IXO Telecomputing System

MANAGEMENT SUMMARY

The IXO Telecomputing System was unveiled at a meeting of the Boston Computer Society in Boston, Massachusetts, in March 1982. The unit was invented by Drs. Robert O. and Holly Thomis Doyle, who had previously invented all of Parker Brothers' electronic games between 1977 and 1979, including the popular "Merlin." IXO, Incorporated, which markets the IXO Telecomputing System, was founded as I/O Industries in March, 1981.

IXO has dubbed its pocket terminal as the "data equivalent of the telephone." Measuring 7½ inches by 1¼ inches by 4½ inches and weighing 15 ounces, the IXO Telecomputer draws power from the phone line when dialing or on-line, and from a Polaroid Polapulse battery when off-line. The fully self-contained unit consists of a 61-key typewriter-style keyboard, a single-line 16-character liquid crystal display, and a built-in telephone modem.

The chief aim of the IXO Telecomputing System is to simplify access to the computer, by allowing the user to communicate with the host in plain English as opposed to "computerese." Prompts and responses are provided to the user in plain English; the keyboard contains standard keys such as Yes, No, Don't Know, Help, and Go Back. English translations have been designed to replace the operating commands of the host computer programs. Any host computer can be accessed through the use of a single button.

The single button access feature is facilitated by the IXO Access Center, which is based on a Tandem NonStop II computer system at IXO's corporate headquarters. A new IXO Telecomputer user dials the IXO Access Center to ▷

A portable terminal designed for single-button access to public and private databases.

The battery-powered unit measures only 7½ inches by 1¼ inches by 4½ inches, and includes a full typewriter-style keyboard, one-line liquid crystal display, and built-in modem. The unit plugs into any modular telephone jack. The IXO Telecomputer remotely accesses and communicates with a host computer through the use of plain English prompts and responses. A variety of peripherals are available for use with the terminal.

The IXO Telecomputing System sells for $500 in single quantities; the price drops to $300 per unit in quantities of 1,000 or more.

CHARACTERISTICS

VENDOR: IXO, Incorporated, 6041 Bristol Parkway, Culver City, CA 90230. Telephone (213) 417-8080.

DATE OF ANNOUNCEMENT: March 1982.

DATE OF FIRST DELIVERY: March 1982.

NUMBER DELIVERED TO DATE: Information not available.

SERVICED BY: IXO.

CONFIGURATION

The IXO Telecomputing System is a self-contained, hand-held unit measuring 7½ inches by 1¼ inches by 4½ inches, and ▶

The IXO Telecomputing System is designed to provide the user with one-button access to public and private databases. Communication with the host computer is simplified through the use of plain English prompts and commands. The IXO Telecomputer is a self-contained unit measuring only 7½ inches by 1¼ inches by 4½ inches, and weighing 15 ounces. The unit consists of a single-line liquid crystal display, 61-key keyboard with standard English keys, and a built-in telephone modem. Applications for the IXO Telecomputer include field sales, electronic mail, public data base access, airline reservations, and remote personal computing.

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▷ register and establish a password. The Access Center will ask the user which of the firm's private host computer programs he or she is authorized to access and which public data base services the user or the user's firm subscribe to. The appropriate log-on protocols for these services are then downloaded into the non-volatile RAM of the system. Once this process is completed, the user will be able to access these services by pushing a single button, with the system automatically dialing and logging on. The IXO Access Center staff will also offer individualized consulting services to users to assist in translating host computer operating commands into IXO Standard English Dialogues.

The IXO Telecomputing System also offers a three-level security system to protect proprietary information. These three security levels consist of a user-selected password "lock," machine readable identification numbers unique to each IXO Telecomputer, and the IXO Access Encryption Standard. With this security system, proprietary files are protected from unauthorized access via wiretapping or a stolen telecomputer.

Key applications for the IXO Telecomputing System include: field sales; electronic mail and banking; airline reservations; remote personal computing; and public data base access. In addition to the basic unit, IXO also provides the following optional peripherals: a 20-column, 40 cps thermal dot matrix printer; an RS-232-C interface to enable connection to an 80-column (or larger) serial printer; a video interface to allow the display of information on a standard TV receiver or video monitor in a 16-line by 32-character format; and an acoustic interface for use when no modular telephone jack is available, such as in a phone booth.

The IXO Telecomputing System is marketed via IXO's direct sales force and through selected distributors nationwide. The IXO service organization provides replacement units for telecomputers which malfunction.□

Optional peripherals provided by IXO for use with the IXO Telecomputing System include (clockwise, from upper left): the IXO Acoustic Interface; IXO 20-column Printer; IXO RS-232-C Interface; and IXO Video Interface.

▶ weighing 15 ounces (including battery). The IXO Tele-computer consists of a single-line liquid crystal display, 61-key typewriter-style keyboard, and an automatic dial telephone modem. The unit plugs into any standard modular telephone jack, and draws power from the phone line when dialing or on-line. When off-line, the unit draws power from a Polaroid Polapulse battery.

IXO provides four optional peripherals for use with the IXO Telecomputer. These include: a 20-column printer; an RS-232-C interface; a video interface; and an acoustic interface.

TRANSMISSION SPECIFICATIONS

Transmission is asynchronous, in full-duplex mode, at 300 bits per second, with auto X/on- X/off. A 10-bit code is used, including 1 start bit, 7 data bits, 1 parity bit, and 1 stop bit. Even parity is set, but is redefinable to odd or no parity by the user.

The built-in modem is a direct connect, originate only, Bell 103-compatible unit. An IXO peripheral-compatible peripheral port is standard.

The IXO Telecomputer's Telephone Dialer is an auto DTMF (dual tone multifrequency) or pulse dialing mechanism. The dialing automatically switches to pulse mode if a dial tone is present after two DTMF digits are dialed. Dialing switches to DTMF after access pause. The unit goes on-line (bypasses dialing) if modem carrier is present.

DEVICE CONTROL

Single-button direct computer access is enabled through the IXO Access Center. A new IXO Telecomputer user dials the Access Center to register and establish a password. During the same phone call, IXO automatically downloads required log-on protocols into the unit's non-volatile memory. The IXO Telecomputer's memory consists of 1K CMOS RAM plus 4 bits of battery back-up. Display memory is 80 characters. Eight to ten access protocols may be downloaded including: host's name (displayed in menu); telephone number; automatic log-on procedure; keyboard set-up options; display management options; and communications set-up options. The IXO Access Center also assists corporate customers in the design process for implementation of the IXO Standard English Dialogues.

Utilizing single-button access, the user plugs the IXO Telecomputer into a modular telephone jack and presses a single button (Phone). The unit automatically dials and transmits required codes to log-on to a pre-selected host computer. Once connection has been completed, the user can communicate with the computer using IXO Standard English Dialogues. These automatically translate abstract operating commands into plain English prompts. The user is able then to respond in plain English. The IXO Telecomputer's keyboard contains standard English keys, including Yes, No, Don't Know, Go Back, CLR CHAR, CLR ENTR, and Help (provides tutorial assistance if the operator becomes confused on a procedure).

The IXO Telecomputing System provides three levels of security to prevent unauthorized access of proprietary information. These security levels include: a user-selected local password "lock"; a machine readable identification number unique to that particular IXO Telecomputer; and the IXO Access Encryption Standard.

COMPONENTS

IXO TELECOMPUTER: A self-contained unit consisting of a liquid crystal display (one-line), keyboard, and built-in modem. ▶

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► The LCD can accommodate 16 5-by-7 dot matrix characters on a single line, plus four annunciators: On-Line, On Hold, Lower Case, and Low Battery. All characters are displayed in ASCII upper case (lower case ASCII converted to upper case). Characters are scrolled through at a 2 to 30 character-per-second rate; punctuation is kinetic (slower scroll rate for commas, periods). Split screen is available, and the last 80 characters can be repeated from memory.

The keyboard contains 61 positive action keys in a typewriter-style layout. All 128 ASCII codes can be generated, plus the Standard English Keys, which transmit an ASCII code. Standard English Keys include Yes, No, Don't Know, Help, Go Back, CLR CHAR (clear character), and CLR ENTR (clear entry).

IXO 20-COLUMN PRINTER: A variable speed (up to 40 cps) thermal dot matrix printer. Character format is up to 20 characters per line. Characters are formed utilizing a 5-by-8 dot matrix. The 95-character ASCII set may be printed.

IXO RS-232-C INTERFACE: An interface which allows the IXO Telecomputer to be connected to another manufacturers' serial printer (80 columns or larger).

IXO VIDEO INTERFACE: An interface which allows the display of information on a standard television receiver or video monitor. Display format is 16 lines by 32 characters, for a total display of 512 characters. Characters are formed utilizing a 5-by-7 dot matrix, and are displayed in black on a green background. The 64-character upper case ASCII set may be displayed.

IXO ACOUSTIC INTERFACE: An interface which connects the IXO Telecomputer to a telephone when no modular jack is available (i.e., a phone booth).

PRICING

The IXO Telecomputing System is priced at $500 per unit in single quantities; the price drops to $300 in quantities of 1,000 or more. IXO peripherals are priced as follows: IXO 20-column Printer—$150; IXO RS-232-C Interface—$65; IXO Video Interface—$150; IXO Acoustic Interface—$65.

The IXO Service Organization can provide a replacement unit for an IXO Telecomputer suspected of a malfunction.■