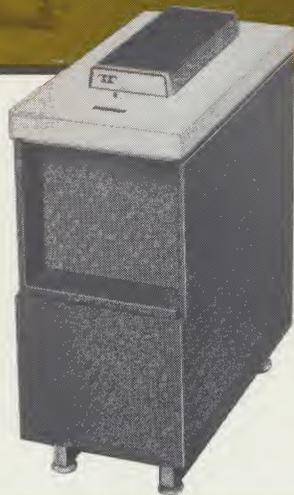# 4210 terminals

**TELETYPE
4210
MAGNETIC
TAPE DATA
TERMINALS
CATALOG**
MAY, 1970 EDITION

TELETYPE

4210 terminals

## table of contents

introduction

TELETYPE

Here's a new line of data terminals that add greater versatility, economy and speed to your data communications system. Teletype® 4210 magnetic tape data terminals. Coupled with Teletype send-receive terminals, they provide new high-speed on-line transmission and reception capabilities. They're capable of moving data up to 2400 words per minute, enabling you to take better advantage of voice grade channels. Compact tape cartridges hold 150,000 characters of data. In these handy cartridges, data is easier to store, easier to handle, easier to work with. Editing and correction operations are beautifully simple, too. These magnetic tape terminals were designed to provide the ultimate in speed, control and economy.

Included in this catalog, along with description, feature information and technical facts, is a handy, "How to order" chart. It will enable you to pinpoint the magnetic tape terminal that fits your particular data communications system requirements.
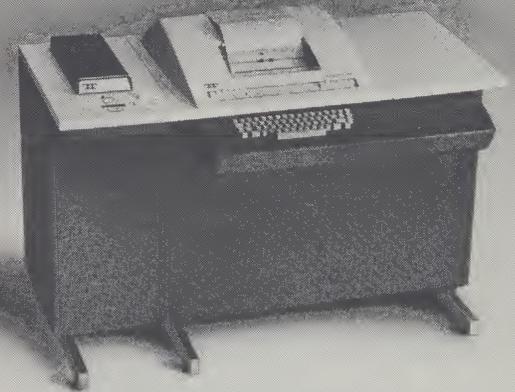
2
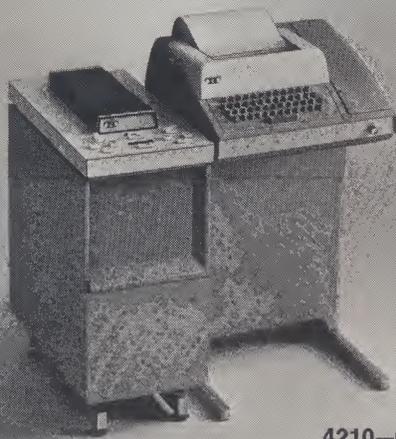
4210—model 33

4210—model 35

4210—model 37

4210—Inktronic® KSR terminal

description

Teletype 4210 magnetic tape data terminals bridge the gap between keyboard data preparation and the need for high-speed on-line data transmission and reception. You'll find a terminal in this product line that is perfectly compatible for use with Teletype model 33, model 35, model 37 or Inktronic® 2110 KSR terminals. Tape preparation is accomplished by simply typing on the keyboard terminal with the magnetic tape data terminal in local receive mode. When switched to the on-line mode, the magnetic tape data terminal can be used to send or receive up to 2400 baud manually or unattended or it will send and receive at standard speed (110 to 150 baud) through the modem associated with the Teletype terminal.

The 4210 magnetic tape data terminal can be used as a stand alone terminal on-line at speeds up to 2400 baud.

Design emphasis has been placed on ease of operation. Tape loading, message search, tape editing, and related functions are extremely uncomplicated.
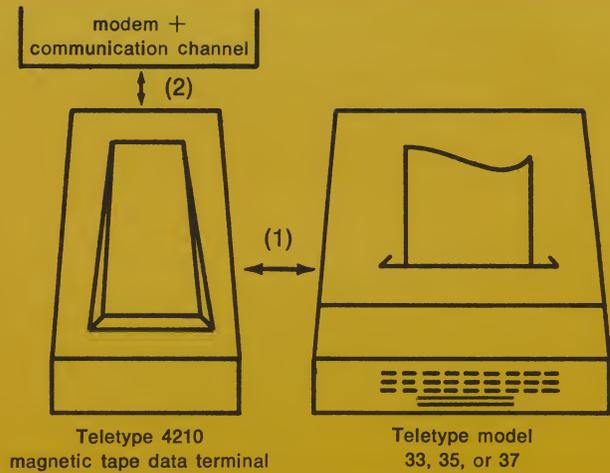
This configuration adds high speed capabilities to standard speed send-receive data terminals.

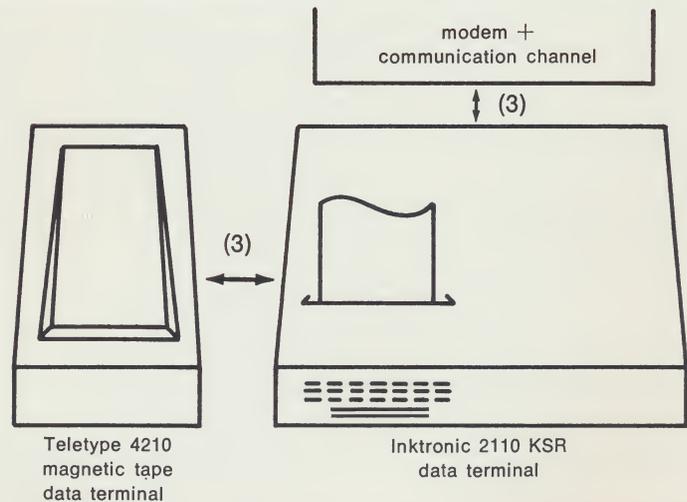**On-line:** magnetic tape data terminal sends or receives at up to 2400 baud, 240 char/sec.

Off-line: you can prepare tape at keyboard speed, read tape and produce page copy at standard speed.

modem + communication channel

(2)

(1)

Teletype 4210
magnetic tape data terminal

Teletype model
33, 35, or 37

This configuration will send and receive at 1200 baud, 120 char/sec and provide immediate page copy.

On-line: both the magnetic tape data terminal and Inktronic KSR data terminal send or receive at 1200 baud, 120 char/sec.
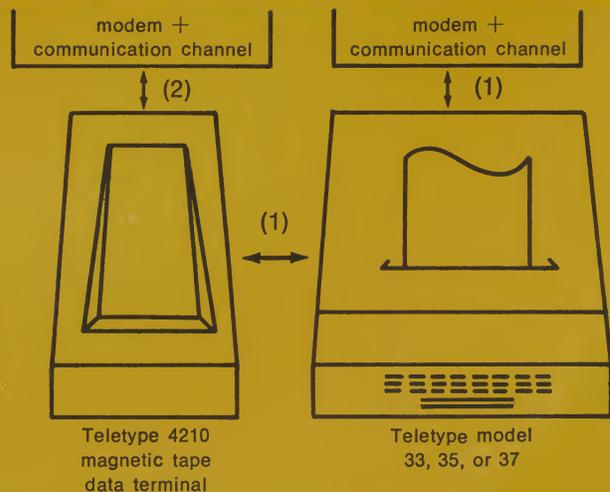
Off-line: you can prepare data at keyboard speed; read magnetic tape and produce page copy at 1200 baud, 120 char/sec.

modem + communication channel

(3)

(3)

Teletype 4210
magnetic tape
data terminal

Inktronic 2110 KSR
data terminal

Utilizing two data channels, this configuration enables you to transfer data at both medium speed and standard speed.

On-line: the magnetic tape data terminal sends and receives at up to 2400 baud, 240 char/sec. The keyboard data terminal sends and receives at standard speed.

Off-line: you can prepare magnetic tape at keyboard speed; read tape and prepare page copy at standard speed.

modem + communication channel

modem + communication channel

(2)

(1)

(1)

Teletype 4210
magnetic tape
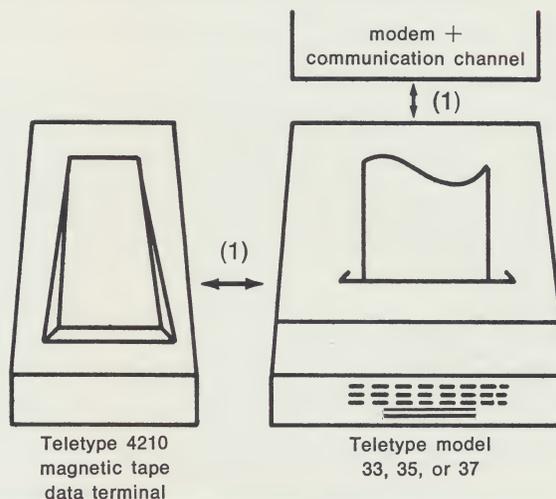data terminal

Teletype model
33, 35, or 37

configurations

This configuration will send and receive at standard speed and provide page copy.

On-line: the magnetic tape data terminal and keyboard send-receive data terminal operate at standard speed.

Off-line: you can prepare magnetic tape at keyboard speed; read tape and prepare page copy at standard speed.

modem +
communication channel

↕ (1)

(1) ↔

Teletype 4210
magnetic tape
data terminal

Teletype model
33, 35, or 37

This Stand Alone configuration provides a common, on-line send-receive terminal for location with a number of data preparation terminals.

On-line: sends and receives up to 2400 baud, 240 char/sec.

modem +
communication channel

↕ (2)

Teletype 4210
magnetic tape
data terminal
(Stand Alone)
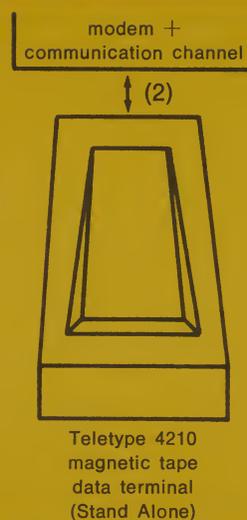
SPEED

(1)	M33, M35	10 cps @ 11 unit code
	M37	15 cps @ 10 unit code
(2)	Magnetic tape data terminal	1050 baud (105 cps @ 10 unit code)
		1200 baud (120 cps @ 10 unit code)
		*2000 baud (200 cps @ 10 unit code)
		*2400 baud (240 cps @ 10 unit code)

*Data modem must provide timing pulse to achieve data transmission at: 2000 baud—switched network; 2400 baud—private line.

(3)	Inktronic KSR and magnetic tape data terminals	1200 baud (maximum speed) (120 cps @ 10 unit code)

4210 terminals

Tape Cartridge

The 4210 magnetic tape data terminal uses precision magnetic tape. The 3″ x 3″ x 1″ cartridge contains 100 feet of ½″ tape which holds 150,000 characters recorded at a density of 125 characters per inch. A cartridge recorded on a Teletype magnetic tape data terminal can be read and transmitted by any other Teletype magnetic tape data terminal—at the same or different speeds.

Cartridges have a reusable record interlock plug to prevent accidental overwrite of data to be saved. Reflective markers on tape trigger photo sensors on terminal to indicate *beginning of tape, low tape,* and *end of tape.*
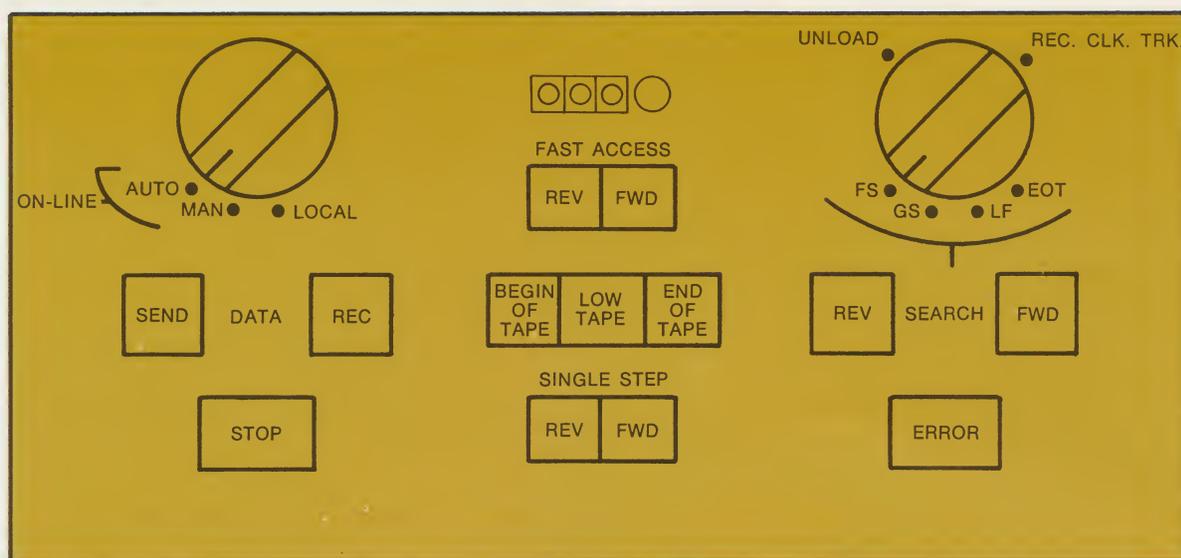
Tape Loading

Straight-through threading makes tape loading exceptionally easy.

Automatic Tape Unloading

To unload you simply turn the rotary switch to the unload position and remove cartridge.

# features

Operator Control Panels

This is the standard control panel found on stand alone terminal and those compatible with model 33, model 35 and model 37 Teletype equipment.
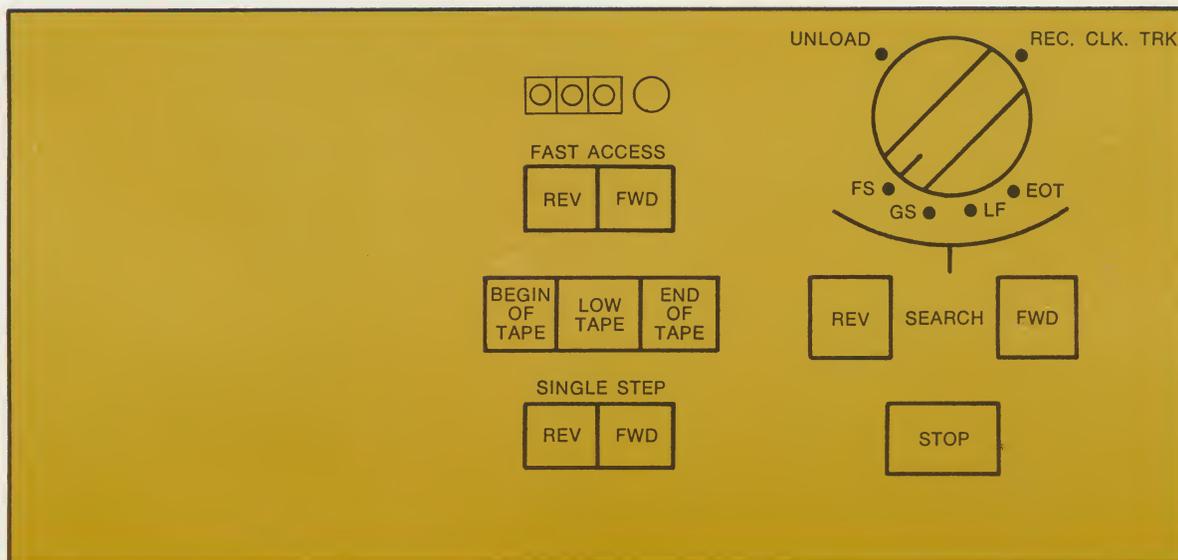
This is the control panel used with the Inktronic KSR data terminal. The Send, Receive, Local, On-Line and Auto Answer functions are under control of the Inktronic KSR control panel.

AUTO •
MAN • • LOCAL
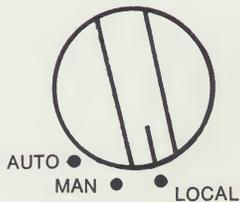
LOCAL

When the Indicator is set on Local you can prepare and edit tape. It also conditions the terminal for standard speed (110 or 150 baud) transmission between the magnetic tape terminal and the Teletype set (model 33, 35 or 37).

MANUAL

On-line manual provides for attended send or receive operation through the magnetic tape data terminal associated data modem under operator control.

AUTOMATIC ANSWER

On-line Auto function enables the terminal to respond automatically to an incoming call (if data modem is equipped for automatic answer) and then send or receive data.

4210 magnetic tape data terminal and model 33, 35 and 37—If send mode is preselected, terminal will transmit *all* data on tape from the preselected position until the control code EOT is sensed. At this time, terminal will switch out of the send mode and into the receive mode to await return data. The terminal will remain in the receive mode for the remainder of the call and all subsequent calls. Call terminates if calling terminal disconnects or after a minute time out with no data flow.

4210 magnetic tape data terminal and Inktronic 2110 KSR data terminal—If send mode is preselected, terminal will transmit all data on tape from the preselected position until the control code EOT is sensed. At this time, the magnetic tape data terminal will stop sending but will remain in the send mode. Incoming data will be recorded on the Inktronic KSR page printer only. Upon sensing a second EOT character, the magnetic tape data terminal will send the next block of data. The sequence DLE, EOT will cause the terminal to disconnect.

| SEND | **SENDING DATA** |

To ready the terminal logic to read from the magnetic tape and transmit data, all you do is depress the Send pushbutton. The pushbutton will illuminate to indicate mode

8

selection is operating. Position of the rotary switch (On-line Auto, On-line Man, Local) determines mode and speed of transmission.

| REC | **RECEIVING DATA** |

To prepare terminal to receive incoming data and record it on magnetic tape you depress the Receive pushbutton. The lighted pushbutton indicates receive mode is functioning.

| STOP | **STOP** |

Pushing the Stop button will take the magnetic tape terminal out of the send, receive or search mode. This button lights up when the terminal is in idle condition with tape cartridge loaded. It blinks to indicate that the terminal is in operation.

| REV | FWD | **SINGLE STEP OPERATION** |

When the terminal is in either the stop or receive modes, you can move the tape one character at a time in the desired direction by depressing the single step Forward or Reverse switch.

In Single Step Forward the tape will move forward one character position, and the character will be read and transmitted. If the terminal is in the receive mode, it is automatically taken out of the receive mode and temporarily placed in the send mode for the duration of one character transmission and then returned to the receive mode.

In Single Step Reverse the tape will move backward one character position, the character will be read but not transmitted. Again, if the terminal is in the receive mode, it is temporarily taken out of the receive mode to prevent the character from being erased. This Single Step Operation feature is extremely useful in editing and correcting data.

| REV | FWD | **FAST ACCESS** |

The Fast Access Reverse and Forward Switch helps to speed the search for a particular block of data. When held depressed, tape moves at 33 inches per second in the direction desired. The whole tape cartridge can be traversed from end to end in thirty-six seconds.

| O | O | O | ◯ | **DIGIT COUNTER** |

The Three Digit Counter provides an approximate reference point to help locate recorded data on the tape. When a cartridge is loaded, the counter reset button should be depressed to give a 000 reading.

features

UNLOAD ● ● REC. CLK. TRK.

FS ● ● EOT
GS ● ● LF **SEARCH**
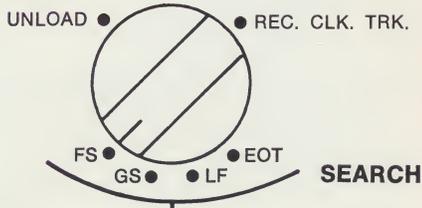
You can locate the exact beginning of a block of data on the magnetic tape by using the search controls. The 4210 magnetic tape data terminal recognizes four control characters recorded in data format for this purpose. These are ASCII control codes for:

EOT — End of transmission
GS — Group separator
FS — File separator
LF — Line feed

When Search Forward or Reverse pushbutton is depressed (Terminal in Stop condition), the lamp in the pushbutton is illuminated and tape moves in desired direction at the rate of 400 characters per second. When the selected control code is detected, tape stops on the character and the terminal is taken out of the search mode automatically. You can then use the single step controls to locate an exact character within the block of data.

		Control Codes Bit Pattern							
	Description	1	2	3	4	5	6	7	Parity
EOT	End of Transmission	0	0	1	0	0	0	0	1
GS	Group Separator	1	0	1	1	1	0	0	0
FS	File Separator	0	0	1	1	1	0	0	1
LF	Line Feed	0	1	0	1	0	0	0	0

Search Character Expander Option. Used in conjunction with optional expander circuit modification kit.

Three additional Search control codes can be added to the 4210 magnetic tape data terminal operation with this option. There are three blank positions on the rotary selector switch for these additional Search Control Codes.

REC. CLK. TRK.

A clock track must be recorded on a new tape before any data can be recorded.

Record Clock Track position on the rotary selector switch is used to automatically pre-record this track. Once the clock track has been recorded it need not be re-recorded or replaced when making corrections, editing or recording over previous data.

UNLOAD

This position on the rotary selector switch is used to automatically rewind the tape into the cartridge. Rewind stops automatically when magnetic tape is completely rewound in the cartridge.

ERROR **PARITY ERROR DETECTOR**

Magnetic tape data terminals compatible with model 33, 35 and 37 have an error detection feature. The Error pushbutton lamp lights to indicate even parity errors sensed in any of the modes in which tape is being read (Send, Search, Single Step). To extinguish lamp, the Error pushbutton is depressed.

BEGIN OF TAPE | LOW TAPE | END OF TAPE **TAPE POSITION INDICATOR LAMPS**

Three lamps indicate certain tape conditions. The lamps light when two photo sensors on the tape transport sense reflective markers on the tape at various positions.

BEGIN OF TAPE **Begin of Tape Lamp**

When illuminated, all reverse tape functions (Search, Fast Access, Single Step), other than the Unload Function, are inhibited.

LOW TAPE **Low Tape Lamp**

When illuminated, the receive mode cannot be initiated. If the unit is in the receive mode prior to sensing in the low tape condition, the unit will continue to receive data until End of Tape is sensed, or until the incoming call is terminated.

END OF TAPE **End of Tape Lamp**

When illuminated, all Forward tape functions (Send, Search, Fast Access, Single Step) are inhibited.

SPEED

On-Line—Magnetic tape data terminal as a stand alone or compatible with model 33, 35 and 37—up to 240 char/sec. @ 10 bits/char. (2400 baud)

Magnetic tape data terminal and the Inktronic KSR terminal—120 char/sec. @ 10 bits/char. (1200 baud)

Local or on-line M33/35—10 char/sec. @ 11 bits/char. (110 baud)

M37—15 char/sec. @ 10 bits/char. (150 baud)

Inktronic KSR terminal—120 char/sec. @ 10 bits/char. (1200 baud)

Recording—9 track (8 data—1 clock) MRB (modified return to bias)

Code—insensitive, except preprogrammed ASCII search characters

Recording Density—125 characters per inch (parallel)

Cartridge Capacity—150,000 characters (100 feet)

Tape movement speeds
Search—400 char. per second (6½ min. full tape)

Fast access—Greater than 4000 char. per second (36 second full tape)

Tape Unload—36 second full tape

Maintenance—Recommended cleaning of tape head is once a week. Preventive maintenance is recommended every six months.

Dimensions

Styled For	Width	Height	Depth
M33/35	12″	29″	23″
M37	12″	30″	23″
Inktronic KSR data terminal	12″	32″	24″

Weight
Approximately 97 lbs.

Terminal Power
115VAC ± 10% 60 Hz ± 0.5 Hz
Approx. 150 watts idle
180 watts operating

Temperature and Humidity
40° to 110°F. 95% Humidity

Paint Finish
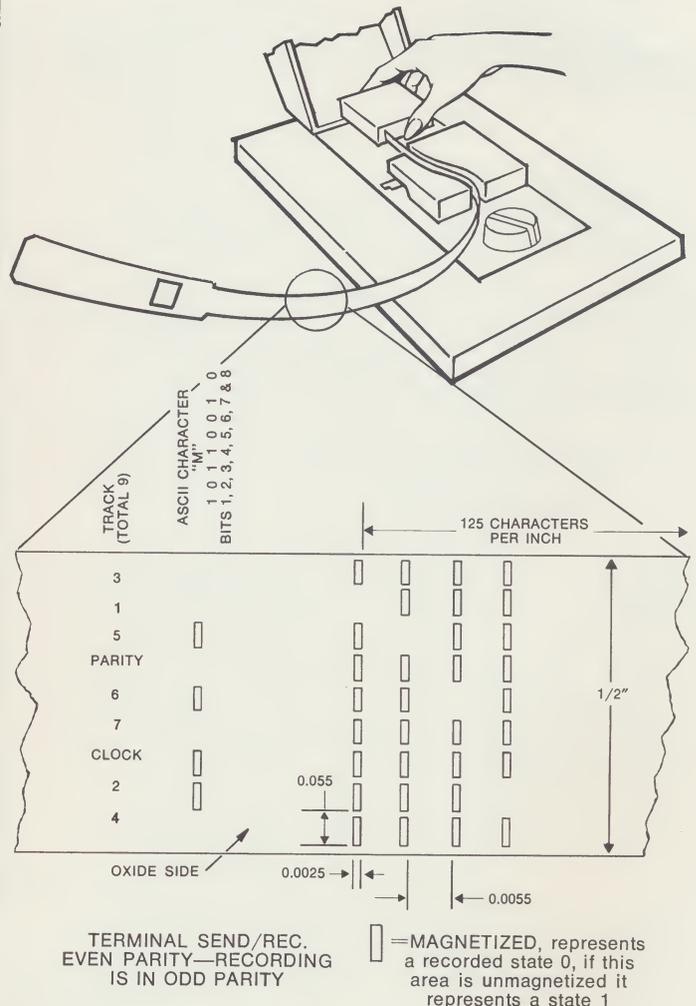M37 or Stand Alone—Charcoal Gray & Ivory
M33/35—Ivory & Olive Gray
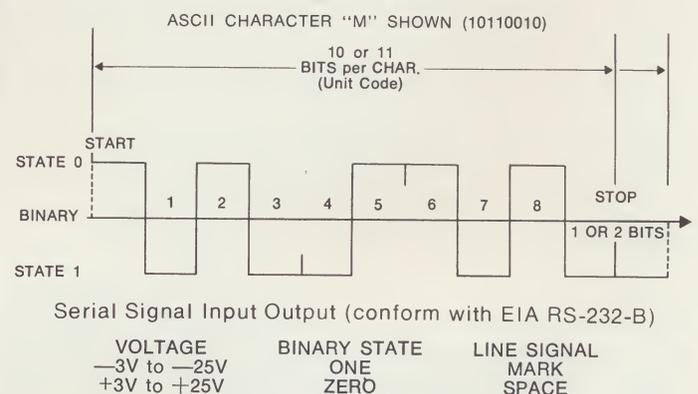Inktronic 2110A KSR data terminal—Bluish-white & Dark Blue

Interface
EIA-RS-232-B Serial Start-Stop to data modem. Interface to Teletype terminal is M33/35 20 MA @ + 20VDC; M37 RS-232-B

The interface between the Inktronic KSR data terminal and the 4210 magnetic tape data terminal conforms to Teletype's local parallel device interface (OVDC and 5VDC). The signal line output of the Inktronic KSR data terminal conforms to EIA-RS-232-B Serial Interface.

TRACK (TOTAL 9)
ASCII CHARACTER "M" 1 0 1 1 0 0 1 0
BITS 1, 2, 3, 4, 5, 6, 7 & 8

125 CHARACTERS PER INCH

3
1
5
PARITY
6
7
CLOCK
2
4

1/2″

0.055

OXIDE SIDE   0.0025   0.0055

TERMINAL SEND/REC. EVEN PARITY—RECORDING IS IN ODD PARITY

=MAGNETIZED, represents a recorded state 0, if this area is unmagnetized it represents a state 1

SERIAL SIGNAL WAVE FORM

ASCII CHARACTER "M" SHOWN (10110010)

10 or 11 BITS per CHAR. (Unit Code)

STATE 0
START
BINARY 1 2 3 4 5 6 7 8   STOP
1 OR 2 BITS
STATE 1

Serial Signal Input Output (conform with EIA RS-232-B)

VOLTAGE	BINARY STATE	LINE SIGNAL
—3V to —25V	ONE	MARK
+3V to +25V	ZERO	SPACE

how to order

Single Step Forward and Reverse	Fast Access Forward and Reverse	Search Forward and Reverse	3 Digit Counter	Low Tape Tape-Out Indicator	Parity Error Indicator	1050 Baud	1200 Baud	Controlled by Inktronic® KSR	Search Character Expander	Catalog No. Prefix	Stand Alone ② (33)	Equipped w/UCC29 ③ (33/35)	Equipped w/Data Set Coupler ④	Equipped w/UCC6 ⑤ (33)	Off-Line ⑥ (37)	On-Line ⑦ (37)	Inktronic® KSR Max 1200 Baud ⑧ (2110A)
											Catalog No. Suffix						
•	•	•	•	•	•	•				4210A-	1AA	2AA	2BA	2CA	3AA	3BA	
•	•	•	•	•	•	•			•	4210A-	1AB	2AB	2BB	2CB	3AB	3BB	
•	•	•	•	•	•		•			4210A-	1AC	2AC	2BC	2CC	3AC	3BC	
•	•	•	•	•	•		•		•	4210A-	1AD	2AD	2BD	2CD	3AD	3BD	
•	•	•	•	•				•		4210A-						4AC	
•	•	•	•					•	•	4210A-						4AD	

Search Character Expander—Teletype Part No. 322465
Tape Cartridge—Teletype Part No. 337040
Recorder Head Cleaner—Teletype Part No. 337401

① Will operate at 2000/2400 baud when used with a Bell System 201 type data set or equivalent. Utilizes the timing crystal of data set. The magnetic tape data terminal will also transmit on-line at standard speed using the data modem of the model 33, 35 (110 baud) or model 37 (150 baud).
When the magnetic tape data terminal does not have a modem, the selection of the medium speed baud rate ① may be based on the future requirements of the 4210 terminal.

② thru ⑦, terminals are shipped with the following (3) three front panels.

    1. Blank Panel
    2. Cut out for 804 Aux. Data Set or equivalent
    3. Cut out for 202C Data Set or equivalent

③ Operates with M33 terminal equipped with a Call Control Unit UCC29 such as: M33TDA, TDB, TDE, TDF.

④ M33/M35 Terminal equipped with data set coupler TP.198420 or 312350

⑤ Operates with M33 equipped with UCC6 Call Control Unit such as: M33TA, TB, TC, TAC, TBE, TBF, TCD, TCN, TEG.

⑥ Operates with all M37 off-line (see M37 Catalog) { EIA Interface Both Standard Speed & Medium Speed Side

⑦ Operates with M37 37-300 _ _ x series on-line (see M37 Catalog)

⑧ Utilizes the timing crystal and serializer of the Inktronic 2110 KSR data terminal.
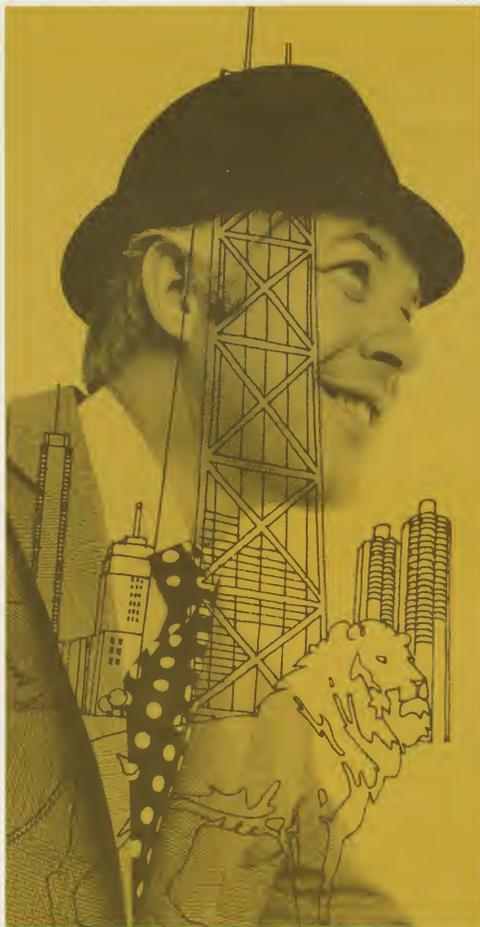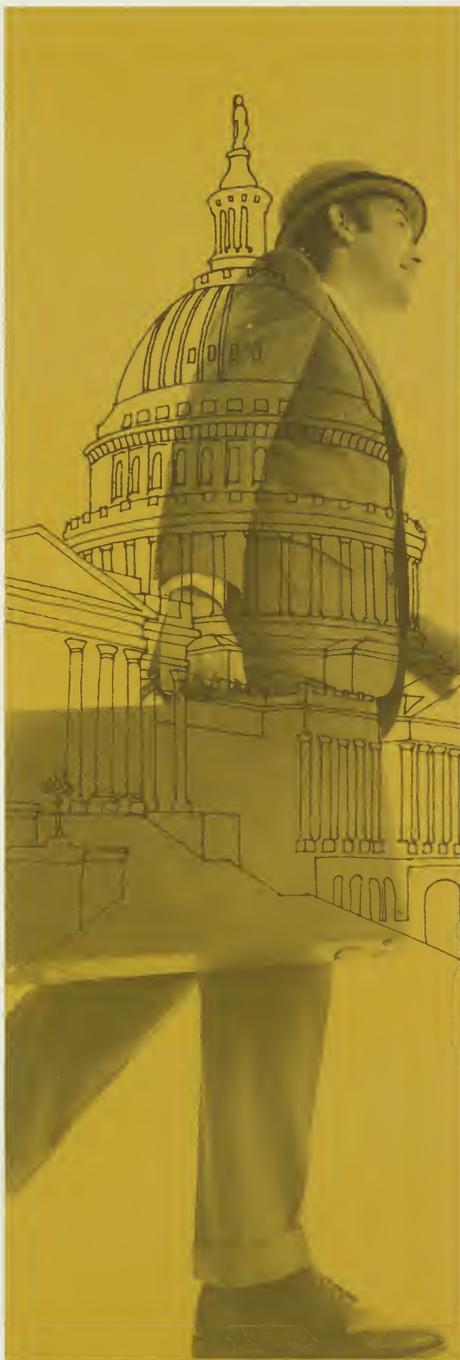
when you need assistance

There's a man from Teletype Corporation ready to help you. Backed by all the resources of Teletype. Ready to bring experienced technical assistance right into your business . . . no matter your location. Ready with answers that work to give you the most from your Teletype equipment. Solutions to problems in systems and application design. Answers like: application seminars for management people; a maintenance training program planned to give your key service personnel a basic working knowledge of Teletype equipment; product service, including maintenance and repair. Wherever you are, whatever your data communications problem, call on the man from Teletype.

AREA OFFICES: Chicago *Sales*—5555 W. Touhy Ave., Skokie, Ill. 60076, phone 312 982-2500 • *Product Service*—9930 Derby Lane, Westchester Ill. 60153, phone 312 345-7920 • **Los Angeles:** 5720 E. Washington Blvd., City of Commerce, Calif. 90022 • *Sales*—phone 213 724-6040 • *Product Service*—phone 213 724-5051 • **New York:** 140 Sylvan Ave., Englewood Cliffs, N.J. 07632 • *Sales* —phone 201 461-7070 • *Product Service*—phone 201 947-7300 • **Washington, D.C.:** 1800 N. Kent St., Arlington, Va. 22209 • *Sales*—phone 703 528-6050 • *Product Service*—phone 703 522-7118 (Before August 1, 1970 phone 202 Me 8-1016)

TELETYPE CORPORATION

GENERAL OFFICES: 5555 Touhy Avenue, Skokie, Illinois 60076 • Telephone: 312 982-2000 • TWX: 910-223-3611 and TELEX: 25-4051 (both have 24-hour automatic answering service)

TELETYPE ®

machines that make data move