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Find the *Vaisala UPP210* at our website: *Click HERE*

VAISALA

Vaisala DigiCORA® III Sounding System



A sound foundation for
upper-air weather observation

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A Fundamental Tool of the Meteorological Trade.

The Vaisala DigiCORA® III Sounding System eases the daily work of the meteorologist by making the receiving, processing and forwarding of meteorological information as easy and secure as possible. Vaisala has a long history of developing sounding systems in step with the evolving needs of meteorologists and meteorological institutes.

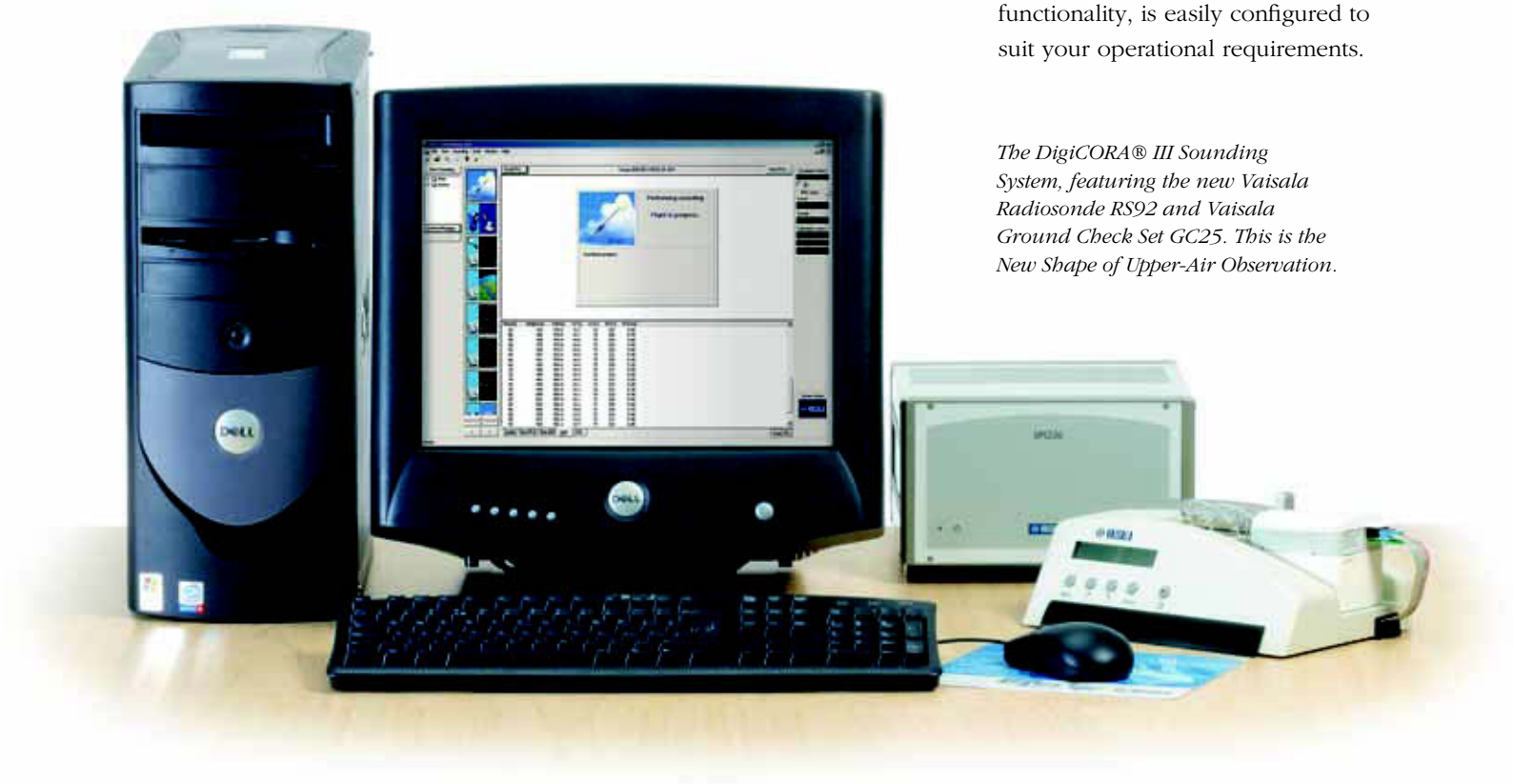
Upgrading from earlier DigiCORA® systems to the Vaisala DigiCORA® III Sounding System is a sound investment in the future of your upper-air sounding program. The Vaisala DigiCORA® III Sounding System integrates sounding control, the archiving of sounding data and meteorological message creation. The routine tasks of sounding can be automated from start to finish if desired, freeing you to apply your meteorological skills where they bring the most benefit.

Meteorological nerve center

The nerve center of DigiCORA® III is the easy-to-use Sounding Workstation. Here the DigiCORA® III software collects, processes and presents the sounding data, generating and forwarding meteorological messages through serial connections, telephone lines and/or advanced data networks.

Desktop or laptop

The DigiCORA® III Sounding Software can be delivered in a portable laptop or desktop workstation for synoptic weather stations. In either case, the DigiCORA® III Sounding System, with its familiar Windows®-based functionality, is easily configured to suit your operational requirements.



The DigiCORA® III Sounding System, featuring the new Vaisala Radiosonde RS92 and Vaisala Ground Check Set GC25. This is the New Shape of Upper-Air Observation.

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Comfortable Control Over the Sounding Process.

The DigiCORA® III Sounding Software is offered in three modules that give you comfortable control over the sounding process from start to finish: Standard, Metgraph (optional) and STANAG (optional). The Standard module is provided as a default with every system.

Standard DigiCORA® III Sounding Software

The Standard DigiCORA® III Sounding Software offers PTU and wind data collecting, processing and archiving. It also generates, edits and forwards TEMP, PILOT, BUFR and CLIMAT TEMP messages either automatically or manually. STD and EDT data is generated automatically. Special measurements such as ozone are supported.



The Standard DigiCORA® III software screen showing a sounding in progress and sounding data streaming in.

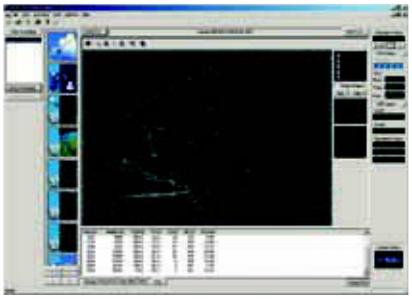


A screen of the Standard software with installed options: at left the Metgraph, Tephigram and Hodograph miniview panes.

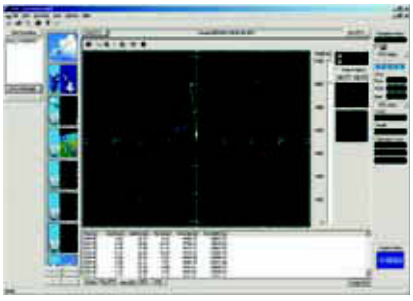
Optional Metgraph software module

The optional Metgraph module provides a graphical representation of calculated sounding data and a significant point editor. In one window, the following meteorological parameters are displayed as graphs: temperature, humidity, wind speed, wind direction and wind components. Special measurement data can also be graphically represented with the help of Metgraph. In this window, the automatically set significant points are displayed and can be edited manually.

In another window, thermo-dynamic diagrams are displayed (Tephigram, Skew-T/Log-P, Stüve, Emagram). Hodograph, which is used to observe wind shear conditions, is displayed in yet another window.



Spotlight on Tephigram:
A Tephigram is a thermodynamic diagram used for closely observing thermodynamic variables. The name comes from "Temperature/Phi", the symbol for entropy. The ninety degree angle between isotherms (constant temperature lines) and dry adiabatics (constant entropy lines) makes it very useful. In practice other lines are plotted such as pressure levels, saturated adiabatics etc. and a trained meteorologist can use a radiosonde flight plotted on a Tephigram to estimate and forecast fog, convection, cloud base, cloud thickness and many other variables.



Spotlight on Hodograph:
A Hodograph is a diagram used to observe wind shear conditions. Wind speed and direction at various heights are plotted on a polar diagram, resulting in a graph that traces the vertical wind shear over the intervening layers.

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Optional STANAG module

The optional STANAG software module, meant primarily for military use, generates the following NATO STANAG messages: METB2/METB3, METCM, METFM, METSR/METSRX, METTA, MOBOB. These messages can be generated automatically and edited manually if desired. The BROWSE function allows the user to arrange, save and print the sounding parameters at predefined levels. There are three browsing options: consecutive levels, independent levels and spot levels.



An example of the available STANAG message types.

Radiosonde compatibility

The Vaisala DigiCORA® III Sounding System is compatible with the new Vaisala Radiosonde RS92, Vaisala Radiosonde RS90 and Vaisala Radiosonde RS80.

Protect your sounding program

Upon signing of the Service Agreement for DigiCORA® III, the basic level of the Vaisala Service Contract (Level 1) is included in the system price. The agreement is valid for the 12 months following system delivery. The goal is to ensure that your sounding program is protected with the appropriate software upgrade and maintenance coverage. Level 1 of the Vaisala Service Contract covers:

- Software upgrades:
  - DigiCORA® III Sounding Software
  - Optional sounding software, if included
  - Operating system for the sounding workstation
- New user manuals (in English)
- Remote diagnostics
- Sounding data analysis service.

Principles of Vaisala DigiCORA® development

Data availability is everything: the amount of missing or rejected sounding data must be minimized.

The customer must have the desired **balance of automation vs. manual input**.

The customer must have **modern system management** that gives the required level of control over the sounding process (e.g. the assigning of personnel privileges for data editing).

The customer must be in **comfortable control over the sounding process** (the software is made explicitly for the daily work of upper-air weather observation).

Meteorological messages must be generated and transmitted by the system according to the requirements of the customer's sounding program.

Customer-specific needs are accommodated where possible: the customer has room to make system modifications.

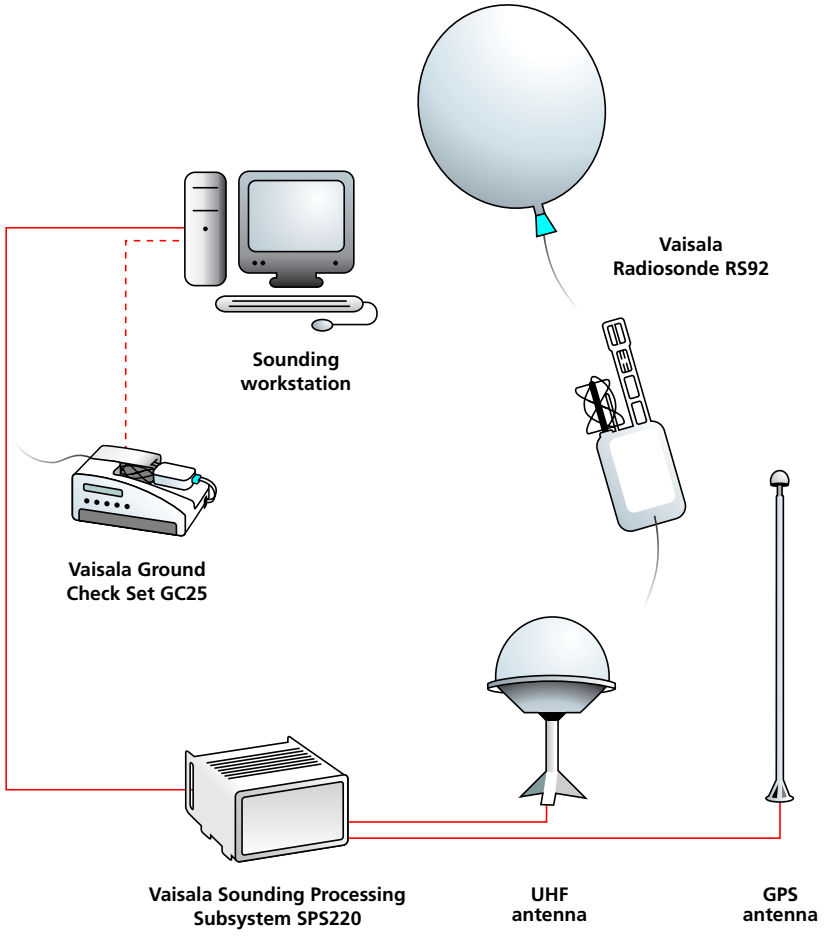
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From data to messages

As a sounding progresses, the Vaisala Sounding Processing Subsystem SPS220 collects the PTU and wind data by means of a radio receiver and local antennas. The SPS220 relays the data to the sounding workstation for processing and archiving. The DigiCORA® III Sounding Software offers a number of predefined message formats. Meteorological messages can be edited manually or automatically and forwarded in a variety of ways thanks to the system's flexible data handling, configurable message spooling mechanism and built-in Windows® networking capabilities. Message editing and forwarding can be done at specified points both during and after a sounding.

Remote access and networking

DigiCORA® III's open software architecture offers many new opportunities for remote data access, system configuration and maintenance. Microsoft® networking technology, data management tools and TCP/IP technology allow DigiCORA® III sounding systems to be networked in a scalable infrastructure that automatically relays meteorological messages according to local, national and international requirements.



The choice is yours

The typical DigiCORA® III Sounding System configuration provides many options:

- Your desired balance of manual vs. automatic editing of sounding data
- All the standard connectivity options
- Wind-finding: switching between GPS, Loran-C, RDF with the Radiotheodolite is easy
- Connectivity to automatic weather stations (Vaisala MILOS and MAWS family) for the automatic reception of surface weather data
- Various ways to access data through the open data interface
- A choice of Vaisala radiosondes (RS92, RS90 and RS80 families)
- Support for all Vaisala ground check sets
- Special measurements such as ozone and radioactivity.

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Technical Information

Minimum hardware requirements

Workstation, desktop or laptop:	
Processor	Pentium® II 400 MHz or equivalent
Memory	128 MB
Monitor	1024*768, 256 colors
Free hard disk space	50 MB
Recommended workstation hardware:	
Processor	Pentium® IV 1.6 GHz
Memory	256 MB
Monitor	17" or bigger
Free hard disk space	500 MB
CD-RW	
Network card	
Internal modem	
Vaisala Sounding Processing Subsystem SPS220	
PTU-only:	
MWF210 frame	
MWP210 mains power supply	
UPP210A receiver processor unit	
URR20 UHF receiver unit MWI210 interface processor	
GPS, Loran-C and RDF wind options are available.	
Antennas	
PTU only:	
RB21 UHF antenna, fixed or	
RM21 UHF antenna, fixed or	
CG25 UHF antenna, portable	
Fixed and portable GPS and Loran-C antennas. RDF antenna also available.	

Minimum software requirements

Operating system	Windows® 2000 Professional (SP2)
	Supports also previous systems with Windows NT® 4.0 and NT 4.0 Terminal Server (SP6)
Sounding system	Standard software
	Metgraph (optional)
	STANAG Messages (optional)
System recovery software	
Remote control software	

Telemetry

Frequency range	400 ... 406 Mhz
Modulation type	FM
UHF antenna	Lobe switching, directional, solid state
Telemetry range	200 km minimum
Automatic frequency control	
Automatic antenna direction control	

PTU measurement

Sampling rate	According to radiosonde cycle, 0.5 to 2.5 s
Transmission	Digital RS92, analog RS90 and RS80

GPS wind

Local GPS antenna	Omnidirectional
Number of satellites	All in view
Synchronization	Automatic
Downlink	Both GFSK and FSK available
Signal detection	Digital

Loran-C wind

Loran-C antenna	3.0 m whip
Chain selection	Automatic, two chains with best geometry out of four
Synchronization	Automatic

Environmental requirements

Indoor equipment:	
Operating temperature	0 ... 35°C
Operating humidity	10 ... 90%
Storage temperature	-40 ... +65°C
Storage humidity	5 ... 95%
Outdoor equipment:	
Operating temperature	-40 ... +55°C
Operating humidity	0 ... 100%
Operating wind speed	0 ... 65 m/s
Operating precipitation	Unlimited
Storage temperature	- 50 ... +100°C
Storage humidity	0 ... 100%

VAISALA
Reliable.

Vaisala Oyj
Helsinki, Finland
Tel. +358 9 894 91
Fax +358 9 8949 2227

Vaisala GmbH
Hamburg, Germany
Tel. +49 40 839 030
Fax +49 40 839 03 110

Vaisala Ltd
Birmingham, UK
(Traffic Weather Products only)
Tel. +44 121 683 1200
Fax +44 121 683 1299

Vaisala Ltd
Newmarket, UK
(Upper Air and Surface Weather Products only)
Tel. +44 1638 576 200
Fax +44 1638 576 240

Vaisala SA
Cedex, France
Tel. +33 1 3057 2728
Fax +33 1 3096 0858

Vaisala SA
Meyreuil, France
(Thunderstorm Systems only)
Tel. +33 4 4212 6464
Fax +33 4 4212 6474

Vaisala Inc.
Woburn, MA, USA
Tel. +1 781 933 4500
Fax +1 781 933 8029

Vaisala Inc.
Columbus, OH, USA
(Aviation Weather Systems only)
Tel. +1 614 873 6880
Fax +1 614 873 6890

Vaisala Inc.
Boulder, CO, USA
Tel. +1 303 499 1701
Fax +1 303 499 1767

Vaisala Inc.
Tucson, AZ, USA
(Thunderstorm Systems and Data only)
Tel. + 1 520 806 7300
Fax + 1 520 741 2848

Vaisala Inc.
Sunnyvale, CA, USA
(Surface Weather Products only)
Tel. +1 408 734 9640
Fax +1 408 734 0655

Vaisala Inc. Regional Office
London, ON, Canada
Tel. +1 519 679 9563
Fax +1 519 679 9992

Vaisala KK
Tokyo, Japan
Tel. +81 3 3266 9611
Fax +81 3 3266 9610

Vaisala Pty Ltd
Hawthorn, VIC, Australia
Tel. +61 3 9818 4200
Fax +61 3 9818 4522

Vaisala Beijing
Representative Office, P.R. China
Tel. +86 10 6522 4050
Fax +86 10 6522 4051

Vaisala Regional Office Malaysia
Kuala Lumpur, Malaysia
Tel. +60 3 2169 7776
Fax +60 3 2169 7775

For more detailed contact information and for other Vaisala locations at www.vaisala.com

All specifications subject to change without notice.

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