CW, CCW
Azimuth/Elevation Accuracy & Resolution	± 0.1°
Elevation Movement Range	-2° to +90°
Elevation Speed Manual Automatic	Variable from 0 to 15° sec Up to 5 scans per minute
Safety Devices	Safe switches & door interlock
Servo Amplifier	
Type	Solid-state two axes, DC PWM control voltage

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