IBM 3777 Communication Terminal

high-speed, high-volume remote job entry

IBM

Improving remote job entry

When you have offices in different locations—and they depend on a centralized System/370 to process the many jobs that comprise your applications and procedures—you need more than a computer. You need fast, accurate data communications, too.

IBM has a way to help you get the data communications you need —and increase the information-handling capabilities of your company's remote locations. It's the IBM 3777 Communication Terminal, a component of the IBM 3770 Data Communication System.

Whether your offices are all in the same building, down the street or stretched across the nation, the 3777 can provide high-quality printed output at high speed. The terminal can also transmit job information to your virtual System/370. And as part of your data communications network, it can improve each location's remote job entry capabilities.

Compact in size, the IBM 3777 can fit in the corner of an office, and can be operated easily by one person.

The 3777 is available in three models that offer printer operation at speeds up to 1,200 lines per minute. All offer a card reading capability up to 400 cards per minute.

In addition, Model 1 comes with an optional diskette input/output and storage device. It also features a migration path to Systems Network Architecture (SNA), IBM's powerful new data communications structure for moving information through a network quickly and efficiently.

The 3777 Model 2 provides for Binary Synchronous Communications (BSC) MULTI-LEAVING and optional display console operation. Other features include a diskette storage device for operator console messages. An optional diskette device may also be attached.

The 3777 Model 3 offers SNA Multiple Logical Unit (MLU) capability to provide for concurrent operation of multiple devices in session with the host RJE subsystem. Other features include a standard display console and diskette console spooling device. Optional attachment of one or two diskette input/output and storage devices and a magnetic tape drive are also supported.

Remote entry workstation

Powerful in performance, the IBM 3777 controls a versatile workstation, including a keyboard console control unit, a card reader and a printer.

Depending on the model of the 3777, jobs may be entered via the IBM 2502 Card Reader, the diskette input or input/output device, or the IBM 3411 Model 1 magnetic tape drive.

Processed results may be received on the IBM 3203 Printer, the diskette input/output device, the IBM 3521 Card Punch, or the IBM 3411 Model 1.

Model 1: This model offers removable diskette storage, providing 242,944 bytes with each of two optional diskette input/output storage devices. With diskette storage, Model 1 can perform offline operations such as card-to-diskette concurrently with online receipt of printer data. Diskette storage allows

information, keyed on other devices such as the 3740, to be stored offline and later transmitted in batch mode to the host computer. As a result, you can take advantage of lower "off-hours" transmission tariffs. Or, you can transmit data when it's convenient for the host computer.

Model 2: The dual interleaved data stream associated with BSC MULTI-LEAVING provides for the concurrent input/output processing capability on this model.

An optional console display can be attached to add independent operator communication and enhance overall control of the remote workstation. The console display uses the latest in gas panel technology. It provides 1,024 characters, formatted into 16 lines of 64-character positions each. The bottom two lines of the panel are reserved for entry of operator data from the keyboard.

Another optional feature is a diskette for console display storage. With this feature, up to 2,800 operator messages can be stored on the diskette as well as displayed. Still another option is the IBM 3521 Card Punch which punches 80-column cards at up to 50 cards per minute.

Model 3: Multiple Logical Unit capability provides for concurrent on-line operation of up to six devices in combination with the operation of local device-to-device utilities.

Standard features include the 1,024-character gas panel display and the terminal diskette for display storage of up to 1,014 operator messages. The bottom three 64-character lines are reserved for keyboard input.

Optional features include diskette input/output storage, the IBM 2502, the IBM 3521 and the IBM 3411 Model 1.

Speeding the input and output

The 3777 terminal is designed for high-volume as well as fast, accurate data communications. Two devices —the printer and the card reader—are integral to the performance of this remote job entry workstation.

Printer: The IBM 3203 Model 3 has 132 print positions and uses the IBM 1416 Interchangeable Train Cartridge to produce high-quality printing.

It can print at up to 1,200 lines per minute using a 48-character set. Or, it can operate at up to 1,000 lines per minute with a 64-character set. And there are 15 different print arrangements to choose from. When attached to a 3777 Model 2 or 3, the UCS (Universal Character Set) feature can provide for multiple character sets at the RJE workstation.

Because of its reliability and availability, the 3203 is ideal for remote locations. It's also easy for the operator to change forms.

Other data handling features of the printer include a forms control buffer and a character set buffer, plus a vacuum system that automatically cleans the type carrier to help keep printed results sharp and clear.

Card reader: Special features of the 3777 permit the use of one IBM 2502 Card Reader. Depending on your needs, three models are available.

Model A3 reads 80-column cards at up to 400 cards per minute. Model A2 reads at up to 300 cards per minute. Model A1 reads at up to 150 cards per minute.

A today/ tomorrow terminal

The IBM 3777 is designed to update your data communications network. Both Model 1 and Model 2 can operate in regular BSC mode. Both models are compatible with current IBM programming support.

Model 1: This terminal can also operate in the Synchronous Data Link Control (SDLC) mode, a feature of IBM's advanced SNA technology. Conversion to SDLC is facilitated by a feature that allows the Model 1 to operate in either BSC or SDLC mode through the use of a switch on the console.

Communication is supported between the 3777 Model 1 and virtual storage System/370 Models 115 through 168. BSC programming support is the same as that for IBM 2770 or IBM 3780 products.

Model 2: The 3777 Model 2 can interface to host MULTI-LEAVING programming systems as a System/360 Model 20 Submodel 5.

Model 3: This model operates exclusively in the SDLC mode. When defined with a single logical unit, this model can operate as a Model 2 under host RJE programming.

The terminal can be defined with Multiple Logical Units to provide up to six concurrent sessions with host Systems Network Architecture RJE systems.

Increasing system performance

The 3777 Models 1, 2 and 3 are designed to fit into a data communications network smoothly and efficiently. They can transmit over common carrier facilities at speeds up to 19,200 bits per second—though actual transmission speeds are governed by the operational and systems programming characteristics of your particular system and the modems utilized.

Dual buffers can save time and line costs in transferring batched information between the communications line and the 2502 Card Reader or the 3203 Printer, or other attached devices.

Space Compression/Expansion also helps improve BSC transmission efficiency by removing and later restoring repetitive space-wasting blanks in data being sent to or from the 3777.

Data Compression/Expansion helps improve the efficiency of SDLC transmissions in Models 1 and 3 by removing and later restoring all redundant characters in data being sent to or received from the host.

Model 1: The Dual Data Path in this model provides for concurrent card or diskette input to a diskette while data is being received online and printed. Concurrent input from cards, a 3777 diskette, other 3770 diskettes, or a 3741 diskette can also be batched and compressed onto a single 3777 diskette for later transmission at line speeds. With a single diskette device, diskette records are compressed into blocks of 256 or 512 bytes and written directly to the communications line.

Transmission Reversal lets the operator suspend outbound transmission from the host system to a Model 1 so the terminal can transmit to the host. After this transmission, the suspended operation can be resumed.

Model 2: The dual interleaved data stream associated with BSC MULTI-LEAVING provides for concurrent input/output processing on this model. As a result, this can help improve communications line efficiency as well as overall throughput. Data buffers of up to 512 bytes can be specified for each input/output device attached when the remote workstation program is generated. Buffers can be varied within the storage sizes of a System/360 Model 20 Submodel 5.

Model 3: With Multiple Logical Units, this model increases the level of concurrent online operation to provide further potential for improved communications line efficiency and overall workstation throughput.

Model 3 also permits offline data transfer utilities to operate concurrently with online operations.

Keeping the terminal productive

Reliability, availability and service-ability (RAS) are especially important to terminal users in remote locations.

To promote RAS for the 3777 and its related units, there exists a wide range of tests to help provide sustained performance—as well as determine that the hardware and software of the terminal, reader, printer and communication lines are fully operational.

Each 3777 can store a log of errors that can be printed out for review and action. Thorough analyses utilizing more intensive diagnostics can be performed by a qualified IBM Customer Engineer.

These are some of the tests operators can perform:

• Link transmission testing for System/370 uses an IBM modem at the terminal and a remote IBM modem when these tests are supported at the site of the primary, or control, 3777 terminal.

• Terminal testing and maintenance can be conducted in an offline mode if link transmission testing isn't required.

• Bring-up tests at power-on time or at system reset time help verify terminal operation before job execution can begin. A three-position numeric display is used to show test results and error conditions to the operator.

• Operator-invoked tests can be run to test the terminal communication driver or modem, equipped with wrap capability, at the terminal.

• Online trace can be initiated by the operator to print the data being sent and received by the 3777 Model 3.

In addition to extensive tests to promote RAS, trouble-spotting procedures such as problem determination and recovery routines have been designed into the 3777. Used with the Operating Procedures Guide, these procedures can help the operator make sure the terminal is functioning properly. They can also help the operator quickly find the cause when something has gone wrong.

Protecting data security

One of the most important responsibilities of the operator in remote job entry is to maintain data security. A number of features are available with the 3777 to help maintain data security at the workstation through the host processor, programming, and the terminal itself.

The doorlock is a security feature of the 3777 that allows the operator to lock the diskette compartments.

An optional keylock is another security feature. It allows the operator to control access to the keyboard and the data stored in both the terminal diskettes and the host computer.

The following security features are also supported only on SDLC models of the 3777.

Terminal Identification is a function of the terminal as well as the Network Control Program (NCP) and Virtual Telecommunications Access Method (VTAM). This feature is used in switched network operations to verify that a terminal may have access to the network.

Print Inhibit is a function of the host application program and is software-supported in SDLC mode only for the 3777 Model 1. It helps keep sensitive information from being printed out by mistake.

Operator Identification Reader is also supported by VTAM. It enables the terminal to identify an operator's badge. Data read from this reader cannot be printed by the terminal.

Other VTAM support allows the installation to control an application's ability to initiate a connection to the terminal. Through proper network definition, VTAM allows the installation to control terminal-initiated connection to VTAM-driven applications.

An optional cryptographic feature, for Model 3 only, provides secure data transmission in conjunction with the ACF/VTAM Encrypt/Decrypt feature and the Programmed Cryptographic Facility Program Product.

Improve remote job entry now

With IBM 3777 Models 1, 2 or 3, you don't have to wait for a better way to improve your remote job entry operations.

The 3777 Communication Terminal can provide you with the transmission speeds...the ease of operation ...the performance and security ...that can help increase the effectiveness of your data processing operations.

What's more, the 3777 Communication Terminal can do it now.

For more details on the IBM 3777 terminal, plus the wide range of other IBM 3770 terminals, contact your IBM Data Processing representative today.

Better remote job entry may be closer than you think.

Photographs show design models

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