TESSELATOR 9800

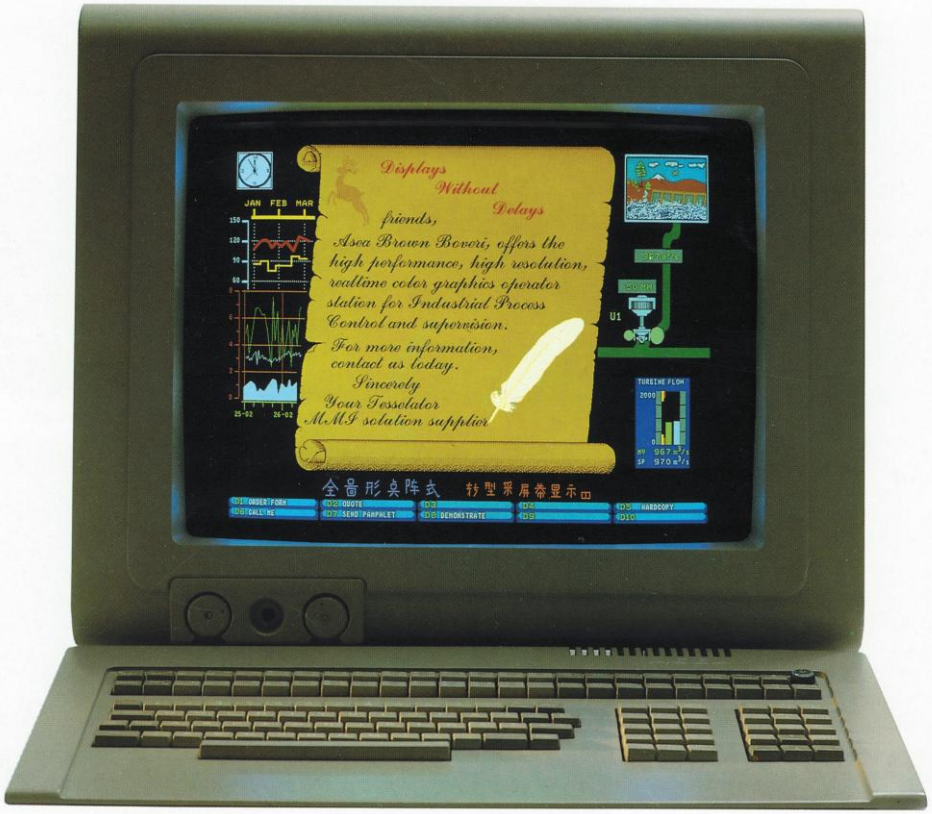


ABB
ASEA BROWN BOVERI

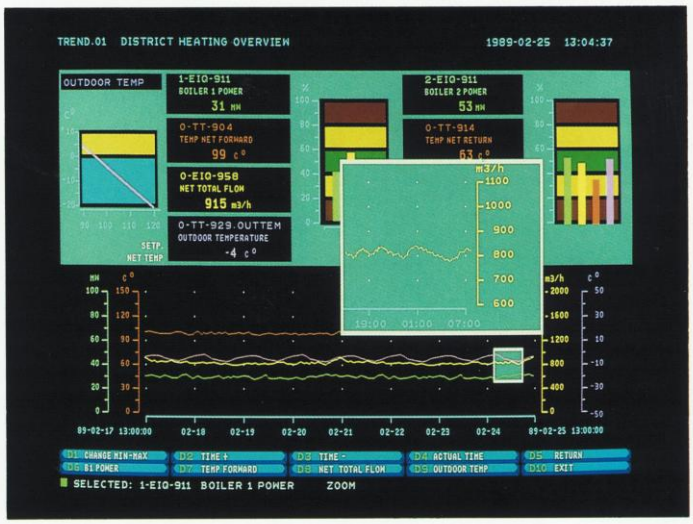
CLEARLY, THE LEADER IN SHARPNESS

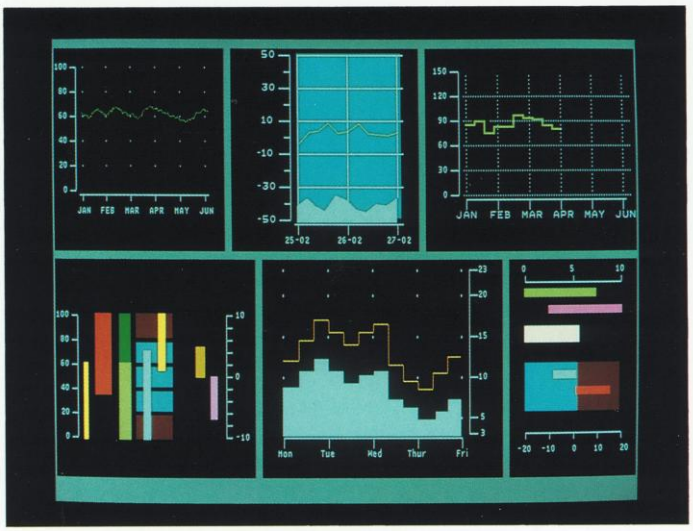
Process control begins with clarity. How clearly the information is presented, determines how well it can be comprehended and acted upon. With less than optimum clarity, the entire process will suffer.

The ABB Tesselator 9800 provides the clearest, sharpest process graphics in the business – 1200 x 1008 pixel display with over one million fully addressable pixels. Curves as sharp and smooth as if drawn with pen-and-ink. Brilliant charts and graphs. Resolution so great that even complex Chinese-language characters are reproduced exactly.

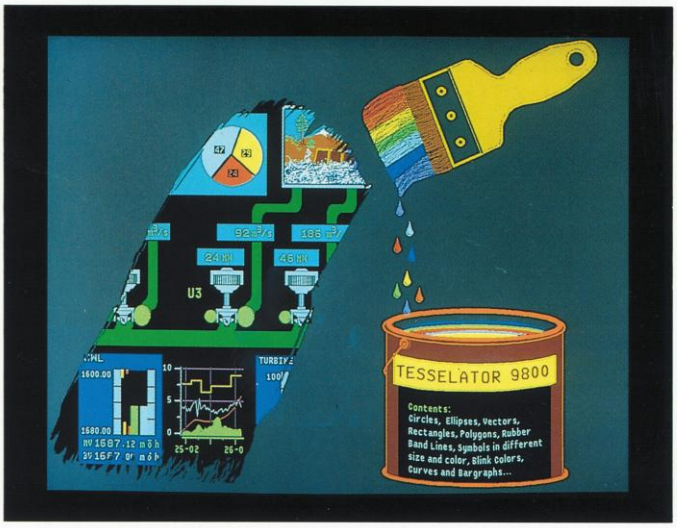
Combine high resolution with the Tesselator tradition of absolutely flicker-free operation, and you have a photographic- quality display that is easy on the eyes and unmistakeable in its message.

We call it "information ergonomics" – the art of flawless interaction between man and machine. The ABB Tesselator 9800 delivers it. Information that puts the operator in total control, at all times.





GRAPHICALLY COMPLETE



Sharpness is, of course, only part of the story. To it, Tesselator 9800 adds unexcelled graphics capabilities.

- Built-in commands for vectors, circles, ellipses, rectangles, polygons, and even "rubber-band" drawing of lines.
- Your choice of colors from a pallet of 4096 – select any 64 background colors, 16 local background colors and 16 foreground colors.
- Dynamic displays in a limitless array of sizes and shapes – pixel addressable and fully integrated with alpha and numeric values.
- True window functions, allowing superimposed displays.
- 16 blink functions to be combined with colors for multi-level alarm priorities.
- An internal library of curve formats for trending and x/y graphs. Curves drawn as step functions, histograms or interpolated. Curve crossovers resolved down to pixel for pinpoint analysis.
- Dual-sided curve shading, or automatic field fill-ins. Horisontal and vertical x/y scales can be arbitrarily enlarged.
- Zoom and pan, combined with complete scrolling capability over any segment of x/y values.
- Automatic bargraph scaling. Just enter a value, and Tesselator presents the bar in the right size.

POWERFULLY FLEXIBLE

When building displays, you can choose from hundreds of pre- designed, menu-listed symbols. Or, using the built-in graphics editor, you can create your own symbols.

For greatest efficiency, use the editor to modify or combine existing symbols. But you are not limited to this. The editor also allows the ultimate creativity to custom-design your own symbols from scratch – then to save them in the system's symbol library for easy access and re-use. More than 1000 symbols may be stored.

The Tesselator 9800 built-in graphics editor is completely independent of the process control computer, so symbol and display editing can be accomplished at any time without hampering process control. And editing is made easy with a special display-design keyboard, a detailed manual, and step-by- step menus. When working with alpha numerics, the editor utilizes word-processing facilities, including insert and delete.

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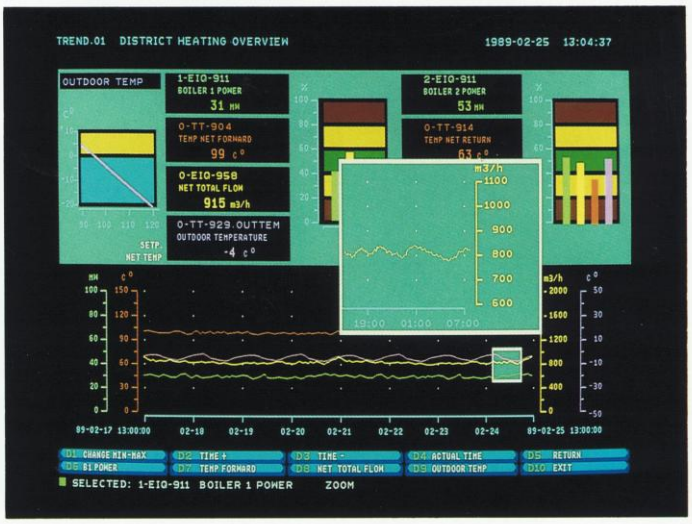
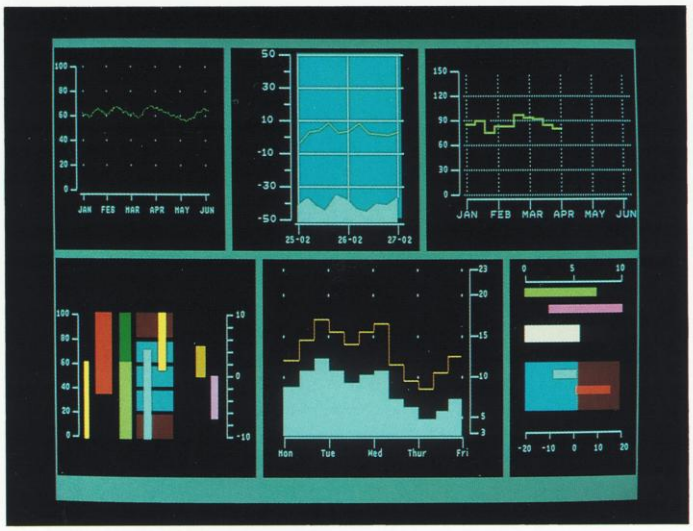




DISPLAYS WITHOUT DELAYS

For optimum process control, information must be updated and displayed as it happens, not after it has happened. This is true real time display, Tesselator 9800 style.

It is accomplished by means of a 32-bit CPU, multi-processor architecture and Local Area Network (IEEE 802.3) communication. These give the Tesselator 9800 five times the processing speed and four times the communications speed of our previous models, which already set the standard.

Then we add the patented Tesselator 9800 advantage, the unique ability to process and display information not just one pixel at a time, but 45 pixels at a time, while retaining the option to individually address pixels as necessary. Made possible by dedicated graphic generators, one for each display channel. The process control computer needs only to send the values and a display number of the corresponding picture that make up the dynamic part of the display. The Tesselator does the rest, constructing the total display without loading the capacity of the process computer.

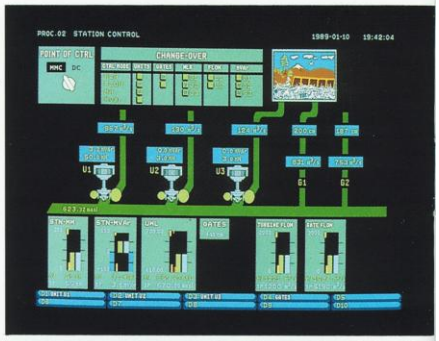
INSTANT COMPREHENSION

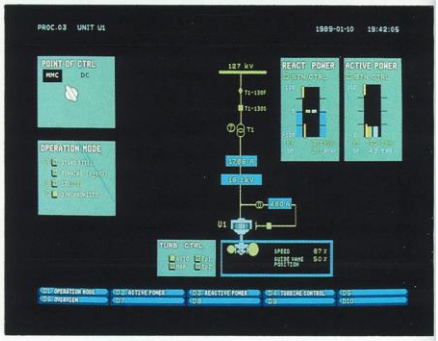
Besides display speed, quick operator reaction is of prime importance. Speedy reception and understanding of what operators see on the screen must be provided for. Allowing complete freedom to structure high-resolution displays to suit individual needs, the Tesselator 9800 ensures that information is both easily found and easily acted upon.

A wide range of user-selectable colors, flowlines, blink functions, and pop-up windows can be correlated with alarm limits or other parameters to alert and guide operators.

And for trend analyses, the operator can zoom and pan any display – magnifying minute portions of high-resolution curves, or expanding/compressing vertical and horizontal scales to discover the most subtle variations.

All this combines with on-line real-time display to process monitoring and control at its very finest.

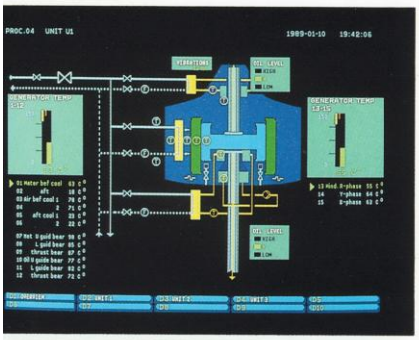


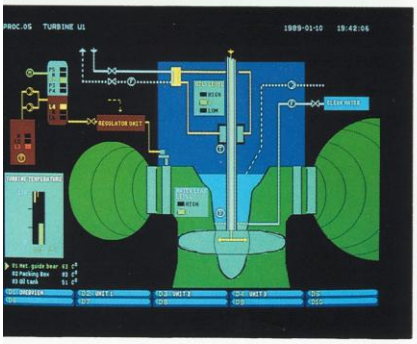


PLENTY OF STORAGE

Hundreds of fully configured process displays can be stored in the Tesselator 9800 memory, along with more than 1000 symbols. And both libraries are expandable as needs dictate.

In addition, a three megabyte





From overview to detail as fast as your mind works.

"snapshot" buffer stores more than a million datapoints for on-the-run changes of numerical curve displays. Meantime, the process database remains uncumbered and continuously updated in the main controller.

CRISIS COMMUNICATION PERFECTED

It takes a stress situation to realize the full power of a good process graphics system. When operator workload is at a peak, is the system still capable of alerting him with due speed and clarity? Does it provide the ease and logic of operation to allow him to trim the process once he is alerted to a problem?

With Tesselator 9800 the answer is "yes". Unmatched speed allows for it. Ergonomics – a perfected man/machine interface – ensures it. Decisions will be made with split-second accuracy.

EXPERIENCE THE TESSELATOR DIFFERENCE

The Tesselator 9800 is, no doubt, much more than just another color graphics display system. It is the cornerstone of an automation concept that can serve individual shop floor operations or integrated, factory-wide processes with equal benefit. Control, supervision and communication occurs on all levels – in major process machinery as well as in peripheral processes, such as weighing equipment, drives and robotics.

And ABB backs the Tesselator with complete documentation and training, plus 24-hour-a-day technical service and spare parts support – domestically and internationally.

Perhaps most important is ABB's corporate commitment to ongoing technological innovation and leadership. When you install a Tesselator 9800, you are assured of the best system, not only for today, but also for tomorrow – with an open door to upgrades and an emphasis on continuing compatibility.

THE TESSELATOR FAMILY

For optimum cost efficiency, Tesselator graphics display systems are offered at different performance levels.

T7000 series
Low-end system, for single display channel installations.

T8000 series
The low-cost, high-performance multichannel system.

T9000 series
High-end system, for super high-performing multichannel applications.

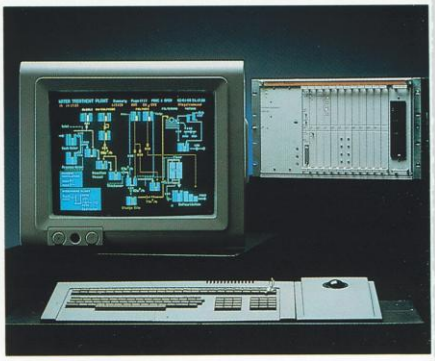
It is a true family concept, featuring systems compatibility. Equipment mix and match. Present and new generation devices can be used to upgrade systems of previous generations. This ensures sustained top performance during an unprecedented economic life span.

COMPREHENSIVE AND COMPATIBLE

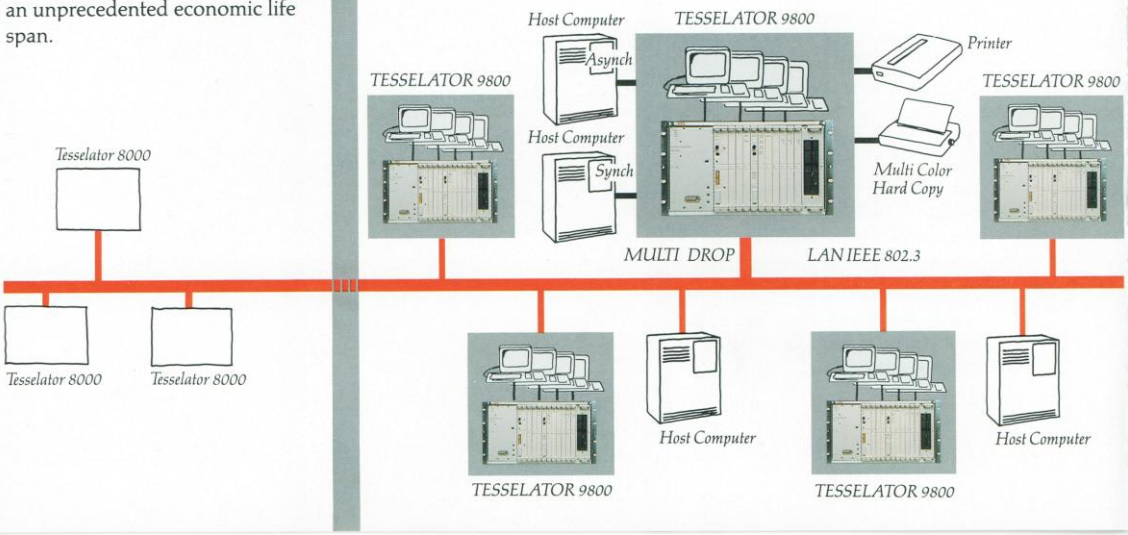
Tesselator 7850

With up to three display channels and four keyboards, the Tesselator 9800 can provide three full operator stations for millwide process monitoring and control. And it is completely display compatible with earlier Tesselator models, allowing simple upgrades or add-ons, and the convenience of retaining existing displays.

The Tesselator 9800 is immediately connectable to 90% of the existing process control computers, and adaptable to the remaining 10%. In addition, it can communicate with up to four computers simultaneously – making it the perfect fit for redundant split-control systems.



Tesselator 8410



FEATURES

Tesselator 9800 is designed to meet the most rigorous process applications, with features including:

- Industrial-duty hardware, with emphasis on reliability and operator comfort.
- Splash-proof keyboards, able to be customized to individual requirements.
- High-speed trackball for cursor movements, plus support for custom designed cursor.
- Four writing directions.
- Five symbol fonts.
- 4096 colors in palette.
- 64 background colors, 16 foreground colors and 16 local background colors on any given screen.
- 16 blink functions.
- Unlimited number of display fields, all protectable.
- Asynchronous, synchronous and Local Area Network communication.
- High-level, high-security communications protocol.
- Hard copy with readily available Epson*) protocol, and "snapshot" dumping to eliminate display lockup during printout.
- Remote hardcopy capability -- one printer can serve all operator stations.
- Programmable automatic command sequences.

*) = *Epson EX1000 and LQ 2500 are trade marks of Seiko Epson Corporation, Japan.*

TECHNICAL DATA

Supply Voltage	85–140 VAC, 47–63 Hz 186–265 VAC, 47–63 Hz	
Power Consumption	MAX 260 W	
Processors	– CPU MC68020, 12,5 MHz – Display Processor TMS34010 100.000 Vectors/S, 35.000 Characters/S, 25 Mpixel/S Areafills	
Operating System	ABB Standard High Performance Real Time Operating System	
Computer Communication	Local Area Network	
	LAN "Multi drop"	1 to 2 channels
	Data Link	IEEE 802.3
	Interfaces	Coax Modem up to 10Mbit/S
	Synchronous	Point to point 1 to 4 channels
	Data Link	CCITT X .25/X LAP or LAPB
	Interfaces	RS 422/449 up to 250 Kbit/s. Coax modem up to 250 Kbit/S. Fiber optic modem up to 250 Kbit/S
	Asynchronous	Point to point 1–4 channels
	Data Link	ADLP 10 (ABB Data Link Protocol)
	Interfaces	RS 232 C(V.24) up to 19,2 Kbit/S. Built-in modem up to 9,6 Kbit/S
	Parameters	Selectable from menu
	Watchdog	Definable communication supervision
Peripheral Communication	Asynchronous	Point to point up to 4 keyboards up to 2 printers 1 hardcopy unit
	Interfaces	RS 232 (V.24) up to 19,2 Kbit/S
	Parameters	Selectable from menu
Display Channel	VDU channels	1 to 6
	Frame Rate	Non interlaced, 50 Hz or 60 Hz
	Horizontal Frequency	64 KHz
	Video Frequency	104 MHz
	Video Signal	RS–343 A
	Resolution	1200 × 1008 Pixels (240 × 112 Tessel)
	Nominal	120 Rows × 56 Characters
	Max	240 Rows × 112 Characters
Colors and Blink	Color Palette	4096 colors
	Foreground	16 + 16 (No Blink/Blink) selectable from menu
	Background	8 Object colors from menu 16 Area colors from menu
	Trend	16+16
	General Background	128
	Blink	Individual selectable blink color and frequence of each 16 foreground color
Zoom and PAN	4 Times	
Cursors/Display Channel		
	Computer Cursor	1 Non-visible
	Operator Cursor	1 Programmable form 64 × 64 Pixel or hair cross
	Graphic Cursor	1
Symbols and Font Library	User Definable Fonts and Symbols with Symbol Editor More than 1000 symbols divided in 5 code planes.	
	Standard Prom set – 5 sizes of alphanumerical characters – 3 sizes of industrial/electrical symbols – various language versions available	
Display Editor	Working Areas	Screen, Area, Object, Line, Column, Operator field, Computer field, All operator fields, Unprotected area.
Object Types		– Area background – Symbol – Computer fields – Operator fields – Bargraphs – Trend curves – Text – Line
Bargraphs		– Right, Left, Up, Down – Horizontal symmetry – Vertical symmetry
Trend Curves		– 16 Trends per Area – 16 Trend Areas – Axis presentation – Histogram, Polyline – Vector – or Step connection – Curve priority – Autopush – Zooming and Scaling – 16 Grids and Frames – 256 Curve buffers 32 Values in each – Definable Brush Size and Style
Graphic Window Function	Circles, Polygons, Rectangles, Vectors, Area Fills e.g.	
Local Display Storage	– 256 Displays – RWM 0,384–2,5 Mbyte – Floppy 1,2 Mbyte (256 Displays, 1 Symbolfont library.)	
Fields	Unlimited number of computer and operator fields.	
Area Protection	Any area on the screen can be protected.	
Dim Function	To reduce the light intensity on screen.	
Meny Handling	Pop up menues with "User Help" pages.	
Compass Function	Shows selected cursor position and selected attributes.	
Line Drawing Function	Rubber band type with selectable thickness.	
Window scroll	4 directions	
Dimensions	Chassie 19" Rack	W:18,97" (492 mm) H:11,81" (300 mm) D:15,35" (390 mm)
Weight	42 lb (21 kg) depending on configuration	
Environmental (Outside enclosure)	Temp – Operating	+5–+70°C +5–+30°C (with Floppy)
	Temp – Storage	-40–+70°C -25–+55°C (with Floppy)
Relative Humidity (Outside enclosure)	30–95% RH 30–80% RH	Non condensing (with Floppy)
MTBF	Min configuration	35000 hr 7000 hr (with Floppy)
	Max configuration	15000 hr 5000 hr (with Floppy)
Noise immunity	S54361503PL3	Cable pick up
	S54361522PE3 (2-4kV)	ESD
	S54361523PR3 (10V/m)	Radio pick up
	FCC & VDE Klass B (fulfills if correct installed)	Radio Emission
Peripherals	High Resolution Monitor	DSIM 2929 20" or equal with RS343A Interface
	Keyboard	DSIH 70 alphanumeric with function keys DSIH 90 Customer Programmable operators keyboard
	Trackball	DSIH 71
Hard Copy	Protocol	JX 80
	Recommended type	*Epson EX1000, LQ 2500 or PROPRINT

ASEA BROWN BOVERI

Asea Brown Boveri is a world leader in electrical engineering comprizing 200 000 employees, some 800 companies operating in 140 countries. The main business segments are power plants, power transmission, power distribution and industry. Access to modern control and supervision systems like ABB Master is of strategic importance to the group in deliveries to customers in these segments.

Business area ABB Process Automation, which belongs to the industrial equipment segment, designs, manufactures and markets ABB Master as well as systems for industrial force measurement and complete electrical equipment for industrial plants.

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