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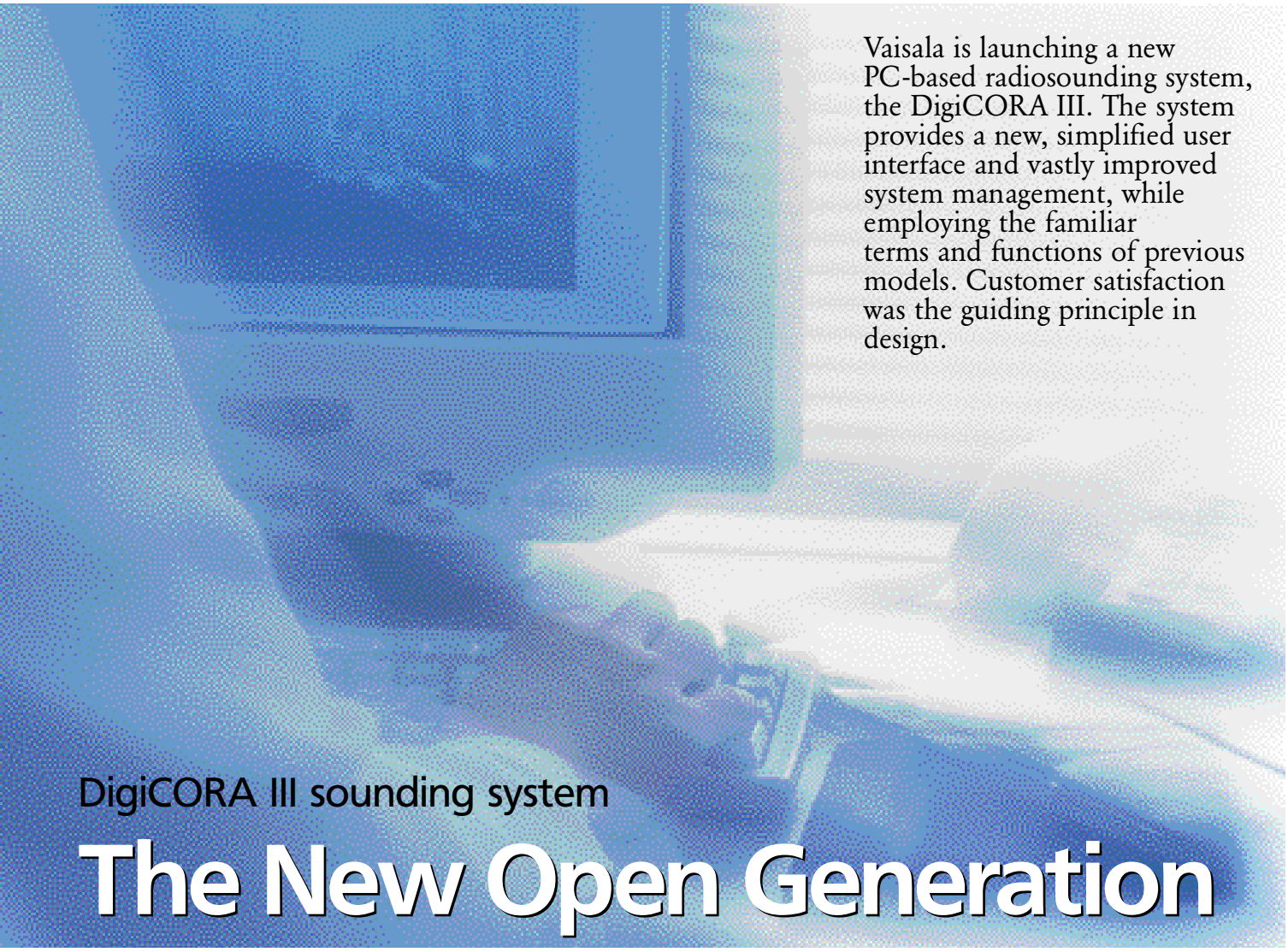


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Vaisala is launching a new PC-based radiosounding system, the DigiCORA III. The system provides a new, simplified user interface and vastly improved system management, while employing the familiar terms and functions of previous models. Customer satisfaction was the guiding principle in design.

DigiCORA III sounding system

The New Open Generation



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Vaisala is currently launching a new-generation, PC-based radiosounding system – the DigiCORA III (MW21). The new system has many benefits.

Use of the personal computer as the processing platform for the DigiCORA III software results in good usability, lower training and maintenance costs and a wide range of connectivity options. Furthermore, DigiCORA III's modular design provides an easy upgrade path from earlier DigiCORA generations, and thus keeps the investment requirement under control.

The new, simplified user interface vastly improves system management, while employing the familiar terms and functions of previous models. But the sounding software itself provides new functions and operating options that reach far into the future of radiosounding. This makes DigiCORA III the perfect long-term solution in the DigiCORA family of sounding systems.

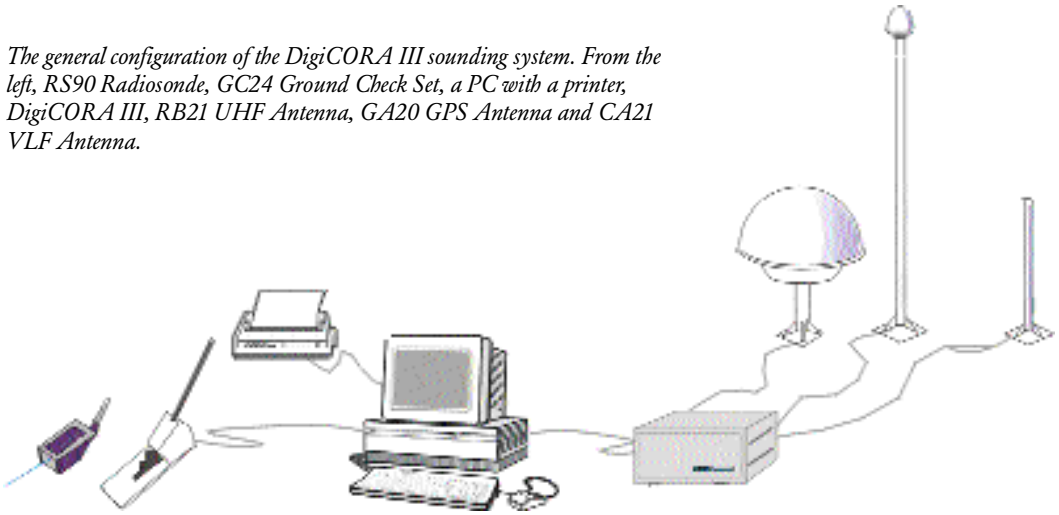
Main system components

The sounding system comprises two main components – a PC which runs the DigiCORA III software and acts as the collector and repository for meteorological data from the soundings, and a sounding processing subsystem which receives the data and preprocesses it.

The sounding processing subsystem can be any Vaisala system that has ARCNET networking capabilities. While the preferred solution is the new Meteorological Processing Subsystem MPS210 introduced along with the DigiCORA III, certain legacy systems can also be converted or used as is. For example, the DigiCORA (MW11A), MARWIN (MW12A) and DigiCORA II (MW15) are all suitable for the task – as are the RT20A Radiotheodolite and in the future even the AUTOSONDE installation.

Sounding data on air pressure, temperature, humidity (PTU) and wind is gathered by the sounding processing subsystem and sent to the PC, where the DigiCORA III software collects, presents, analyses and stores it. The PC can also create and relay meteorological messages to customer-appointed locations by means of serial connections, telephone services or various network protocols.

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The general configuration of the DigiCORA III sounding system. From the left, RS90 Radiosonde, GC24 Ground Check Set, a PC with a printer, DigiCORA III, RB21 UHF Antenna, GA20 GPS Antenna and CA21 VLF Antenna.

PC installation supports flexibility

The DigiCORA III software is delivered preinstalled on a PC. The present PC configuration contains a Pentium II processor (400 MHz or higher), 128 MB of RAM, a 6 GB hard drive, an SVGA graphics card and a monitor. The sounding system runs on a Microsoft Windows NT 4.0 platform.

The DigiCORA III is native 32-bit Windows NT software, which utilizes the advanced multi-tasking properties of Windows NT. This allows the software to run multiple sounding sessions concurrently, each of which can access a common data source. The soundings can be live or simulated, using previously saved sounding data. Although only one live sounding can currently be handled at one time, the architecture will allow multiple simultaneous live soundings to be operated from a single workstation once the hardware capability becomes available.

User-friendly solution

The software integrates sounding control, archiving and message creation under one user interface (UI). The UI has a number of important enhancements for the end-user, notably the configurable access level and the translatable user prompts.

The DigiCORA III user interface offers two levels of access. The standard mode restricts user access to those features needed for operating a sounding. In this mode, the user only needs to enter the surface observation values and the type of sonde used in the sounding. Once the sonde has been launched, the user does not need to operate the system in any way. An occasional check to ensure that the sounding is progressing as planned is all that is required.

The advanced mode allows access to all parameters. In this mode, the user has complete control over all aspects of the station and system configuration, as well as the sounding operating capabilities. The advanced mode can be password protected.

DigiCORA III uses both text and visual prompts to guide the user through the various stages of preparing and launching the radiosonde. The text prompts are all translatable into any language, provided the language does not use a double-byte character set. Certain visual prompts can also be substituted with customized versions.

Improved data management

DigiCORA III provides the user with a very extensive collection of data from each sounding, as all the received data can be saved and stored for later analysis. Here it is worth noting that the database for storing the soundings uses the Microsoft Access format. Customers can therefore query the database with standard Microsoft Office 97 tools, such as Excel 97. In the future, a separate data access API will be made available, which will allow customers to make and use customized data processing and analysis tools to suit their specific requirements.

Data and message creation and relayig are based on DigiCORA III's integration with Windows NT. Although the software has a number of predefined, editable message formats, customers can also define their own message formats with the built-in message editor. These messages can be triggered manually or automatically at predefined stages during or after sounding. They are then relayed forward using Windows NT's networking capabilities, including serial connection, dial-up networking and various LAN protocols (TCP/IP, SPX/IPX, NetBEUI). Consequently, a network of DigiCORA III-based stations can be configured to constitute a scalable, automatic data and meteorological message relaying infrastructure, useful for local, national and international needs alike.

Meteorological Processing Subsystem (MPS210)

The MPS210 is a separate unit containing the PTU processor UPP210 with customer-selected wind processing cards: the GPS Processor MWG201 or Navaid Processor MWV201. The subsystem is remotely controlled by the DigiCORA III software.

The subsystem and the PC use ARCNET network protocol for data and control message transfer. The MPS210 power supply contains the subsystem ARCNET connector, and the PC requires a separate ARCNET network card. There can be several MPS210 subsystems connected to a single PC, with each MPS210 housing two wind processing cards.

The MPS210 collects the information for the PTU and wind calculations via a radio receiver and local antennas connected to corresponding cards within the subsystem. The collected and processed data is then passed to the DigiCORA III software for analysis and storage.

Increased customer value

During the design phase of the DigiCORA III, special attention was paid to the customers' views. As a result, Vaisala developed an open system, based on industry standards. Compared to an embedded system, the PC architecture provides significant benefits for the customer, in terms of both cost and maintainability. The user interface was specifically designed to allow the simplest possible operation, thus lowering operator training requirements.

Downward compatibility and upgradeability – the traditional Vaisala hallmarks – are essential properties of DigiCORA III. All the MW generations – MW11, MW12 and MW15 – can be used as such or upgraded for the new MW21. The new Meteorological Processing Subsystem MPS210 provides a platform for both present and future sounding capabilities. The DigiCORA III PC can be upgraded as PC technology evolves, along with the operating system and the DigiCORA III software.

Customer satisfaction was the guiding principle in designing the DigiCORA III. Although highly innovative, it is a simple system at heart. It is easy to set up, use and maintain, and its operating requirements have been set at the minimum. While it contains all the components necessary for a basic off-the-box sounding system, it is easily configurable for the most demanding requirements. In fact, DigiCORA III is the definitive sounding system for the new millennium. ■

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