



RADSYS 3000™

RADAR CONTROL AND DISPLAY SYSTEM

1. INTRODUCTION

The RADSYS 3000™ radar control and display system provides a powerful, yet simple to use, radar control and display station for the day to day system operators and a sophisticated weather forecasting tool for meteorologists. This highly integrated and user friendly package controls all weather radar operational functions necessary to produce accurate real-time displays in full color and provides a wide range of system diagnostic tools for the maintenance personnel. Operating modes used to generate the many products available to the meteorologist include PPI, RHI, Sector Scan, and Volume Scan capability. Both rainfall measurements and wind velocity measurements are displayed using the latest Doppler radar technology. Furthermore, all of the primary features available in RADSYS are operator controlled by a click of the mouse button in a familiar Microsoft Windows environment.

Peripheral operations provided by the RADSYS 3000™ radar environment include an extensive archive/playback capability. Automatic data and image archiving, automated playback of hundreds of archived pictures, as well as animation of archived data is readily available to the operator. An optional color printer is also available for hardcopy output of all display products.

Complete remote operation and display of products is also available using Ethernet communications and/or modems. This capability allows control radar system and the reception of real-time color data products simultaneously at a remote site. Several RADSYS remote stations can be connected to a single radar system to provide an extremely versatile control and data analysis network customized to the specific needs of individual users.

The following description assumes that RADSYS 3000™ is the primary radar control and display subsystem. However, RADSYS may also be used as a maintenance terminal, secondary control system, and/or data visualization system when a higher level subsystem (e.g. EDGE™) is the primary operator's workstation.

2. GENERAL DESCRIPTION

The RADSYS radar control and display system is the primary display and control station for normal radar system operation and product analysis. The RADSYS processor is an Intel Pentium II based personal computer using Microsoft Windows 98 or Microsoft Windows NT 4.0 as the operating system. Standard system configuration provides for one large screen (19 or more inches) high resolution SVGA color display. One 20 inch RGB monitor is normally used to display the video products in most operating modes and the radar control panel.

The radar control and display functions are accomplished with the Enterprise Electronics Corporation RADSYS 3000™ control and display program for Doppler systems.



The workstation is configured to automatically run the RADSYS 3000™ program when the workstation computer is turned on. After the RADSYS 3000™ program initializes, the first task attempted is establishment of communications with the radar system. If the radar system is turned on and configured correctly, communications will be established and normal radar operations can be performed from the workstation.

Radar control and display functions are performed through interactive menus presented on the primary display monitor. Commands and menu selections are made with a three button mouse as the pointing and selection device.

The workstation, running the RADSYS 3000™ program, can function as the primary system controller (Master) or as a remote (Slave) display with an existing RADSYS 3000 as the master with no control of the radar system, depending upon the Node assignment. Communications with the radar system is accomplished over a two-way, high speed Ethernet connection. Only one system can have radar control at any given time. RADSYS 3000 does not have the ability to display images or data from external sources.

The radar control and display software is operated through interactive on-screen menus in the familiar Microsoft Windows environment. Operators without an extensive technical background in weather radar hardware or electronics should experience little difficulty learning the basic functions.

Following is a summary of the RADSYS 3000™ Products and Workstation Configuration:

STANDARD REAL-TIME PRODUCTS

- PPI (Reflectivity, Velocity, Spectral Width)
- RHI (Reflectivity, Velocity, Spectral Width)
- Split-Screen (Reflectivity and Velocity, in both PPI and RHI modes)

GENERATED PRODUCTS

- CAPPI (Reflectivity)
- CAPPI (Velocity)
- CAPPI (Spectral Width)
- Echo Tops
- Column Maxima

FEATURES

- Auto Calibration

WORKSTATION CONFIGURATION

- Pentium II PC
- real-time System Software
- Microsoft Windows 98 or Microsoft Windows NT 4.0 Operating System
- 256 Mbyte Memory
- 9.0 Gbyte (minimum) Hard Drive
- 1.44 Megabyte Floppy Disk Drive (3 1/2")
- PCI 10/100 Mbit/Sec Ethernet Network card
- AGP Graphics Accelerator with 16MB SRAM
- 20" RGB Color Monitor for Data Display
- Keyboard
- Mouse
- Hard Copy Color Printer (Optional)

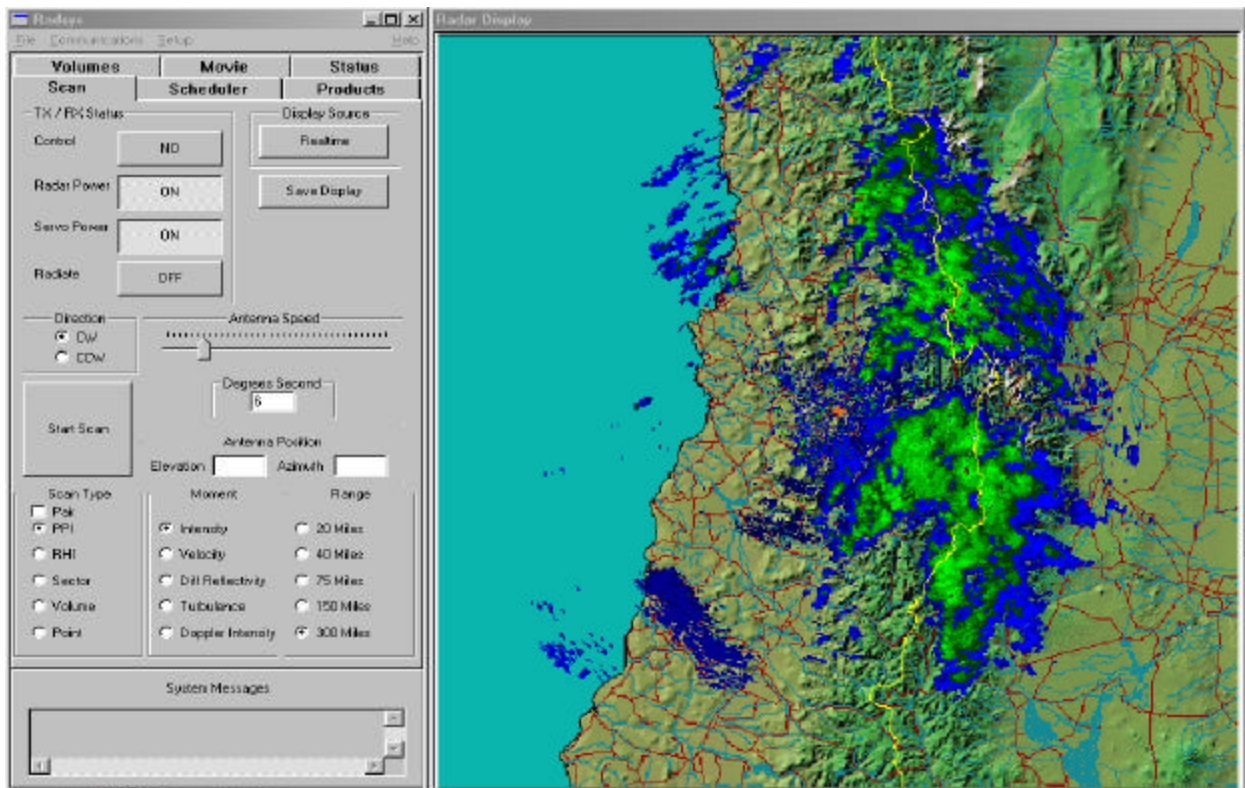
3. PRODUCTS

RADSYS 3000™ provides for the determination and visualization of a set of basic meteorological products, the Plan Position Indicator (PPI), the Range Height Indicator (RHI), the Constant Altitude PPI (CAPPI), Echo Tops, and Column Maxima. In addition, RADSYS 3000™ can display both reflectivity and velocity data simultaneously for PPI or RHI products.

A brief description of the different products is provided in the following sections.

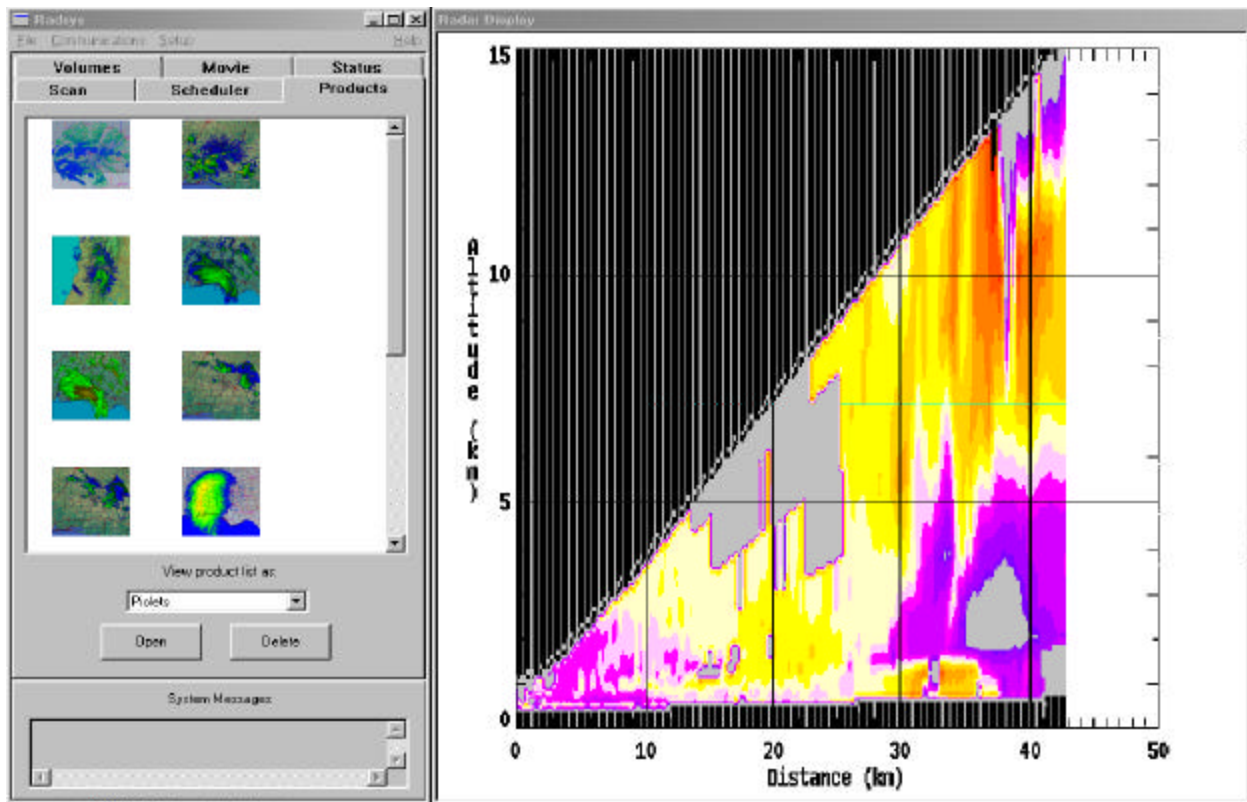
PPI Product (PPI)

The Plan Position Indicator (PPI) product is a natural radar product. It is a color enhanced image of the selected moment overlaid on a polar grid. RADSYS 3000 can generate a PPI product for each of the moments received from the signal processor, i.e. Reflectivity, Velocity, and Turbulence.



RHI Product (RHI)

The Range Height Indicator (RHI) product is a view in elevation at one azimuthal angle. The horizontal axis (abscissa) is distance from the radar and the vertical axis (ordinate) is the height. A color enhanced image of the selected moment (Reflectivity, Velocity, or Turbulence) is plotted on the grid.



CAPPI Product (CAPPI)

The Constant Altitude Plan Position Indicator (CAPPI) product is a slice through a volume scan in a plane parallel to the earth's surface at an altitude set by the operator. The CAPPI product is available from any height from 100 meters to 30 kilometers. The desired moment (Reflectivity, Velocity or Spectral) width must be selected before the volume scan begins.

Echo Tops Product

The ETOPS product is the highest altitude for each cell with a data value above a threshold defined by the operator. The default threshold is zero.

Column Maxima Product

The Column Maxima product is the maximum reflectivity between two altitudes for each cell of a volume. This product is a useful, quick surveillance of regions of convective precipitation to locate both infant and mature thunderstorms.