

# Ericsson Alfaskop System 41

## MANAGEMENT SUMMARY

*Major changes to the Alfaskop System 41 within the last 12 months have included the addition of 2 printers, one monochrome and one color, that provide business graphics facilities. A Peripheral Control Unit which connects any printer directly to a communications processor, rather than through a display unit, is also available. Communications facilities have been extended with the addition of the X.21 protocol.*

Alfaskop System 41 is a multifunction terminal system in which terminals can communicate with a host computer, or can operate as local intelligent workstations. Host computers with which Alfaskop System 41 terminals can be linked include those from IBM, Sperry, ICL, CDC, and DEC.

The user at a terminal can specify which functions are required at the terminal, such as word processing, or connection to the host computer, or the personal computing facility. The various components in System 41 can be linked to a configuration on a modular basis. A single workstation can be connected directly to the host computer through modems. A number of terminals can be connected to the host computer through a communications processor. This cluster configuration allows the terminals to communicate with more than one host computer because the communications processors can be linked to different hosts.

The Ericsson group, headquartered in Sweden, contains the following divisions: public telecommunications, information systems, cable, network engineering and construction, defense systems, radio communications, and components. Products include communications systems, minicomputers, and financial terminal systems, as well as data terminal systems.

In 1983, total group sales amounted to 25.244 million Swedish kronor, including 7.166 million Swedish kronor ➤



*The 3111 Workstation shown is one of 5 display unit models in the Alfaskop System 41. All models can be connected to a range of host computers, including IBM and Sperry machines.*

The Alfaskop System 41 multifunction terminals are available in single or cluster configurations. They are intelligent workstations compatible with terminal systems from IBM, Sperry, ICL, CDC, and DEC.

**MODELS:** 4110, 4111, 4112, 4113, and 4114 display units and the 3111 workstation.

**CONFIGURATION:** Single or cluster configurations connected by either local or remote communications processors that can support up to 32 workstations.

**COMPETITION:** IBM 3270 terminals, and systems from Harris, Storage Technology Corporation (STC), Memorex, and others.

**PRICING:** Configuration costs start at approximately 93.530 Swedish kronor.

## CHARACTERISTICS

**MANUFACTURER:** Ericsson Information Systems AB, S-175 86 Jarfalla, Sweden. Telephone (46) 8 764100.

**COMPANY LOCATIONS:** *Belgium:* Ericsson Information Systems n.v./SA, 63 Rue de Stalle, B-1180, Brussels. Telephone 02 377 50 90; *France:* Ericsson Information Systems SA, 30 av de l'Europe, 78140 Velizy; *The Netherlands:* Ericsson Information Systems b.v., P.O. Box 93100, 2509 AC Haag. Telephone 070 81 41 51; *United Kingdom:* Ericsson Information Systems Ltd., Swan Office Centre, 1508 Coventry Rd., Yardley, Birmingham. Telephone 021 707 3050; *West Germany:* Ericsson Information Systems GmbH, Vogelsangerweg 39, 4000 Düsseldorf 30.

**MODEL:** Alfaskop System 41.

**DATE ANNOUNCED:** 1979.

**NUMBER DELIVERED TO DATE:** Over 200,000.

**SERVICED BY:** Ericsson.

## CONFIGURATION

An Alfaskop System 41 can be configured as either a single workstation or in a cluster configuration. The single workstation system consists of a display unit to which users can attach a diskette unit and a printer, as required. The display unit can be connected to a host computer through a modem, or it can be clustered to a host computer through the use of a communications processor.

A cluster configuration contains a number of display units, printers, and diskette units that are connected to a host computer either locally or remotely through a communications processor. (See Components Section for the number of units that can be supported by a communications processor.) Units can be located as far away as 1,500 meters from the communications processor.

A cluster configuration can be connected to more than one computer but each host computer communicates with a separate communications processor. ➤

▷ from the Information Systems Division which markets the Alfaskop System. Ericsson employs approximately 70,000 people worldwide, of which 19,300 are employed in information systems.

The Alfaskop System 41 is marketed directly to the customer and also through Ericsson subsidiaries located in Australia, the USA, and the European countries of Austria, Belgium, Denmark, Eire, Finland, France, West Germany, Italy, the Netherlands, Norway, Spain, Switzerland, and the United Kingdom.

There are five models of display units, each containing a microprocessor which controls terminal routines. Three display units are monochrome and two are color. One of the color terminals offers four colors (red, blue, green, and white), and the other offers seven colors (red, blue, green, white, turquoise, pink, and yellow), as well as IBM-compatible graphics. The monochrome units display amber characters on a brown background, while the color models, when used in monochrome mode, show green characters on a white background. All but one of the units can display 23 or 32 lines of 80 characters; some can also display 43 lines. One monochrome model can support 27 lines of 132 characters.

Communications processors are available in versions which provide either local or remote connection to a host computer. Display units can be situated as far as 1,500 meters away from the communications processor. Communications processors can accommodate up to 32 terminal connections.

Seven printer models are available for connection to Alfaskop System 41 display units and to the communications processor through a Peripheral Control Unit. There are both dot-matrix and letter-quality desktop printers. One model is a four-color printer; four are monochrome; and two are used for graphics printing, one in black and white and the other in color. Printing speeds range from 40 characters per second to 350 cps.

The Alfaskop System 41 products are designed to conform to ergonomic requirements. The display units tilt both horizontally and vertically, and use a nonreflecting screen which is fitted with a screen hood. The keyboards have a palm rest and a low profile which can be adjusted. The numeric keypad can be connected to either side of the keyboard.

The system software includes menu-structured options to aid the user in selecting terminal functions. Operating system software and local data processing programs are stored in the diskette units which are attached to, or integrated into, communications processors or control units in a cluster configuration, and to the display unit in a single workstation configuration.

The Alfaskop Personal Computing facility is an added hardware feature available with Alfaskop System 41 terminals. It enables a terminal to be used as if it were a personal ▷

## ▷ COMPONENTS

**COMMUNICATIONS PROCESSOR 4101:** This device is intended for remote connection to a host computer through a modem and telecommunications line, or a data network. The basic processor, equipped with 32KB of memory, can handle eight terminals and diskette units. The 4101 can be extended to support 16, 24, or 32 terminal connections. Its maximum memory capacity is 64KB.

**COMMUNICATIONS PROCESSOR 4102:** This device is designed for local connection to IBM Systems 360/370/30XX or the 4300 Series. The basic processor offers eight terminal connections and has 32KB of memory. The 4102, like the 4101, can be extended to support 16, 24, or 32 terminal connections. Its maximum capacity is also 64KB.

**COMMUNICATIONS PROCESSOR 4103:** This unit is intended for remote connection to a host computer through a modem and telecommunications line or through a data network. It includes a 250KB-diskette unit for program loading. The basic version offers eight terminal connections and can be enhanced to handle up to 16 terminals and diskette units.

**PERIPHERAL CONTROL UNIT 4171:** This unit can connect a printer directly to a communications processor without going through a display unit. The 4171 can be located as far away as 1,500 meters from the communications processor.

**WORKSTATION 3111:** This unit consists of a separate display monitor, display processor unit, and a keyboard. The 12-inch display monitor can display 1,920 characters, arranged in 24 lines of 80 characters, with an additional line provided for system messages. The characters appear as amber on a brown background and are formed in a 9-by-16 dot matrix. The keyboard (4143) is connected to the display processor unit.

**DISPLAY UNIT 4110:** Equipped with a microprocessor, this display can be connected directly to a host computer or to the host via a communications processor. The monochrome screen can display 24, 32, or 43 lines of 80 characters, offering a maximum capacity of 3,440 characters. Each character is formed by a 9-by-16 dot matrix in a 24-line arrangement, by a 9-by-12 matrix in a 32-line arrangement, and by a 9-by-9 matrix in a 43-line arrangement.

**DISPLAY UNIT 4111:** This display is designed for cluster configurations. It is also equipped with a microprocessor. The monochrome screen can display 24, 32, or 43 lines of characters, giving a maximum capacity of 3,440 characters. Character sizes are the same as those of the 4110.

**DISPLAY UNIT 4112:** This display is also intended for use in cluster configurations and contains a microprocessor. It can be used as a monochrome or color unit that is capable of displaying red, blue, green, and white. The screen can hold 24 or 32 lines of 80 characters, offering a maximum capacity of 2,560 characters. Each character is formed by a 9-by-16 dot matrix in a 24-line arrangement and in a 9-by-12 matrix for the 32-line format.

**DISPLAY UNIT 4113:** This unit is also intended for use in cluster configurations. The Extended Color Version of the 4113 has the same characteristics as the 4112, but offers seven colors: red, blue, green, white, turquoise, pink, and yellow. The 4113 is compatible with the IBM 3279 S3G and provides business graphics capabilities.

**DISPLAY UNIT 4114:** This unit is also intended for cluster configurations. It has specifications similar to the 4111, but provides 27 lines of 132 characters. ▶

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▷ computer. The Personal Computing facility is housed in a small cabinet (containing a 16-bit microprocessor, 256K bytes of memory, and two 640K-byte diskette drives) which the user connects to the workstation. Application programs offered with the facility include a database management system and a spreadsheet.

### COMPETITION

Ericsson considers the IBM 3270 Information Display System as the major competition to its Alfaskop System 41. Other competitors include Storage Technology Corporation (STC) and Harris, as well as Memorex and Olivetti to a lesser extent.

### ADVANTAGES AND RESTRICTIONS

A major advantage of the Alfaskop System 41 lies in the wide range of communications protocols supported. Alfaskop terminals can be used with IBM, ICL, Sperry, Honeywell, and DEC mainframes, and also with other major computers that support the standard IBM protocols. In common with other Ericsson products, attention has been focused on operator needs in the design of Alfaskop hardware, resulting in highly ergonomic equipment. □

▶ **KEYBOARD 4140/4141:** Used with display units 4110, 4111, 4112, 4113, and 4114. Keyboard 4140 is connected to the display unit by a cable and contains 90 alphanumeric, control, and function keys. Keyboard 4141 is a 30-key data-entry keypad that can be attached either to the left or right of Keyboard 4140.

**KEYBOARD 4143/4146:** This unit is to be used as a component of Workstation 3111, as well as with display units 4110, 4111, 4112, 4113, and 4114. Keyboard 4143 is connected to the display unit by a cable. It contains 112 keys, of which 24 are function keys. Keyboard 4146 is a 25-key data-entry keypad that can be attached to either the left or right of Keyboard 4143.

**SELECTOR PEN 4130:** This device is to be used with display unit 4110 to select characters.

**MAGNETIC IDENTIFICATION DEVICE 4131:** This device can be used with display units 4110, 4111, 4112, 4113, and 4114. It reads magnetic cards that contain up to 37 characters on a stripe.

**PRINTER 4151:** This printer is for use with display units 4110, 4111, 4114, and with Peripheral Control Unit 4171. It is a microprocessor-controlled, bidirectional matrix printer. A desktop unit, the 4151 uses a 96-character set and prints up to 132 characters per line at a speed of 120 characters per second.

**PRINTER 4152:** This unit is to be used with display models 4110, 4111, 4114, and with Peripheral Control Unit 4171. It is a microprocessor-controlled, bidirectional matrix printer. A desktop model, the 4152 uses a 96-character set and prints up to 80 characters per line at a speed of 120 characters per second.

**PRINTER 4156:** This printer is designed for use with display units 4110, 4111, 4114, and Peripheral Control Unit 4171. It is a letter-quality, daisywheel printer for use in word processing applications. A desktop unit, the 4156 uses a 96-character set and prints either 136 or 163 characters per line at a maximum speed of 40 characters per second.

**PRINTER 4157:** This model is to be used with display units 4110, 4111, 4112, 4113, 4114, and with Peripheral Control Unit 4171. It is a bidirectional matrix printer that can produce either monochrome or four-color copies. The desktop 4157 uses a 96-character set and prints 150 characters per line at a speed of 225 characters per second.

**PRINTER 4160:** This printer is to be used with display units 4110, 4111, 4112, 4113, 4114; with Workstation 3111; and with Peripheral Control Unit 4171. It is a desktop matrix printer that can produce near letter-quality copies. The operator can choose different fonts and formats. The four fonts are: normal, bold, italic, and elongated. The 4160 prints 150 characters per line and offers a maximum printing speed of 250 characters per second.

**PRINTER 4162:** This printer is to be used with the Peripheral Control Unit 4171. A monochrome matrix printer, the 4162 supports graphics that include line graphs, bar charts, and pie charts. The printer emulates the IBM 3287 printer, Models 1 and 2. Its print speed is set at 350 characters per second. A line can contain 132 characters formed by a 10-by-8 dot matrix.

**PRINTER 4163:** This equipment is to be used with the Peripheral Control Unit 4171. It is a 4-color matrix printer that supports graphics. The colors printed are black, red, blue, and green. The 4163 emulates the IBM 3287 printer, Models 1C and 2C. The maximum print speed achieved is 350 characters per second. Each line holds 132 characters formed in a 10-by-8 dot matrix.

**DISKETTE UNIT 4120:** This unit is used for the storage of system software in all communications processors and display units. It is microprocessor controlled and contains a file-handling system. One or two diskette drives can be contained in the 4120. Each drive has a capacity of 250KB.

**DISKETTE UNIT 4122-002:** This unit is intended to serve as a storage unit for word processing and for the Alfaskop Personal Computer facility. It can be shared by a number of terminals in a cluster or used specifically by one terminal. The 4122-002 is microprocessor controlled and offers 256KB of main memory. The unit contains two diskette drives, each with a capacity of 1.2MB.

### COMMUNICATIONS

Alfaskop System 41 units communicate with host computers through communications processors, either locally or remotely. Local connection can be made to an IBM selector, block multiplexer, or byte multiplexer channels. Remote connections are achieved via communications lines that use the available protocols.

The standard protocols that can be used with Alfaskop System 41 are: IBM 3270 BSC, IBM Local non-SNA, IBM Local SNA, IBM SNA/SDLC, ICL C03 Full XBM, and Sperry Uniscope/UTS. The SNA/SDLC protocol is used in cluster systems and supports transfer rates of up to 19,200 bps. BSC is intended for host computers which do not accept SDLC. BSC enables data to be transmitted at a maximum rate of 9600 bps.

Protocols available as options for Alfaskop System 41 include: DEC VT 100, Honeywell VIP 7250, and CDC 714.

A Multi-Host facility is provided to enable one terminal to communicate with more than one host computer through the use of a combination of protocols.

### SOFTWARE

The operating system used in Alfaskop System 41 configurations supports concurrent processing, as well as the man- ▶

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► **agement of programs, terminals, and communications lines.** The operating system is automatically loaded into the communications processor, the diskette unit, and the terminal when these units are switched on. The operating system also manages program initiation, I/O processing, memory distribution, and error detection.

A program within the operating system handles message distribution between workstations. Modification programs are also supplied for keyboard layouts, printer allocation, and terminal online status.

Fault testing routines and testing programs are also incorporated into the operating system. The fault testing routines are initiated automatically when units, such as a terminal, are switched on. The testing programs offer additional checking procedures and fault finding routines if required. Routines are also available for the monitoring of internal communications within an Alfaskop system and for the monitoring of communications between the terminal and host computer.

Programs provided by Ericsson for use with the Alfaskop System 41 include Alfaword, Alfaedit, Alfabatch, and Alfaskop Personal Computer.

*Alfaword* is a document-oriented word processing package that features document handling, text preparation and editing, and printing. Document handling capabilities enable a user to create, edit, rename, copy, delete, and print documents. An index of a user's files is available. Alfaword can be used exclusively by one terminal or it can be accessed by a number of workstations in a cluster.

The Alfaword transfer facility, which can be implemented only with Alfaword, enables documents to be copied between a System 41 workstation and a host computer, or between System 41 clusters.

*Alfaedit* is a program containing a number of editing functions. It allows a user to create a file locally at a workstation without loading the file into the host computer.

*Alfabatch* is a package that offers a remote job entry capability through the use of the IBM 3780 BSC protocol.

*Alfaskop Personal Computer* allows a user to operate the workstation as a personal computer, independent of other workstations within the cluster. Applications programs that can run under the personal computing facility are available from Ericsson and third-party vendors.

*p-System Version IV* is an operating system designed for System 41 workstations that have access to a diskette unit. It is an interactive operating system with utilities such as a screen editor, a symbolic debugger, and an assembler. Compilers for both UCSD Pascal and Basic are provided. A Fortran '77 compiler is available as an option.

*Logiscalc* is a spreadsheet that can be used to create financial and mathematical models. It contains arithmetic functions that enable a user to change one parameter within the model to see its effect on all related values.

*Logiquest* is a relational database management system that is menu driven. It can be used to create, search, sort, and manipulate databases.

### PRICING

The following prices in Swedish kronor include IBM and Sperry communications protocols.

A medium-sized configuration, consisting of one 4101 communications processor with sixteen 4111 display units, sixteen 4140 keyboards, and four 4160 printers costs approximately 455,200 Swedish kronor. (Prices of diskette units are currently unavailable.)

The following approximate prices are in English pounds (£).

	Purchase Price (£)	Monthly Rental* (£)	Monthly Maint. (£)
4101 Communications Processor	44.600	1.065	296
4111 monochrome display unit	15.655	382	86
4140 keyboard	2.250	51	15
4160 250-cps matrix printer	31.030	933	298

\*The monthly rental price is based on a 36-month period.

	Purchase Price (£)	Monthly Rental* (£)	Monthly Maint. (£)
4101 Communications Processor	4.500	135	60
4111 monochrome display unit plus 4140 keyboard	1.435	43	20
4160 250-cps matrix printer	2.288	68	65

\*The monthly rental price is based on a 36-month period.

The medium-sized configuration, containing one 4101 communications processor with sixteen 4111 display units, sixteen 4140 keyboards, and four 4160 printers costs approximately £36,612. ■