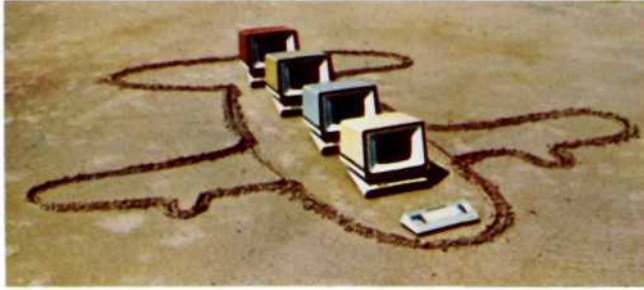


For today...and tomorrow...



...and tomorrow's tomorrow



With almost 2000 revolutionary SPD™ 10/20 programmable terminals now in use, INCOTERM is a major world-wide supplier of CRT displays to industries of all kinds. Featuring its own built-in mini-computer, the 'intelligent' SPD 10/20 offers flexibility previously unattainable at any price. But the cost is competitive with conventional, hardwired terminals. The real savings come when you don't have to replace it: because it's programmable, the SPD 10/20 maintains its cost effectiveness year after year, no matter how your business environment changes.

"Programmable" means just the opposite of "complicated." Standard software, provided free by INCOTERM, includes most commonly used emulators, assemblers, and utility routines. If you prepare your own programs, you will find the mnemonic assembly language easy to use. Its 58 instruction codes are especially oriented to display and communication, and are far more compact and efficient than the usual computer languages. The assembler will operate on your mainframe or on the SPD 10/20 mini-computer. Display program loading is easily accomplished both locally at the terminal and remotely from either your central computer or another terminal. Typically, assembly-language programmers become proficient at SPD 10/20 coding in less than a week.

For today...

SPD 10/20 displays can be added immediately to your existing system with no central site reprogramming. They will emulate your present terminals in both function and line discipline . . . Plus bringing new operating advantages not available with your present terminal. INCOTERM is already interfaced with more than twenty different computer systems and communications disciplines, and can provide you with proven emulation programs for a wide range of common CRT and hard copy terminals. The central element in successful human-factors engineering is ease of use. Because the display is able to 'think for itself,' many of the traditional burdens on the operator - in learning time as well as in purely mechanical verification - have been greatly reduced or eliminated. One result of this has been unparalleled operator acceptance.

Every key on the SPD 10/20 keyboard is under software control. You can avoid costly operator retraining by programming to match positions and functions of keyboards already in use. Often-used phrases can be entered with a single key stroke, improving operator productivity. Special editing and other functions can be programmed on any key. *You* define the meaning of each status light. The SPD 10/20 keyboard is truly the ultimate in flexibility.



...and tomorrow...

One thing is certain: your terminal requirements will change in the times ahead. If you start with the SPD 10/20, you can program it to change too. Today you may have only one computer, one network . . . but the SPD 10/20 can talk to several networks and several computers simultaneously. The system growth you need for tomorrow is already proven. Today you may have no communications traffic problem, no overload on your central computer. . . but the SPD 10/20, with its built-in mini-computer, is ready for tomorrow's increased traffic. It makes an exceptional "front-end" for your mainframe: polling, switching, error checking, reducing the communications load on your central site. Today you may have no requirement for line or supervisory monitors . . . but the SPD 10/20 is ready for tomorrow. The same display your operators use has a unique "party-line" capability that lets it monitor traffic on other terminals or lines.

When you do want a totally different system operation, it will be nice to know that change is inherent in the programmable SPD 10/20 . . . without obsolescence of either terminal or central site hardware.



Some INCOTERM customers initially install one SPD 10/20 at each operator position, but find as time passes that our more economical "dual" configuration meets their new requirements. It is an easy change: then you have two displays and two keyboards - completely independent, but sharing one mini-computer. Dual operator positions cost only around 30% more than a single, and you will need only one modem for the pair. When our dual fits your needs, real cost savings are possible.

When will you be ready for Graphics? Use the point plot mode on the SPD 10/20. Screen space can be allocated for whatever mix of graphic and alphanumeric data you wish. It's all done by software.

...and tomorrow's tomorrow

And in the more distant future your system requirements may change even further. New peripherals are continuously becoming available . . . and your SPD 10/20 will accept them in stride. It already interfaces many different printers at speeds ranging from 10 to 165 characters per second. Any future hard-copy device with an EIA-standard interface will be a plug-in for your system. There may be new data storage devices too. Today INCOTERM features cassette storage, with a unique two-channel rapid-retrieval system that turns a sequential tape into direct access storage. Beyond tomorrow, the programmable SPD 10/20 will use its patented I/O architecture and flexibility to meet needs you haven't yet invented. In fact our terminal can never become obsolete in your system because it replaces itself.

SPD™ 10/20 Functional Characteristics

Processor

Type	Binary parallel, byte oriented.
Addressing	Single address with indirect.
Instruction Word	16 or 32 bits.
Data Word	8-bit byte.
Memory Word	16 bits, 2 bytes.
Arithmetic Speed	Two's complement. Memory increment of 3.2 microseconds for: add, subtract, compare and branch, and jump.
Addressable Registers	Accumulator, character, line.

Memory

Type	Magnetic core.
Speed	1.6 microsecond cycle time.
Size	4096 bytes.
Instruction Set	58 instructions. 17 data manipulation. 11 cursor control. 20 test and/or branch. 6 input/output. 4 miscellaneous control. Addressing for 16 external devices.
Special Features	Remote loading mode (optional). "Auto-exec" logic for intermixing interrupt and program threads. Point graphics mode.

Interfaces

Via channel controllers (maximum of 8).
Controllers for keyboard and half duplex asynchronous or synchronous communications modems are standard. Optional controllers available for printers, multiplexer, full duplex standard communications modems, tape cassette.

Communications

Synchronous to 9600 BAUD. Asynchronous to 4800 BAUD. Half or full duplex. RS 232-C EIA standard.
Binary - synchronous

SPD™ 10/20 Physical Characteristics

Display Module

Overall Size	17.6 inches high, 19.0 inches wide, 19.0 inches deep.
Viewing Area	9.5 inches wide, 7.0 inches high.
Character Generation	7 x 10 dot matrix, 525 line raster.
Screen Capacity	64 characters per line. Up to 30 lines, 1920 total characters (standard display). — or — Up to 15 lines (dual display), 960 total characters. — or — Up to 4 lines (quad display) 256 total characters.
Controls	Brightness, On/Off.
Weight	48 pounds.

Data Entry Module

Overall Size	19.0 inches wide, 3.2 inches high, 8.1 inches deep.
Weight	7 pounds.
Keys and Controls	76-key electronic silent keyboard. 24 general-purpose function keys which can be programmed to perform cursor, control, editing, formatting, or special functions.
Lights	Up to 8 program controlled status or indicator lights.



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