WHEN YOU ENGAGE WITH EEC, YOU GET MORE THAN PREDICTION. YOU GET PROTECTION.

PROTECTING PEOPLE AND ASSETS®

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In 1971, a group of radar engineers formed a company in south Alabama. Their dream was to develop and manufacture affordable, high quality meteorological radar systems and market them to the world. With corporate headquarters based in Enterprise, Alabama, they called their new company Enterprise Electronics Corporation, now known as EEC.

After the U.S. National Weather Service selected EEC’s DVIP-equipped radars to replace 160 older models across the country, DVIP became the standard for radar displays. In the early 1980’s, EEC added the Digital Colorizer to the DVIP display, once again becoming the new standard around the world.

The next bold innovation from EEC hit the market in 1981. This development changed the very function of weather radar. Working with a group of engineers at the prestigious Massachusetts Institute of Technology (MIT), EEC developed the PP-01 digital signal processor. Using this processor, EEC designed a new weather radar for an Oklahoma TV station located in “Tornado Alley.” It was the first commercial weather radar capable of measuring the speed and direction of an approaching weather event. They called it “Color Doppler” weather radar.

Even as Doppler radar became accepted around the world, EEC set the pace with more innovations. The ESP-7 signal processor was at the heart of RADSYS, the first PC-based weather display. And the first totally computer controlled radar and motion control system was based on EEC’s Radar Control Processor (RCP).

In the late 1980’s and into the 1990’s, broadcasters demanded more showmanship in their radar displays. EEC developed Weather Windows, based on advanced display capabilities that leveraged modern graphics hardware from the Silicon Graphics Company. At the same time, traditional users expected a more sophisticated research-based application. EEC’s response, Pulse, was specifically designed for advanced radar research, and remains very popular in the international market.

In 2005, EEC again shook up the weather radar market with the unveiling of Simultaneous Dual-Polarization – giving EEC the first commercially available dual-polarity radar system. Then in 2008, DWD (Germany) selected EEC to design and build its national network of weather radars. Other nations soon followed including Austria, South Korea and Sweden. At the same time, EEC introduced new technical and product innovations including the IQ2 signal processor; and new radar architectures incorporating fiber-optics, advanced motion control systems, and new antenna designs. EEC collaborated with the University of Oklahoma on research and technology for dual-polarity applications and development of the low-power, portable, solid-state Ranger® X-Band system.

In 2013, EEC expanded its presence in the market with the acquisition of the satellite ground station division of Environmental Systems & Services Pty Ltd (ESSaS). This move affords EEC the opportunity to further serve the growing needs of its clients. EEC’s new satellite ground station product line, TeleSpace®, offers an integrated system of hardware and software for the reception, processing, analysis, display and distribution of data collected from meteorological, environmental and military satellites.

Starting in 2016, EEC was the first radar manufacturer in the world to offer a high-frequency S-Band radar system. The Defender SK1000H operates in the 3.5 - 3.6 GHz range, allowing customers to attain a beamwidth less than 1 degree with a smaller antenna. This provides customers with all the advantages of an S-Band radar at a lower cost.

In 2017, EEC became the first dedicated commercial supplier of weather radar systems to introduce fully solid-state systems as part of its Endurance product line. These new systems, complete with solid-state transmitters, continue EEC’s tradition of setting the market standard for the most advanced, cutting edge technology available for customers.

By combining its core strengths in the areas of in-house design, manufacture and production, and intellectual property, EEC has positioned itself as a market leader, complementing its high-performance meteorological radar systems with the ability to provide direct broadcast satellite ground stations and other applications to governments, academic institutions and commercial enterprises on every continent of the globe.
By managing every part of the production process in-house, from design and manufacturing to final installation, EEC stays focused on creating the most advanced weather radar and satellite ground station systems for protecting people and assets.

End-to-End Solutions
For over 45 years, creating turn key weather detection systems has been an important EEC advantage. Even today, your EEC weather radar and satellite groundstations are designed by EEC, manufactured by EEC, and installed by EEC. Plus your key personnel are trained by EEC.

Engineering and Design
From designing mammoth Klystron S-Band radar systems to pioneering a fiber-optic link for transporting huge amounts of dual-polarization data, our own EEC engineering staff develops the hardware that keeps EEC at the leading edge of technology. At the same time, EEC’s in-house software engineers make our systems highly accurate yet practical, by creating the analytical and display tools that quickly turn raw data into dynamic displays.

Weather Radar Upgrades
One often-overlooked benefit of selecting EEC is our commitment to provide comprehensive software and hardware upgrades for older EEC radars or for radars from other manufacturers. Because of our turn key, in-house expertise in weather radar engineering, manufacturing, software, and implementation, we can take on the most challenging radar upgrades. Example: EEC recently received the contract to upgrade Sweden’s aging national radar network to dual polarization technology while also retaining much of the existing infrastructure and mechanical hardware. Providing you practical upgrade solutions solidifies your EEC radar system’s value for years to come.

Manufacturing
To ensure our products perform up to the most stringent engineering specifications, we make our own components – from tiny printed circuit boards to huge antennas. In-house manufacturing also gives us the flexibility to vary a configuration to meet your exact specifications.

Installation
A well chosen installation location can make all the difference. That’s why we help you determine the most optimal site. We install your system to maximize performance whether it’s located in a river valley near a major city or on a mountain top overlooking the deserts of North Africa.

Satellite Data Collection & Display
EEC’s TeleSpace® division provides government, military, meteorological, oceanographical, academic and other research organizations an efficient turn key solution for the manufacture, engineering and installation of satellite ground-stations. Our TeleSpace® applications are perfect for the collection, processing, analysis, display and distribution of meteorological and atmospheric data from meteorological and satellite systems. Our complete array of satellite ground stations can process the full constellation of weather satellite data, including both geostationary (GOES, GOES-R, Himawari-8, COMS, EUMETSAT, GEONETCAST, etc.) and polar-orbiting (Suomi-NPP, MetOp, FY, JPSS, etc.) systems.
DEFENDER & ENDURANCE SERIES > C-BAND
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.
For most areas of the world, nothing offers a better value than the proven line-up of C-Band weather 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.

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 Polometric rainfall estimation and attenuation correction techniques

DEFENDER SERIES > S-BAND
The power to predict
With the ultimate long-range view, the EEC S-Band radar gives you the ability to plan, predict, and protect – before severe weather strikes. This massive power makes our S-Band systems ideal for covering huge expanses of land and water, analyzing multiple fronts of heavy precipitation. Monsoons, Hurricanes, Cyclones, Blizzards. To make the best long-range predictions of the biggest weather makers, you need to have the biggest radar with the lowest attenuation. With standard and high-frequency system configurations, along with magnetron and klystron-based transmitters outputting up to 1MW of power, EEC provides the most flexibility of any S-Band provider in the world!

S-BAND SYSTEM ADVANTAGES
- Systems are available in magnetron and klystron transmitter configurations
- Algorithms developed and specifically tuned for performance at S-Band
- Superior performance designed for long range weather detection
- Innovative architecture provides 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 Polometric rainfall estimation and attenuation correction techniques

DEFENDER SERIES > X-BAND
The perfect, practical, precise solution
EEC’s Defender series X-Band weather radar system is ideal for short and medium applications that require any combination of accuracy, mobility, and of course, reliability.
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.

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 Polometric rainfall estimation and attenuation correction techniques
- High resolution IQ2 16-bit digital signal processor

RANGER® SERIES
This is the future of X-Band
The new era of X-Band is here! EEC’s new Ranger weather radar systems feature dual-polarity accuracy, solid-state transmitters, low power consumption - everything you want in an X-Band in one affordable and portable unit.
This is what X-Band should be! Developed by EEC in collaboration with the prestigious Atmospheric Radar Research Center at the University of Oklahoma, the affordable Ranger is a compact system weighing less than 400lbs/180kg yet featuring a 100 watt or 500 watt dual-polarity, advanced solid-state transmitter and very low power consumption.

RANGER SYSTEM ADVANTAGES
- Algorithms developed and specifically tuned for performance at X-Band
- Advanced technologies in a compact and light-weight design
- Ultra high resolution data for short and medium range weather detection
- Designed for fixed installations or rapid mobile deployment
- Dual transmitter design:
  - Allows for simultaneous or alternating dual-polarization modes
  - High availability
- Low maintenance and Life-cycle costs
- Simplified design removes complex wave guide and switches
- Decreased system power consumption
- Patent pending revolutionary sealed bearing design
- The most efficient pulse compression techniques available
- Innovative architecture provides the highest receiver sensitivity
- Patented fiber-optic technology provides noise free, ultra-high speed data throughput
An EEC weather radar system is a powerful and precise instrument. To achieve its maximum potential, it needs to be sited and installed correctly and staffed with well-trained personnel. EEC will guide you through the process, providing comprehensive site surveys and full installation services anywhere in the world. We will also train your key personnel to make the most of your system’s capabilities with customized training either on-site or at our facility. EEC will be with you throughout the entire process.
OBERON-XL / OBERON-XLE

The complete satellite data collection system

The Oberon-XL ground station gives you the tools you need to collect data from a wide range of polar-orbiting environmental observation satellite systems, including those operated by NASA and NOAA, and analyze that information depending on the system configuration that fits your specific needs. Covering land, sea, and air, it provides the highest-quality imagery and sounding data profiles for use by meteorological, oceanographical and disaster-relief agencies, military applications, and research organizations. Integrated software offers both high- and low-resolution options for the collection and processing of X and L-band data, and provides baseline services in a seamless manner.

OBERON-XL ADVANTAGES

- High precision X/L-band reception
- XY tracking mount
- Flexible and upgradable
- Robust design can be used without a radome
- Excellent demodulation performance
- Utilizes the ESS3000 multi-mode receiver
- Fully automatic operation
- Interfaces with EEC’s powerful Proteus satellite image processing package
- Receives data from the NOAA and MetOp satellite series (L-band), and Terra, Aqua, NPP (X-band)
- Generates over 150 level-2 science products from the range of satellites

CAPELLA-GR

Get ready for the next generation of the GOES series satellites

GOES-R—the Geostationary Operational Environmental Satellite-R Series—represents a giant leap forward in weather satellite technology. EEC’s Capella-GR ground station provides meteorologists, oceanographers, government and military agencies, and research organizations with the tools they need to observe, collect, and process data from the GOES-R satellites. The increased data load of the new GOES satellites will render current hardware and software obsolete. Don’t be caught unprepared for this radical change in the dissemination and analysis of weather and environmental data. The time to begin integrating the Capella-GR ground station into your existing systems is now.

CAPELLA-GR ADVANTAGES

- Three antenna sizes: 3.7m, 5m & 6m
- Powerful processing system to handle the dramatic increase in data over the current GOES series
- 42 inch display coupled with Proteus satellite data visualization and analysis software

TELESTO

Keep more than an eye on the weather

The Telesto ground station provides all of the tools you need to receive weather and atmospheric data from meteorological satellite systems and process them into image files. The satellite systems accessible via Telesto include the Geostationary Operational Environmental Satellite (GOES) East and West; the Chinese Meteorological Association’s FY-2 satellite; and the Korea Meteorological Administration’s Communication, Ocean and Meteorological Satellite (COMS).

TELESTO ADVANTAGES

- Complete turn-key system for use by forecasters with integrated reception & processing
- Full range of forecasting tools with Dvorak technique, topography, overlays, zooming & panning
- Integration & display of multiple data sources including GRIB, Synops
- Level 2 products such as SST, cloud classification
- All common satellite formats such as HDF, NetCDF, Level 1B
- Interfaces with EEC’s powerful Proteus satellite image processing package
- Telesto ground stations from EEC

JANUS

Weather forecasting and analysis on-the-go

The Janus ground station is a reliable, easily transportable system that provides everything you need to receive weather and atmospheric data from meteorological satellite systems and process them into image files, no matter where you are. The Janus system consists of two sections: a portable antenna mount and a case-mounted processor that powers all components and runs software to display and analyze the satellite data in real time. This portable geostationary system can be broken down swiftly and efficiently, and is perfect for military, meteorological and disaster relief organizations that require swift deployment in remote locations.

JANUS ADVANTAGES

- Portable antenna with feed and downconverter
- Signal interface and processing unit (SIPU)
- Image display laptop computer, incorporating processing and ingest workstation
- Receiver
- Ingest and acquisition software
- Interfaces with EEC’s powerful Proteus satellite image processing package
- Rugged carry cases

OBERON-XLE

Approved for European applications and designed to meet those specifications, Oberon-XLE offers the exact same robust and comprehensive applications as the Oberon-XL system.

OBERON-XLE ADVANTAGES

- XY tracking mount
- Flexible and upgradable
- Robust design can be used without a radome
- Excellent demodulation performance
- Utilizes the ESS3000 multi-mode receiver
- Fully automatic operation
- Interfaces with EEC’s powerful Proteus satellite image processing package
- Receives data from the NOAA and MetOp satellite series (L-band), and Terra, Aqua, NPP (X-band)
- Generates over 150 level-2 science products from the range of satellites

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- Rugged carry cases
**eTELECAST**
Complete geostationary satellite ground station for reception and visualization of re-broadcast data.

The eTelecast ground station receives pre-processed geostationary data from communications satellites, providing a solution where direct broadcast reception is either not possible or not needed. With its multiple antenna and receiver options, eTelecast is suited for different dissemination services, geographical locations and service requirements. Both Ku-Band and C-Band DVB and DVB-S2 transmissions are supported. The eTelecast ground station seamlessly integrates with our powerful Proteus visualization and analysis software. A wide variety of standard data interchange output formats are available, including GeoTIFF, JPEG, netCDF and HDF5. From manufacturing and engineering to final installation, EEC will be with you throughout the entire process.

**eTELECAST ADVANTAGES**
- One-stop-shop reception mechanism allows users to receive many data streams via one reception station
- Highly scalable system architecture
- Integrates with EEC’s powerful Proteus satellite image processing package

**HIMAWARI-8**
High performance, turn key ground station for weather forecasting & research

Himawari-8 dissemination took over from MTSAT in mid-2015, ushering in a new era of Mesoscale Meteorology with more channels and more frequent observations. The eTelecast Himawari-8 ground station from EEC can help you take advantage of this expanded stream of information by combining crucial hardware upgrades with powerful visualization and analysis software. EEC’s Proteus software has been enhanced to make use of the new capabilities of Himawari-8, including:
- **Greater Resolution**
  - Visible channel 0.5km, IR channels: 2km
- **Rapid Update Storm Monitoring**
  - A new image every 10 minutes - greatly improving monitoring of position and motion of typhoons and storm fronts
- **Improved Cloud Analysis**
  - RGB channels improves cloud type determination
  - Higher resolution differentiates cloud types
- **Higher Precipitation Accuracy**
- **Quicker And More Accurate Volcanic Ash Detection**
- **Improved Dust Observations**
  - MODIS algorithms applied to improve detection and tracking

**HIMAWARI-8 ADVANTAGES**
- Higher Spatial Resolution
- More Frequent Observations
- More Spectral Bands (16 Bands / Color Image)

**EEP**
weather radar systems and satellite ground stations are powerful and precise instruments. To achieve their maximum potential, they need to be sited and installed correctly, and staffed with well-trained personnel. EEC will guide you through the process, providing comprehensive site surveys and full installation services anywhere in the world. We will also train your key personnel to make the most of your system’s capabilities with customized training either on-site or at our facility. EEC will be with you throughout the entire process.

**IMPLEMENTATION & TRAINING**

**Site for Success**
Somewhere in Brazil’s immense Amazon Rain Forest, an EEC S-Band radar scans the horizon for signs of threatening weather heading toward the cities. On a mountaintop in Bavaria, the data from an EEC C-Band radar system is merged with the data from Germany’s 17 other EEC radars to create a complete picture of that country’s current weather. At a regional airport in the USA’s western Rocky Mountains, an EEC X-Band radar monitors a developing storm that could interfere with air traffic over three states. All around the world, wherever there are people and assets that need warning and protection from weather, there is an EEC radar on the job scanning the skies. How do you achieve that level of protection?

It begins with selecting the correct EEC weather radar system – S-Band, C-Band, or X-Band – to fit the terrain, climate, and your individual specifications. Then, based on our 40-plus years of experience installing over 1000 radar systems, we will help you determine the best site for maximum coverage and performance.

**Installation**
When we execute a detailed site survey, the final location is based on finding the spot that will allow your radar and/or satellite ground station system to get the best results – no matter how remote or inaccessible that area may be. Then it’s up to us to get the entire system to that site and properly installed. That includes supplying power to the site, connecting all the equipment together, and testing all systems to make sure everything operates according to specifications.

**Training**
Every EEC weather radar system and satellite ground station provides the technology to generate very detailed and sophisticated information. Taking full advantage of that potential requires a commitment to learning how the system works, how to interpret its output, and how to keep it properly maintained. And to be truly effective, all of that information must be presented in the context of your specific geography, climate and weather challenges. To help you unlock the potential of your EEC radar and/or satellite ground station systems, our meteorologists will train your personnel either on-site or at our facility in Alabama.

Training is tailored to your particular radar or satellite data system, your weather, and the knowledge level of your personnel: anything from the basics to advanced multi-week courses offered in partnership with the University of Oklahoma. EEC’s customized training provides you the knowledge and tools needed to maximize the value of your radar system or ground station, and protect people and assets in your area of responsibility.
Global Support

Worldwide Technical Support

Your EEC radar system represents a significant investment in time, people, and money. That is why we have upgraded our technical support centers to give you 24/7 live telephone support. No matter what time of day or from where you are calling, you can talk to a trained, courteous EEC representative to help you solve the issue.

On-site Maintenance

Our customized training programs teach your personnel how to perform routine care and calibration of your systems. To augment existing maintenance programs, many customers also take advantage of our annual support and preventive maintenance plans. If the radar system has internet connectivity, we can check it via our remote diagnostic capabilities. And finally, should you encounter a bigger issue, we can send a factory trained technician directly to the site to diagnose and correct the problem.

Advanced Training

The forward-thinking technology available in an EEC radar system is capable of producing advanced information which exceeds the current needs of most users. Should your requirements specify this level of information, or your installation utilizes some of our most sophisticated equipment, we offer optional enhanced training in the use and maintenance of these features.

Three Support Centers

EEC has radar and/or satellite system installations in over 90 countries on every continent. To fully support all of these sites, we have opened fast response service centers in Bonn, Germany; Melbourne, Australia; and at our headquarters in Enterprise, Alabama. By placing these service centers in strategic positions around the globe, we can respond to you quickly and efficiently.

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