

# DWSR-8501S/K

DRS WEATHER SYSTEMS, INC.



## COHERENT WEATHER RADAR SOLUTIONS FOR TODAY AND TOMORROW

*Selected by the US National Weather Service to supplement the existing NEXRAD network*

### ANTENNA / PEDESTAL SYSTEM

ISO 9001:2000 TUV

### RADOMES

### TOWERS



Custom Radomes, Towers, and Shelters designed for weather radar



Precise, Reliable, Low Maintenance Antenna/Pedestal Subsystems with digital servo and brushless motors. Available in sizes to fit every application.

### The Power to See More Clearly

DRS Weather Systems, Inc. (DRS-WS) is proud to introduce the world's most powerful fully coherent commercial S-Band Doppler weather radar — the DRS-WS DWSR-8501S/K. A direct development from our field proven DWSR-88 and DWSR-93 series radar systems, the DWSR-8501S/K extends and expands the tradition of excellence with state-of-the-art design, including: a precise solid-state high current modulator, digital receiver performance, improved antenna pedestal drive train, improved and expanded BITE and a choice of full-featured control and display systems. With more radiated power than any other commercially available weather radar, the DWSR-8501S/K provides the best possible clutter rejection and S-Band range performance for observing multiple long-range weather phenomena. Precise Doppler processing eliminates virtually all false echoes and ground clutter from the radar screen, leaving a clean and true picture of the rain and wind at the longest practical, useful ranges.

Since incorporation in 1971, DRS-WS (formerly EEC) has been the world leader in the design and manufacture of high performance weather radar systems. Today, our advanced hardware and weather analysis software continue to set the industry standard for innovation, reliability, and value.

DRS's EDRP-9 Digital Receiver Processor and Solid-State Modulator (SSM), standard on the DWSR-2501C, improves both performance and reliability. More stable operation contributes to overall system precision and accuracy, and increased reliability saves both maintenance time and the cost of replacement parts.

### TRANSMITTER / RECEIVER

### RADAR CONTROL PROCESSOR



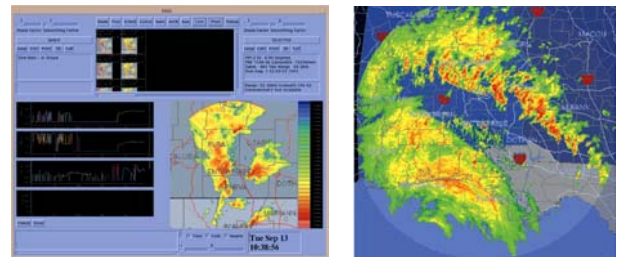
Unequaled Long Range Detection  
850 KW Fully Coherent Transmitter  
Long-Life Klystron  
Super Sensitive Digital Receiver  
Extremely Stable Frequency Synthesizer  
>98% Typical System Availability  
Arbitrary Waveform Generator



EDRP-9  
Precision Pulse-Pair Video Processor

- Rainfall Intensity
- Doppler Wind Velocity
- Storm Turbulence

Radar and Antenna Controller  
Built-In Ethernet Networking  
Versatility



### EDGE™ SOFTWARE

# THREE LEVELS OF SOFTWARE - BASED RADAR CONTROL AND DISPLAY

(see separate product sheets)

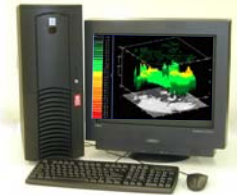
## RADSYS 3000™



## WEATHER WINDOWS™



## EDGE™



### FULL REMOTE RADAR CONTROL

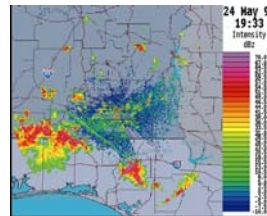
- Transmitter/Receiver/Servo Operational Mode Control
- Antenna Scan Controls
  - PPI - RHI - Sector Scan
  - CAPPI - Volume Scans
- Extensive BITE Subsystem

### REAL-TIME RADAR DISPLAY PRESENTATIONS

- PPI - RHI -Sector Scan

### HIGH RESOLUTION WEATHER DATA

- Velocity
- Rainfall Intensity
- Turbulence



Focus Solenoid



Klystron Amplifier

### DWSR-8500S SYSTEM LEVEL CHARACTERISTICS

Transmitter Frequency & Power	2900 – 3000 MHz	850 kW
Maximum Range	Intensity	Velocity
RADSYS 3000™ & Weather Windows™	480 KM	120 KM
EDGE™	Variable to 550 KM	Variable to 250 KM
Max Velocity Detection @ 2800 MHz		
No Unfolding	~ 56 MPH	~25 M/S
3:2 unfolding	~ 112 MPH	~50 M/S
4:3 Unfolding	~ 168 MPH	~75 M/S
5:4 Unfolding	~ 224 MPH	~100 M/S
Clutter Suppression	-50 dB Minimum	

MINIMUM DETECTION CAPABILITY IN dBz @ 0 dB SNR (Z = 200R <sup>1.6</sup> for Stratified Rainfall)								
RANGE								
Ant Dia	60 KM		120 KM		240 KM		480 KM	
	Refl	Vel	Refl	Vel	Refl	Vel	Refl	Vel
12 ft	-4.42	2.56	1.60	8.58	7.63	14.60	13.65	20.63
14 ft	-5.10	1.88	0.92	7.90	6.94	13.92	12.96	19.94
20 ft	-7.99	-1.01	-1.97	5.01	4.05	11.03	10.07	17.05
28 ft	-11.40	-4.42	-5.38	1.60	0.64	7.62	6.66	13.64

DRS WEATHER SYSTEMS, INC.



### DRS Weather Systems, Inc.

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### ANTENNA SUBSYSTEM CHARACTERISTICS

Reflector Type	Solid-Surface Parabolic	
Feed Horn	Standard Rectangular Horn	
Diameters Available	Beam Widths	Gain
12' (3.22M)	2.13°	38 dB
14' (4.27M)	1.83°	39 dB
20' (6.10M)	1.28°	42 dB
28' (8.5M)	0.99°	45 dB
Polarization	Linear Horizontal	
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 +92°	
Elevation Speed Manual	Variable from 0 to 15° sec	
Automatic	Up to 5 scans per minute	
Safety Devices	Safe switches & Door interlock	

### SERVO AMPLIFIER

Type - Digital	Digital solid-state two axis, DC PWM control voltage for brushless motors
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### TRANSMITTER-RECEIVER SUBSYSTEM CHARACTERISTICS

TRANSMITTER	
Klystron Type	High power linear beam amplifier – VKS-8287
Pulse Repetition Frequency	250 – 1200 Hz
Phase Jitter	<0.18°
Frequency Stability	<1 in 10 <sup>6</sup> Hz/sec
Pulse Duration	0.8 μsec & 4.5 μsec
Peak Power	850 kW Minimum
RECEIVER	
Input Noise Factor	<2 dB Maximum
Mixers	Balanced Coaxial
Local Oscillator	Frequency Synthesizer
Intermediate Frequency	60 MHz
IF A/D Converter	4 channels and TX Reference
IF Bandwidth	10 MHz per channel
Sensitivity	> -114 dBm
Video Types	
Intensity	Reflectivity derived by signal processor
Velocity	I (In Phase) & Q (Phase Shifted)

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