

Berghof

Dialog Controller **DC1000**

**Control - Communication - Visualisation
with extra flexibility**

- PLC with integrated Display
- CoDeSys Web and Target Visualisation
- Multifunctional I/O Extension Cards



AUTOMATIONSTECHNIK

Unternehmen der ZUNDEL Holding

*Ideen
werden
wahr.*

The Dialog Controller

Machines and plants are being built with increasingly compact dimensions. So it is excellent if the control technology combines many functions in a single device.

The name of the intelligent solution is:
The Berghof Dialog Controller.

Similar to PC-based control systems, the Dialog Controller is a programmable PLC control system and dialog panel rolled into one. It is all installed into a housing with minimal dimensions.

In addition to "operating and monitoring", the Dialog Controller assumes control functions and communicates on the Ethernet, via CANbus and serial interfaces.

All the important functions are on board:

- Machine controls with CoDeSys programming
- Control panel with display, touch screen and web visualisation
- Communication interfaces such as Ethernet, CAN, USB, serial...
- Digital and analog inputs and outputs

CoDeSys

PLC programming, visualisation and I/O connection in a single tool.

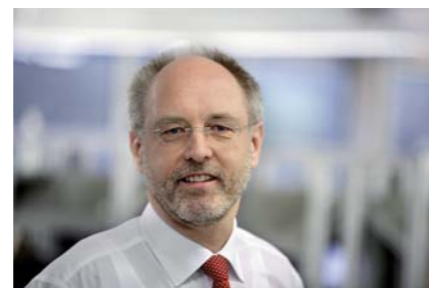
Just one project file. This saves time when creating and maintaining the application.

Service and remote maintenance

Web server, FTP and e-mail functions make machines and plants accessible worldwide.

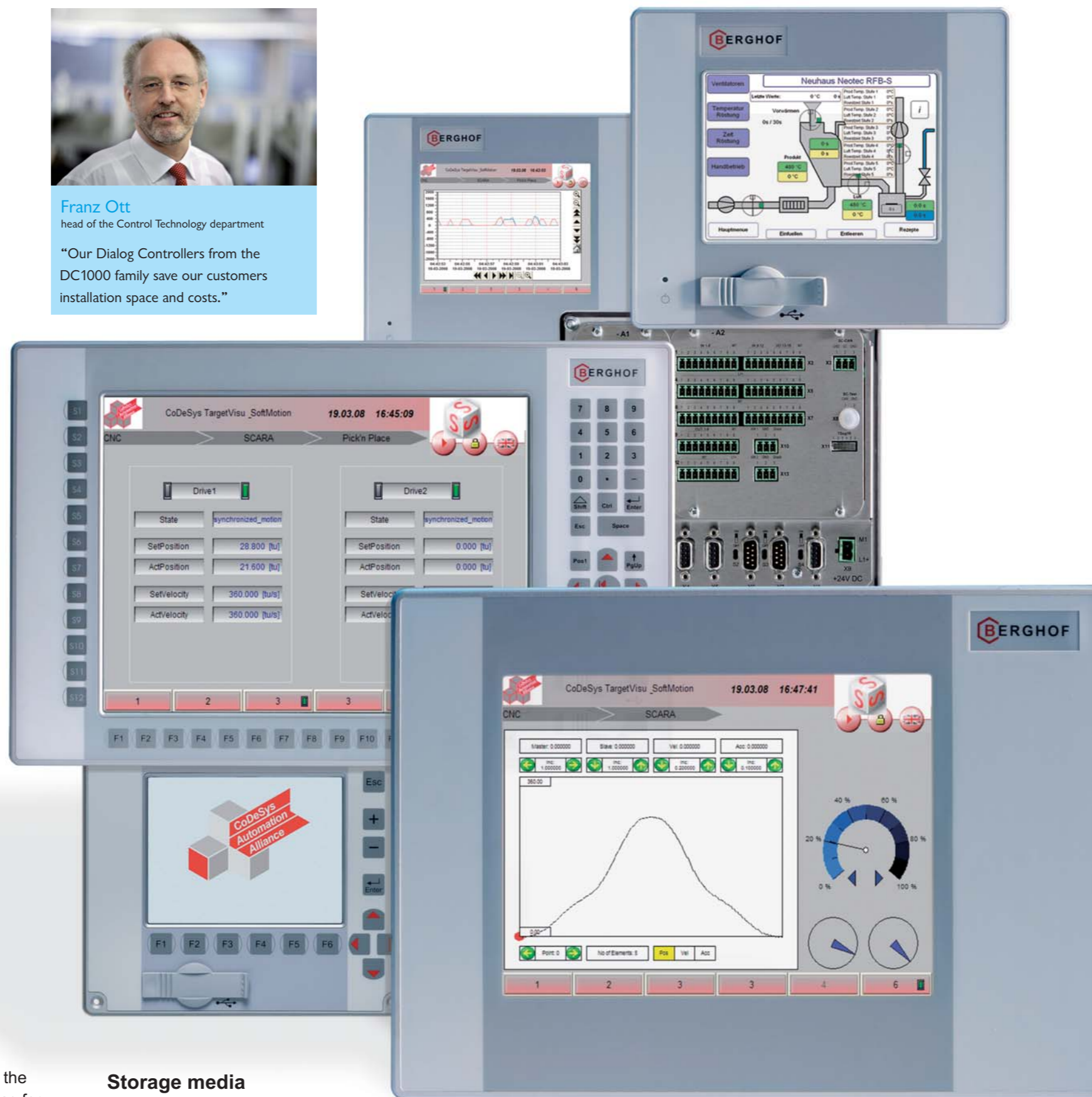
Linux: the operating system with realtime extension

Based on the free and universal operating system, Linux, the Dialog Controller offers many convenient functions, such as for example, Internet access and file organisation. A realtime extension qualifies the state-of-the-art operating system for control technology functions.



Franz Ott
head of the Control Technology department

"Our Dialog Controllers from the DC1000 family save our customers installation space and costs."



Storage media

The file system provides convenient access to USB sticks, SD card and onboard Flash memory.

Always the appropriate Dialog Controller

Scalable processing power and variable screen diagonals for machines and plants.

- Diagonal and definition
- QVGA 5.7" with monochrome or TFT colour display
- VGA with 5.7" and 10" TFT colour display
- SVGA with 12.1" TFT colour display

Processor and storage media

- 400 MHz or 266 MHz PowerPC CPU
- 128 MB or 64 MB RAM
- 32 MB or 16 MB onboard Flash memory
- 1 SD card slot
- USB port



Jürgen Wanner
Product Manager DC1000

"The DC1000 is real multi talent. So many functions combined in a single device; it is unique in the control technology market.

You don't need all of the functions?

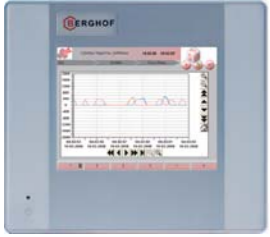
Let us know. We can build the DC1000 that suits you best in terms of price, functions and design."



The right interface configuration for each application

The right front for each application

CLEAN Touch



If cleanliness is a priority, the CLEAN Front is the right choice. Dust and dirt do not stand a chance here; and what's more, it is easy to clean.

CONNECT Touch



Machine parameters or data records can be exchanged simply and fast by means of a USB stick. It is very convenient to have a USB port available at the front. The CONNECT Front is distinguished by the USB port at the front with IP65 cover.

CONNECT Key



Touch screen or membrane key pad: this is not merely a philosophical operational issue. Gloves are often needed on site. If this is the case, keys are simple and safe to use.

Technical data:

- Touch: Resistiv Matrix Touch with 12-bit resolution
- Membrane key pad: XY Matrix
- Touch screen and membrane key pad: customer specific DC1000

Prime Interface



Communication is the forte of the DC1000. Its spectrum of interfaces and extension options makes is the reason for this. The DC1000 with a PRIME interface is extremely adaptable.

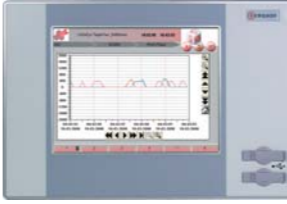
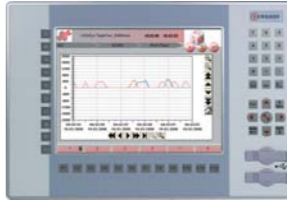

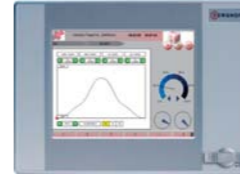
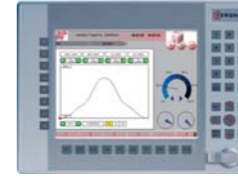
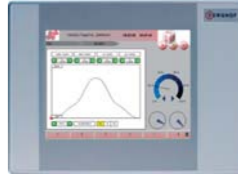












The maximum scope of the interfaces can be supplemented with further communication and I/O extension cards. So it is easy to always find the right automation solution.

Basic Interface



The DC1000 with the BASIC interface is optimal for standard applications.

With high processor power and equipped minimally with interfaces, it is the right solution for a price sensitive market.

	Prime Interface			Basic Interface
	Clean Touch	Connect Touch	Connect Key	Clean Touch
12,1" SVGA 800 x 600 65536 colours (16 bit p. P.)		 DC1012T T	 DC1012T K	
10,4" VGA 640 x 480 65536 colours (16 bit p. P.)	 DC1010T T Clean	 DC1010T T	 DC1010T K	 DC1010T T Basic
5,7" VGA 640 x 480 65536 colours (16 bit p. P.)	 DC1005V T Clean	 DC1005V T	 DC1005V K	 DC1005V T Basic
QVGA 320 x 240 256 colours (8 bit p. P.)	 DC1005T T Clean	 DC1005T T	 DC1005T K	 DC1005T T Basic
QVGA 320 x 240 monochrome 4 shades of grey	 DC1005M T Clean	 DC1005M T	 DC1005M K	 DC1005M T Basic

Variable with extension cards

The DC1000 can be fitted with a maximum of three extension cards. The spectrum encompasses pure I/O cards as well as communication cards, which are already installed by Berghof.

The range is constantly being extended conforming to the market requirements.

Profibus

The fastest connection to higher order plant control systems

Master and slave all on one card

Communicate simultaneously with Profibus peripherals and with high order plant control systems. This enables you to integrate the Profibus in your plans in accordance with the demand.

Multifunctional with onboard interfaces

Ethernet

Ready for Profinet and EtherCAT

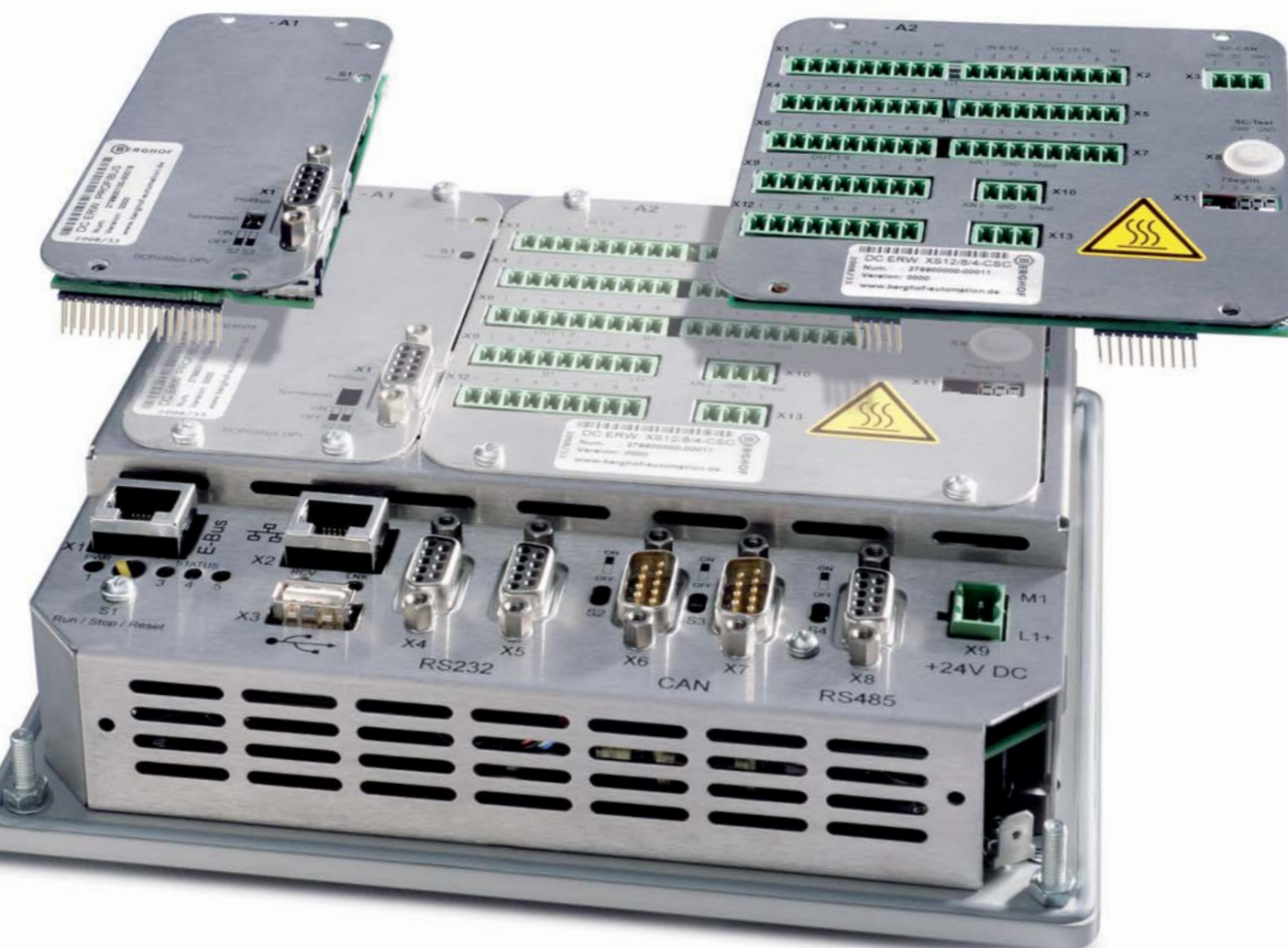
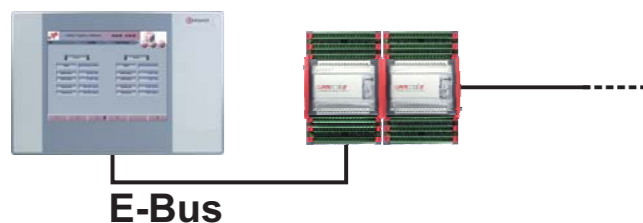
The interface with the greatest number of functions; connection to plant visualisation, into the web and to the programming tool. Already today the DC1000 is ready for Profinet and EtherCAT.



E-bus

The affordable I/O connection

Digital and analog I/O can be connected directly without difficulty. The optimal interface for cost-sensitive and customer-specific I/O modules.



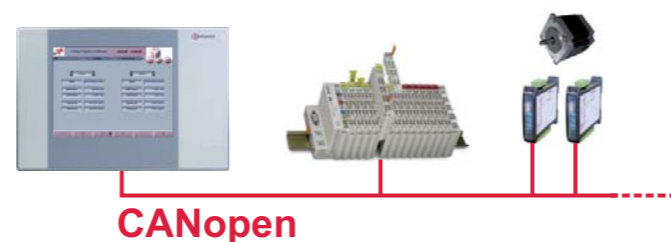
I/O 12/8/4

- 12 digitale IN with counter and encoder functions
- 8 high performance 0.5 A digital outputs at 24 V
- 4 digital I/O to be used as inputs or outputs
- 2 analog IN - 0..10 V oder 0..20 mA

CAN

The complete selection of CANopen products

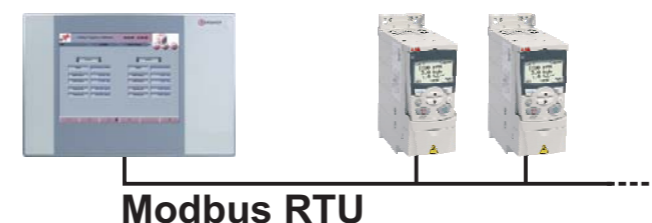
Connect CANopen modules, such as I/Os, drive controllers etc. to the DC1000 fast and conveniently.



Serial

RS232, RS485, ModbusRTU

Whether point-to-point or as a bus: the DC1000 possesses the right interfaces for connecting affordable peripheral devices.



Data memory

Onboard Flash memory

Compact and fast

All relevant controller data are stored in the internal Flash memory. This is the control application with all of the associated retain files, fonts and bitmaps. If need be, the onboard memory can be complemented by a USB stick and SD card.

USB

Fast data exchange and convenient maintenance

The USB interface has to assume two elementary functions.

- Data or parameters are exchanged as fast as possible on the running machine via a USB stick.
- A script file turns the USB stick into a maintenance instrument. The maintenance personal can update data, firmware and the machine application fully automatically in a single process. Hence worldwide maintenance is quite simple.

SD Card

Plenty of space for substantial quantities of data

Today more and more process data and parameters need to be recorded over a long period of time. These files are best kept on an SD card.

Extensive applications often require additional, memory intensive files. This may be in the form of special images or fonts.

And the CoDeSys application itself can also be stored on the SD card. Furthermore, the simple exchange mechanism is also maintenance-friendly.

CoDeSys - All in one tool

Reach your target sooner

Create the PLC program with visualisation and I/O connection using a single tool.

A single project file simplifies creation of the project and, of course, subsequent maintenance.

IEC6131-3 control program

In compliance with the requirements the IEC programming languages can be selected to match every single module.

The IEC61131-3 programming languages, FUP, KOP, ST, AWL and AS are available.

Debugging

In online operation CoDeSys provides important monitoring and debugging functions, such as Breakpoint, Single Step, Single, Cycle etc.

The PLC program can be tested prior to commissioning by means of the simulation mode.

Libraries

Reuse know-how

Pack your know-how into libraries, which you can use again in each new project.

Machine and plant know-how can be summarised to form libraries in their own right and can be used again for each new project.



Visualisation

Direct access to the PLC program

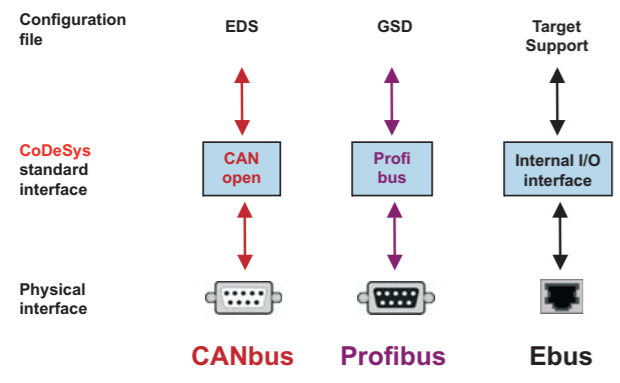
The visualisation for the DC1000 integrated in CoDeSys is a special highlight.

As with the prefabricated visualisation elements, such as trend graphs, alarm tables or pointer instruments, the visualisation accesses the variables of the PLC program directly.



Create once and use on three platforms

Control system configuration



With the appropriate configuration file and the association communications parameters Profibus and CANopen components can be integrated into CoDeSys quickly.

E-bus modules can be used immediately thanks to the Target Support Package from Berghof. The I/O data can be observed in online mode.



Target visualisation
On the DC1000 for operating the machine or plant.



Web visualisation
In the Internet browser in the form of web visualisation for monitoring and remote maintenance.



Debugging visualisation
On the developer notebook for observing and testing the

The right data in the right place at the right time

Heterogeneous network and plant structures, communication with I/O and drive modules, fast connection of the plant control system and visualisation — this is what the interfaces and communications are ideal for.

Arno Rabold, PhD
Development Manager

“Simple and globally applicable maintenance concepts are an integral part of the DC1000. Remote maintenance via the network, automated update with a USB stick or the exchange of an SD card: it is up to you to select the optimal approach for your machine or plant.”



Programming, configuration, (remote) maintenance

Development level

CoDeSys programming
The central unit for the SPS program, visualisation and the entire communications is CoDeSys.



Web configuration
Easy access to all the DC1000 parameters via Internet browser. The integrated web server then displays for example network parameters, user administration and all important parameters to facilitate remote access as securely as possible.



Service Menu
The network parameters can also be set and stored directly on the display of the DC1000.

Supply the management level with up-to-date data

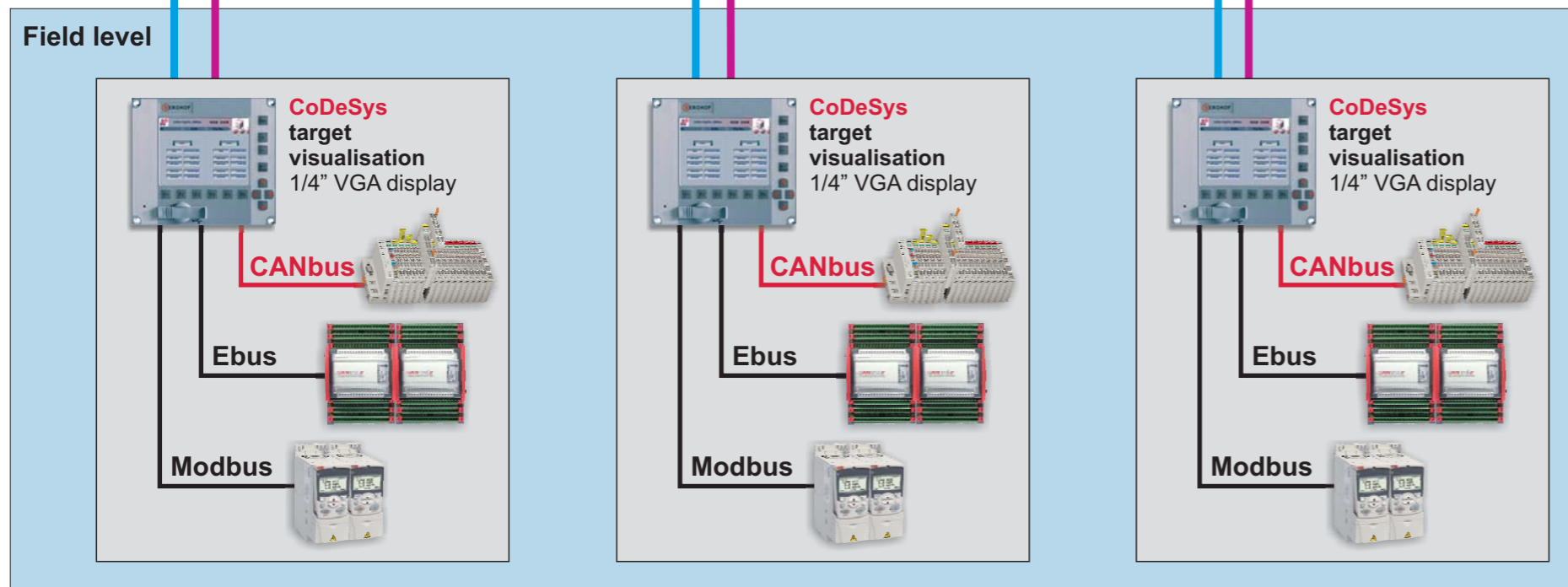
The DC1000 supports data transfer to the control room using file transfer via FTP with the direct SQL database access or via e-mail.

Management level

Connection to the process control level

Putting data exchange into operation fast by means of the plant control system. ProfibusDP extension card or an Ethernet protocol such as TCP/IP and ModbusTCP are the right means to do so.

Process control level



Field level — control and communication

The DC1000, the powerful machine control system with integrated display, controls and communicates with I/O modules and drives.

Communication libraries simplify the handling of hardware interfaces.

Communication protocols / libraries

- CANbus: CANopen, CAN Level 2
- Serial: ModbusRTU, 3964R

Motion Control

The Motion Control libraries enable machine functions to be mapped precisely. Communication with the drives is part of the library and takes place automatically in the background. Appropriate Berghof Motion Control libraries are available for many drives, for example for components from: Schneider, Alcatel Dunker, Yaskawa, ABB, ...

Technical data

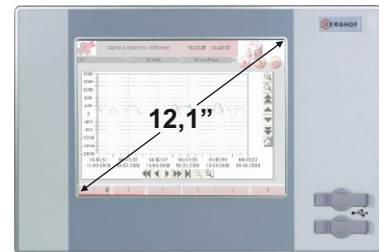
		Prime Interface			Basic Interface
		Clean Touch	Connect Touch	Connect Key	Clean Touch
Processor (clock frequency MHz)	QVGA	266	266	266	266
	VGA / SVGA	400	400	400	400
Data memory (RAM/Flash in MB)	RAM / QVGA	64	64	64	64
	RAM / VGA / SVGA	128	128	128	128
	Flash / QVGA	16	16	16	16
	Flash / VGA / SVGA	32	32	32	32
	SD Card Slot	1	1	1	-
	Front USB	-	1	1	-
	Front USB SVGA	-	2	2	-
Interfaces	USB	1	1	1	1
	Ethernet 10/100 Mbit/s	1	1	1	1
	E-Bus	1	1	1	1
	RS 232	2	2	2	1
	CAN Bus	1	1	1	1
	CAN Bus (potential segr.)	1	1	1	-
	RS 485 (potential segr.)	1	1	1	-
	RS 485	-	-	-	1
	Realtime Clock	1	1	1	1
	Extension slots	I/O (max.)	3	3	3
Communication cards		1	1	1	-
Extension cards	HMS extensions	1	1	1	-
	DC12/8/4 (optional)	1	1	1	-
	DC4/6 (optional)	1	1	1	-
	Profibus (optional)	1	1	1	-
Operating system	Linux	+	+	+	+
Power supply	Power supply. 24 V	+	+	+	+



VGA
QVGA
4 shades
of grey,
monochrome



VGA



SVGA



Ideen
werden
wahr.

AUTOMATIONSTECHNIK

Unternehmen der ZUNDEL Holding

Berghof

Automationstechnik GmbH

Harretstrasse 1 • 72800 Eningen • Germany
Tel.: +49 7121 894-0 • Fax: +49 7121 894-100
info@berghof-automation.de
www.berghof-automation.de

Branch Office Mühlhausen/Thuringia

Thüringer Straße 62 • 99974 Mühlhausen • Germany
Tel.: +49 3601 4777-0 • Fax: +49 3601 4777-10