7102 | COMMUNICATIONS TERMINAL

■ The 7102 Communications Terminal is a self-contained keyboard/printer with an integral paper tape or edge-card punch and reader. It is designed for such applications as computer time sharing, information retrieval, on-line programming and debugging, on- and off-line document and data preparation, text editing, and computer-aided education.

■ Additional features are a full USASCII code, integrated circuit logic, 13½″ writing line, horizontal tabulation, and a color ribbon shift that prints transmitted data in red, received data in black.

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SPECIFICATIONS

7102 COMMUNICATIONS TERMINAL
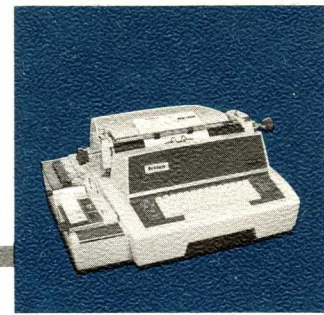
INPUT punched tape
edge-punched cards
keyboard

OUTPUT printed document
punched tape
edge-punched cards

COMPONENTS

full USASCII writing machine
paper tape reader and punch
encoding/decoding mechanisms
electronic serializer/deserializer
clocking and control circuits

CODE / USASCII

(United States of America Standard Code for Information Interchange) 7-bit code; 128 characters maximum with 8-bit for even parity

MODE OF OPERATION

ON-LINE
keyboard/printer
printer only
automatic paper tape/edge card
transmission system

OFF-LINE
document origination/reproduction
data origination/reproduction
for batch processing

FEATURES

character set : 90 printing characters (upper and lower case)
USASCII (128 code producing keyboard)
standard typewriter keyboard and shift

writing line length : 135 characters
10 characters per inch

vertical line spacing : 6 lines per inch

print speed : 12.2 characters per second

paper width : 14 inches

carriage width : 16 inches

type face : Pica standard with cancelled zero (Ø)

copies : original and 12 copies

punch and reader controls
code sensitivity
100-122 bits per second transmission speed
color ribbon shift (three modes) 1. red print for all transmitted data
black print for all received data
2. black print only when used as standard typewriter
3. red print for all control codes
black print for others

break switch
print off switch
horizontal tabulation
integrated circuit logic
conforms to EIA Interface Standard RS-232-B

DIMENSIONS

20½" wide
23½" wide (with edge card)
10" high
22" deep
WEIGHT : 110 pounds (approximate)
POWER : 115 volts, 50 Hz, 1.5 amps
COLOR : warm gray and string

OPTIONS

edge card/paper tape reader and punch
manual keyboard non-print (enter data without it being printed)
parity check of all received data
automatic device control codes (on-line and off-line control of punch, reader, printer)
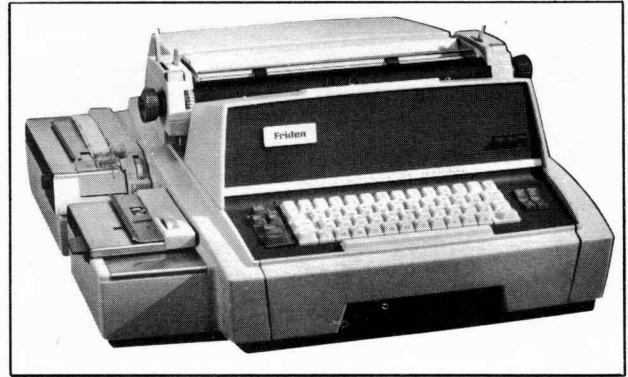black print for transmitted data, red for received

ACCESSORIES

roll paper holder and mounting stand
pin feed platen
Flexofeed
desk

Specifications For

MODEL 7102

COMMUNICATIONS TERMINAL

MANUFACTURER:

FRIDEN, Division of Singer

DESCRIPTION:

The Model 7102 is a keyboard/printer with integral paper tape or edge card punch and reader designed as a general purpose communications terminal. Components of the Model 7102 are full USASCII writing machine, paper tape or edge card punch and reader, encoding/decoding mechanisms, electronic serializer/deserializer, and clocking and control circuits. Extensive use is made of integrated circuits for logical functions. All electronic circuits are contained on modular plug-in printed circuit boards.

The Model 7102 is exceptionally easy to operate. The unit is based on sound human factors principles, developed through long experience by FRIDEN in business machines design. The Model 7102 is self-contained and requires only a modem for on-line operation.

No modem is required for direct connection up to fifty feet.

MODES OF OPERATION:

On-line
-Keyboard/printer
-Automatic paper tape transmission system
-Printer only

Off-line
-Document origination/reproduction
-Data origination/reproduction for batch processing

APPLICATIONS:

-Computer time sharing
-Information retrieval
-On-line programming and debugging
-On-line and off-line document and data preparation
-Text editing
-Computer-aided instruction

KEYBOARD CHARACTERISTICS:

-Keyboard Layout:Standard typewriter keyboard layout with shift keys on both sides and lock key on left hand side.

-Keyboard Coding: 46 character keys combined with shift keys generating 90 characters, including space.

-Control Case: CONTROL case shift key plus character keys generates all 128 USASCII codes; commercial at, broken vertical, reverse slash,grave, DEL, plus all control codes generated in 3rd case.

-Function Keys: Separate function keys are provided for carriage return (CR), backspace (BS), and horizontal tabulation (HT). Depression of these keys causes code generation plus function generation.

-Interlock: A key-to-key interlock is provided preventing two key outputs from occurring simultaneously.

PRINTER CHARACTERISTICS:

-Character Set: 90 printing characters; all USASCII printing characters except commercial at, broken vertical, reverse slash, and grave accent. (These characters, plus all control characters can be reproduced

in control case or character recognition modes by printing in red the upper case character on the keytop where the control character appears.)

-Paper Width: 14 inches.
-Carriage Width: 16 inches.
-Type Face: Pica standard with cancelled zero (∅).
-Writing Line Length: 135 characters at 10 characters/inch.
-Vertical Line Spacing: 6 lines/inch.
-Copies: 1 original plus up to 12 copies (depending on paper and carbon substance).
-Control: Printer operation is controlled by the manual PRINT OFF panel switch. In the up or normal position, the printer is active; in the down or off position, the printer is turned off. This switch has no control over keyboarded data, or the operation of the reader and punch.
-Automatic Color Ribbon Shift: A three-way color mode switch labeled XMIT-REC, COLOR OFF, CHAR RECOG provides for use of an automatic color ribbon shift in the following modes:

1. XMIT-REC: All transmitted messages print in red. All received messages print in black, received control (3rd case) codes do not print. The choice of colors for transmit and receive is optionally reversible. Transmitted control codes print in red.

2. COLOR OFF: Printing in red is disabled. The unit acts as a standard typewriter. Received control (3rd case) codes do not print. Transmitted control codes print in red.

3. CHAR RECOG: All control codes (3rd case) both in transmit and receive cause printing in red of the corresponding normal upper or lower case symbol on key. All other codes print in black. This allows a printing representation of all 128 USASCII characters except carriage return (CR) and space (SP); line feed (LF), null (NUL), and delete (DEL) codes can be optionally inhibited in this mode. Horizontal tabulation is inhibited in this mode and is replaced by the printing of a red "I". Backspace is inhibited and replaced by printing a red "H".

PAPER TAPE/EDGE CARD READER CHARACTERISTICS:

-Medium: The reader is capable of reading either standard one-inch-wide perforated tape or edge punched cards.
-Controls: The reader is manually controlled by the START READ and STOP READ switches.
-Code Sensitivity: The reader can be made either code sensitive or insensitive by the operation of the ALL panel switch. In the insensitive mode, the reader will read only insensitive mode, the reader will read any character code combination of eight data bits in the source tape. In the sensitive mode such codes as STOP and TAPE FEED (DEL) cause their functions to be performed.
-Reader Interrupt: The receipt of a BREAK signal (200 ms spacing) on the receive data line will halt the reader.

See OPTIONAL FEATURES section for modifications to reader operating procedures.

PAPER TAPE/EDGE CARD PUNCH CHARACTERISTICS:

-Medium: The punch is capable of producing either standard one-inch-wide perforated tape, or edge punched cards.

-Controls: Punch can be turned on or off by the PUNCH ON panel switch. A TAPE FEED switch causes the punching of null (NUL) codes for preparing leader tape, or fill characters. NUL codes are punched as long as the switch is depressed. The DEL code can also be generated from the keyboard when a single delete code is necessary for overpunching tape errors.

-Sources: The punch will reproduce all codes received from the reader, keyboard, or communications line. The punch operates asynchronously character-by-character.

-Code Sensitivity: Operation of the punch is code insensitive, reproducing any combination of eight-bit coded characters delivered to it by the reader, keyboard, or communications line.

See OPTIONAL FEATURES section for variations to punch operating procedures.
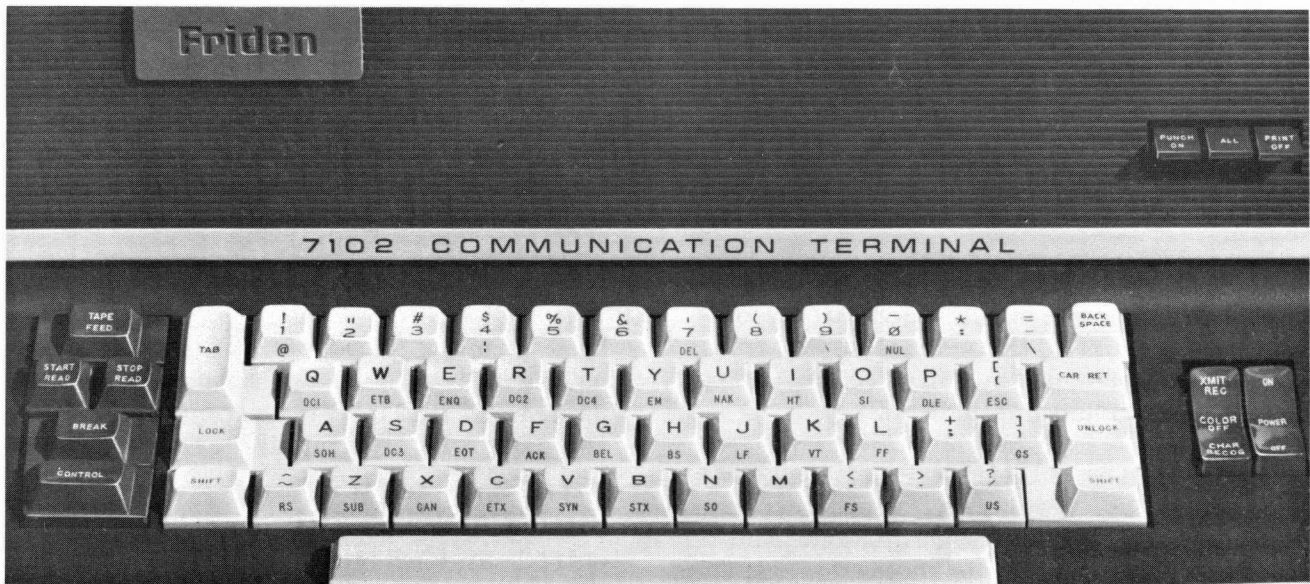
OPTIONAL FEATURES:

1. Combined Edge Card/Paper Tape Reader and Punch: A "factory only" installable option which may be substituted for the paper tape only reader and punch.

2. Manual Keyboard Non-Print: A factory installable option which allows the manual prevention of keyboarded data from causing printing.

3. Character Parity Check: A factory installable option which allows parity checking of all received data; codes which have incorrect parity are not printed or punched but are replaced by an upper case "M" printed in red on the printer and by a delete code punched in the paper tape. The parity check feature can be manually over-ridden in order to punch tapes in BCD or other non-USASCII code sets, or to communicate with devices not utilizing parity.

Even parity is generated on data transmitted from the keyboard.

4. Automatic Device Control: A factory installable option which allows both on-line (computer) and off-line (local reader) control of the punch, reader, and printer by use of control codes as follows:

DC1 - Punch On
DC2 - Start Reader
DC3 - Punch Off
DC4 - Reader Stop
SO - Printer Off
SI - Printer On

The DC4 stop code can only be used when read from a tape in the local reader due to the half-duplex limitation of the terminal; a "break" or 200 millisecond spacing signal from the computer or other terminal is required to stop the reader on-line. The DC2 start reader code is of use only in the on-line receive mode of operation.

The Automatic Device Control feature is in effect only when the ALL panel switch is in the up position.

The device control codes when read from the reader or received from the communications line will control operation of punch, printer and reader; these codes will not be reproduced by the printer or punch, or transmitted to the communications line. The control codes over-ride the PRINT OFF and PUNCH ON panel switches. Keyboarded control codes will always be punched or transmitted.

When the ALL panel switch is down, the automatic device control feature is disabled.

ACCESSORIES AVAILABLE:

-Roll paper holder and mounting stand.
-Pinfeed platen.
-FLEXOFEED platen.

COMMUNICATIONS CHARACTERISTICS:

-Interrupt: The following interrupt features are operational only in full duplex communications facilities (such as ordinary telephone service).

1. Transmit: The computer can interrupt a transmission from the terminal reader by the transmission to the terminal of a break signal on the receive data line consisting of a 200 millisecond spacing condition. Computer interrupt of the manual keyboarding process is provided by software formatting for the individual application.

2. Receive: The BREAK switch interrupts a computer by transmitting a continuous spacing signal on the transmit data line as long as the switch is held depressed.

-Transmission Rate: 12.2 characters per second maximum; field adjustable from 10 characters/second to 12.2 characters/second. The bit rate is adjustable from 100 to 122 bits/second depending on whether one or two stop bits are required.

Transmitted and received characters consist of 10 signal elements (bits) as follows:

START, 7 USASCII bits (low order bit first), EVEN PARITY, STOP

Start bit is defined as spacing condition (binary 0). Stop bit is defined as marking condition (binary 1). Marking signal is continuously transmitted between codes and during idle periods.

The length of the stop bit is field adjustable from one to two bit times in order to provide an 11 bit character format where required.

-Operating Mode: Half-duplex only, except for interrupt provisions.

-Code: United States of America Standard Code for Information Interchange (USASCII), a 7-bit code generating 128 characters maximum with an 8-bit added for even parity.

TIMING CHARACTERISTICS:

—Carriage Return:
When the Model 7102 is receiving data, time for single carriage return will not exceed the time in milliseconds computed by multiplying the carriage spaces travelled by 7 milliseconds and adding the constant, 220 milliseconds.

Time (milliseconds) = (7 ms x number of spaces) + 220 ms.

Line spacing (indexing) at the margin requires 220 milliseconds delay. Carriage return and line feed are a compound motion and cannot be separated.

-Case Shift: When the Model 7102 is receiving data, no additional time is required to shift to upper or lower case characters. The printing plus the shift is accomplished in one code time.

-Horizontal Tab: When the 7102 is receiving data, the time for a horizontal tabulation will not exceed the time in milliseconds computed by multiplying the carriage spaces travelled by 14.5 milliseconds and adding the constant 330 milliseconds.

Time (milliseconds) = 14.5 ms x number of spaces + 330 ms.

The tab stops are manually set by the operator.

-Backspace: Two character times (BS plus one character fill code, either NUL or DEL).

ELECTRICAL CHARACTERISTICS:

-Input Power Requirements: 115 VAC, 50 cps.
-Current Load: 1.5 amps.
-Communications Interface: Conforms to EIA Interface Standard - RS-232-B.

PHYSICAL AND ENVIRONMENTAL CHARACTERISTICS:

-Width: 20 1/2 inches (23 1/2 inches with edge card option).
-Depth: 22 inches.
-Height: 10 inches.
-Weight: 110 pounds.
-Temperature Range: +35 to +115 degrees F.
-Humidity Range: 5% to 95%.

SP9374R1

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