

PRICE - \$15.00

# MICROCHESS

MICROCHESS will play a pretty good game of chess on a simple KIM-1 without a terminal or additional memory. It is a terrific way to gain appreciation for the power of the microcomputer. In addition to playing a reasonable game in most instances, MICROCHESS can provide a useful opponent for practising checkmates, learning the openings, and sharpening general playing skills. It's also a great way for kids to learn chess and become familiar with computers.

MICROCHESS has been carefully designed to allow the user to expand or modify the basic package and to experiment with his own ideas for improvement of the playing strategy. With the complete source listings, it provides a good introduction to serious programming of the KIM.

The MICROCHESS package includes a Player's Manual, an annotated Source Listing, a Programmer's Manual which explains the operation of the program, and a Cassette Tape which contains the program and five different openings.

MICROCHESS may be ordered from:

JOHNSON COMPUTER  
P.O. BOX 523, MEDINA, OHIO 44256  
PHONE: 216/725-4560



PRICE - \$15.00

# HELP

HELP is an integrated software package which permits useful applications to be run on a KIM-1 system using standard audio cassette recorders as computer controlled I/O devices and a terminal for entering and printing data. HELP consists of two major components.

**HELP Functions** - These are parameter driven program modules written in 6502 assembly language. They are combined via the HELP Interpreter. The Functions support high speed cassette tape input/output, terminal input/output with editing, and a variety of test, compare, and branch operations.

**HELP Applications** - Useful programs may be written entirely as a series of HELP Functions. This technique makes it possible to write memory efficient application programs that are easy to code by hand and easy to modify and customize.

HELP packages run on a basic KIM-1 with no additional memory required. Two cassette units and relays to control them are required, as is some type of KIM-1 supported terminal. Each package includes an Operator's Manual, Source Listings, and a Cassette Tape which contains the programs in a quick loading format.

Other pages in this catalog contain descriptions of the HELP Application that are currently available. Additional Applications may be added in the future, and new Functions and small Applications may be published occasionally in MICRO.

JOHNSON COMPUTER  
P.O. BOX 523, MEDINA, OHIO 44256  
PHONE: 216/725-4560



PRICE - \$15.00

# MAILING LIST

The HELP Mailing List Package lets you use a KIM-1 for creation, review, maintenance, and printing of mailing labels. The package consists of three separate programs:

The Mailing List Editor is used to create and maintain the master mailing list file on cassette tapes. Up to 900 entries may be stored on one side of a 60 minute tape.

The Mailing List Printer is used to print all or a selected subset of the master list in a single line per entry format for easy review.

The Mailing List Label Printer is used to print mailing labels in a three, four, or five lines per entry format. The entire master file or any subset may be printed, and an additional comment line can be added to selected entries.

A terminal, two cassette tape units, and relays to control the cassettes are required. No additional memory is required. The package includes an Operator's Manual, complete Source Listings, and a Cassette Tape with all of the programs in a quick loading format.

The HELP Mailing List Package may be ordered from:

JOHNSON COMPUTER  
P.O. BOX 523, MEDINA, OHIO 44256  
PHONE: 216/725-4560



PRICE - \$15.00

# PLEASE

PLEASE is:

a Digital Clock  
an Adding Machine  
an Intoxication Tester  
a simple Guess-the-Number Game  
a complex Mastermind Number Game  
the challenging Shooting Stars Puzzle  
Moving Messages on the "Goodrich Blimp"  
a Decimal-to-Hex and Hex-to-Decimal Converter  
plus other games and demonstrations for the KIM-1

PLEASE lets you have fun and impress your friends and family while helping you learn how to operate and program this marvelous machine. No additional memory, terminal, or special peripherals are required.

The PLEASE package includes an Operator's Manual which provides all the information for using the many programs; a set of annotated Source Listings for understanding how the programs work; and a Cassette Tape which contains all of the programs for quick loading into the KIM-1.

PLEASE may be ordered from:

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PHONE: 216/725-4560

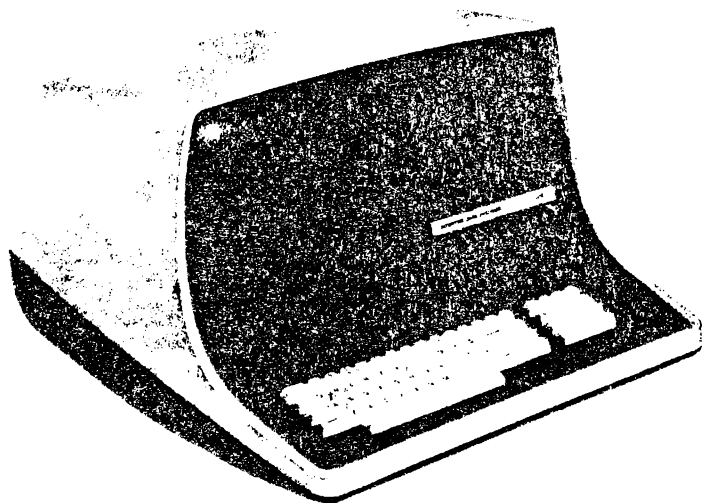




INTERTEC's

# INTERTUBE™

TERMINAL SPECIFICATIONS



## Something for Nothing!

Intertec's new INTERTUBE™ video terminal is really something! But most amazing is that it costs you almost nothing! The INTERTUBE's \$784\* price tag combined with our innovative microprocessor design sets new standards in the CRT industry.

The new INTERTUBE obsoletes dumb terminals and outperforms the smart ones. Every INTERTUBE boasts such features as a full 24 line by 80 character display, 128 upper and lower case ASCII characters, reverse video, complete cursor addressing and control, a 14 key numeric key pad, 16 programmable function keys, blinking, a self-test mode, protected fields and much, much more.

The new INTERTUBE video terminal from Intertec represents the latest advances in microprocessor technology. Speed, silence and flexibility, coupled with the many operator oriented features of the INTERTUBE serve to boost the efficiency of both software and programmers.

Our combination of price and performance gives a true advantage to a broad cross-section of users in the computer industry. Whether your requirement is the most sophisticated data entry application or a simple inquiry/response environment, the INTERTUBE is the best value for your terminal dollar.

The INTERTUBE offers a variety of interfaces including RS-232C and 20MA current loop. Better yet, the INTERTUBE interfaces beautifully with the user. Painstaking human engineering assures you of many hours of enjoyable operation without operator fatigue. INTERTUBE's high resolution CRT monitor provides the sharpest possible display image. And our special Accu-Dot™ focusing technique produces ultra clear characters on a non-glare screen.

Our INTERTUBE not only offers unparalleled price and performance but is also backed by Intertec's nationwide factory trained service network providing over 250 local dealer and service center outlets.

There are lots of video terminals on the market today but only the INTERTUBE delivers significantly better performance for such an incredibly low price. So before you buy one of those dumb terminals or one of those other smarter ones, you owe it to yourself to sit down in front of an INTERTUBE. While we admit our motives for recommending that you try the INTERTUBE are purely selfish, it's the only true way to appreciate the design features and price advantage of our new terminal. Mere words just can't do justice to the INTERTUBE. Contact your local dealer today and discover just how smart you'll be when you spend only \$784 for your new INTERTUBE.

For the name and address of your nearest dealer, contact us at one of the numbers below. It's the only smart thing to do.

# JOHNSON COMPUTER

## TERMINAL SPECIFICATIONS

MEMORY SIZE:	24 lines by 80 characters per line.
ALPHANUMERIC CHARACTER SET:	Generates all 128 upper and lower case ASCII characters.
LINE DRAWING CHARACTER SET:	Eleven special graphics symbols.
DISPLAY PRESENTATION:	Dark characters on a light background. (Display is reversible through keyboard selection.)
VISUAL ATTRIBUTES:	Blinking (2 frames per second), underline, reverse video, half intensity.
SPECIAL ATTRIBUTES:	Protected, constant and print-only fields.
STATUS INDICATOR LINE:	25th display line reserved for terminal status messages. (Status line displayed as inverse of normal display.)
SCREEN SIZE:	12 inch diagonal.
REFRESH RATE:	60 frames per second (50 frames per second—Export model).
OPERATING MODE:	Conversational: character at a time transmission. Message: line at a time transmission. Page: full or partial screen at a time transmission. Half or full duplex, keyboard and switch selectable.
TRANSMISSION MODE:	Standard teletypewriter-compatible layout plus 14 key numeric pad, local mode and erase. Keyboard lock/unlock under program control. Also, 16 programmable function keys.
KEYBOARD:	Self-diagnostic firmware testing routine—results displayed on status line. Direct positioning by either discrete or absolute addressing. Up, down, forward, backward and home—keyboard selectable.
SELF-TEST MODE:	Allows CPU to interrogate for terminal status, present cursor address and memory value at cursor position.
ADDRESSABLE CURSOR:	Choice of even, odd, marking or spacing—keyboard and switch selectable.
CURSOR CONTROL:	Approximately 37 pounds.
READ TERMINAL STATUS:	14 5/8" (H) x 21 3/8" (W) x 23 1/8" (D).
PARITY:	Operating temperature between 0° to 50° C, Storage 0° to 85° C, 10 to 95% relative humidity, non-condensing.
WEIGHT:	EIA RS-232C/CCITT V.24 operates through the range of 75 to 19.2K BPS, switch and keyboard selectable. Available 20/60 MA current loop operates through the range of 75 to 9600 BPS.
PHYSICAL DIMENSIONS:	RS-232C/20MA current loop printer port.
ENVIRONMENT:	
COMMUNICATIONS INTERFACE:	
AUXILIARY INTERFACE:	

The most remarkable specification of the INTERTUBE is its astonishingly low price. The feature-packed INTERTUBE compares with terminals costing more than three times as much! Combine this price with the inherent reliability of our microprocessor design and the result is an industry first!

# \$784\*

**\*QUANTITY ONE!**

You don't have to buy a hundred terminals or sign a contract to qualify for INTERTUBE's low \$784 price tag... it's our "quantity one—immediate delivery" price. Additional discounts are available under OEM, GSA/Educational and Distributor pricing schedules. Contact an Intertec Marketing Office for details.

P.O. BOX 523 MEDINA, OHIO 44256

(216) 725-4560

# JOHNSON COMPUTER

(216) 725-4560

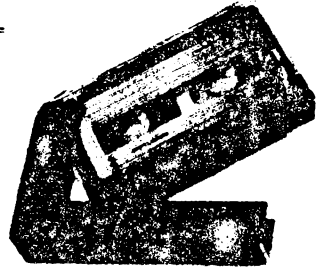
## PRELIMINARY INFORMATION ON MICROSOFT 8K BASIC FOR KIM-1

Variable names must start with an alphabetic character, eg. A, A1, A(3,7,2), ZULU  
String (literal) variable. names are followed by a dollar sign, eg. A\$, ZULU\$, A\$(2,3)  
Although variable names may consist of more than two characters, only the first two  
characters uniquely identify the variable, eg. COST is the same as CORE

OPERATORS: -, +, \*, /, %, NOT, AND, OR, >, <, <=>, =, >=

STATEMENTS	FUNCTIONS	STRING FUNCTIONS	COMMANDS
CLEAR	ABS(X)	ASC(X\$)	CONT
DATA	ATN(X)	CHR\$(I)	LIST
DEF	COS(X)	FRE(X\$)	NEW
DIM	EXP(X)	LEFT\$(X\$,I)	NULL
END	FRE(X)	LEN(X\$)	RUN
FOR	INT(X)	MID\$(X\$,I,J)	
GOTO	LOG(X)	RIGHT\$(X\$,I)	
GOSUB	PEEK(X)	STR\$(X)	
IF...GOTO	POS(I)	VAL(X\$)	
IF...THEN	RND(X)		
INPUT	SGN(X)		
LET	SIN(X)		
NEXT	SPC(I)		
ON...GOTO	SQR(X)		
ON...GOSUB	TAB(I)		
POKE	TAN(X)		
PRINT or ?	USR(I)		
READ			
REM			
RESTORE			
RETURN			
STOP			

# Erase typed line  
SHIFT/O or + Erase last character  
: Separates statements on same line  
CONTROL/C Interrupts execution or listing  
CONTROL/O Inhibits output to terminal



Both versions of BASIC use page zero and page one. They start at 2000HEX.  
Although they are meant to be used with serial terminals, I/O pointer  
locations are provided. The USER, PEEK, POKE, and WAIT statements are  
used to link BASIC to machine code programs and the KIM-1 ports. The  
6 digit version uses two-letter symbols for error messages. The nine  
digit version spells out complete error messages. When executions or  
listings are interrupted by means of the CONTROL/C or an error, BASIC  
indicates the number of the line it was about to execute or list.

CAT #	PRECISION	LOADS AT	# OF BYTES	MIN. SYSTEM RAM	RANGE	PRICE
KB-9	9 DIGITS	2000HEX	8802	12000	10E-32 to 10E+32	\$99.00

\*TERMS: PAYMENT WITH ORDER.

SALES TAX

\$5.81 for KB-9 )

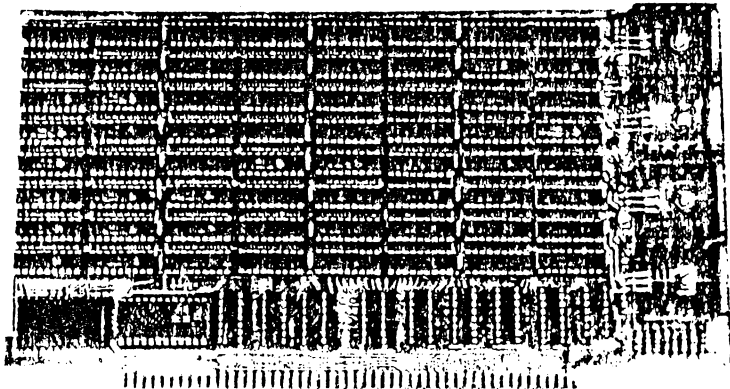
OHIO RESIDENTS ADD 4.5%

Theory and Problems of Programming with BASIC - \$6.95  
Please add \$2.00 for shipping.

P.O. BOX 523 MEDINA, OHIO 44256



# 32K Static RAM



## Features

- Can be loaded in 4K increments
- Assembled, tested & burned-in
- All I/O lines buffered
- G-10 Glass epoxy board, 2 oz. copper
- Low profile sockets on all IC's
- Phantom disable provided.
- Each 4K block may be strapped to any 4K address boundary.
- All IC's 100% dynamically tested and burned in.
- Solder masked P.C. board
- Gold plated edge connector

## Specifications

S-100 Bus Compatible  
Power -- 8VDC 400MA. per 4K  
Capacity 8 x 4K words  
Access time 300NS max.  
Warranty 120 days on parts & labor

## Price

See JOHNSON COMPUTER Price List

**JOHNSON  
COMPUTER**

P.O. BOX 523  
MEDINA, OHIO 44256  
(216) 725 4560



## KL Model 512 Power Supply

4.3 amp capacity (can be increased with added cooling); plenty of power for processor, extra RAM, other accessories.

Lead designations:

Black - ground

Red - 5 volt regulated with 1.4 amp maximum

Green - 12 volt regulated with 1.0 amp maximum

Orange - 8 to 10 volt unregulated with 4.3 amp maximum

White - 16 to 20 volts unregulated with 1.0 amp maximum (sum of 12 V and 16 V outputs should not exceed 1 amp unless capacitance added)

Regulated outputs have current limit and thermal overload protection

Completely assembled with connector cable attached, AC line cord, and fused primary.

Black bakelite case 6.8" by 5.6" by 3".  
Weight 3 lbs.

Aluminum bottom plate and rubber feet.

PRICE \$37.00

\$2.00 Shipping & Handling

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AVAILABLE FROM:

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FINALLY!

A FLEXIBLE DISK SYSTEM FOR KIM

FEATURES:

- \* Top Quality Industrial Grade Controller
- \* Proven High Reliability Disc Drive
- \* Line-Numbered Text Entry and Editing
- \* A Powerful Command Structure
- \* Adaptation to any 650X Based System
- \* Capability for User Defined Commands
- \* Complete Compatibility with KIM
- \* Multiple Resident Files
- \* Indexed and Non-Indexed Disk Storage

- COMPLETE 90 DAY PARTS AND LABOR WARRANTY

HDE FILE ORIENTED DISK SYSTEM  
- "FODS" -

INCLUDES:

- \* Full Size Sykes Drive
- \* 6502 Based Controller
- \* Power Supply
- \* FODS Software
- \* Cables, Interface Card
- \* User Manual

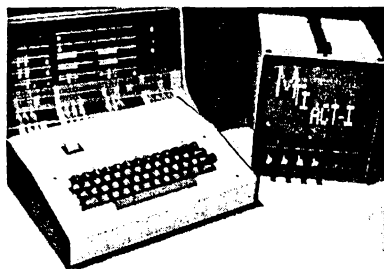
PRICE: \$1995.00

\$4.00 SHIPPING & HANDLING





**MICRO-TERM INC.**



\$525 complete with high resolution 9" monitor • \$400 without monitor INCLUDED FEATURES:

- Underline Cursor
- RS232C or Current Loop
- All oscillators (horiz., vert., baud rate, and dot size) are crystal controlled
- 64 characters by 16 lines
- Auto Scrolling
- Data Rates of 110, 300, 600, 1200, 2400, 4800, and 9600 baud are jumper selectable

The ACT-I is a complete teletype replacement compatible with any processor which supports a serial I/O port. Completely assembled and dynamically tested.

## **THE AFFORDABLE CRT TERMINAL**

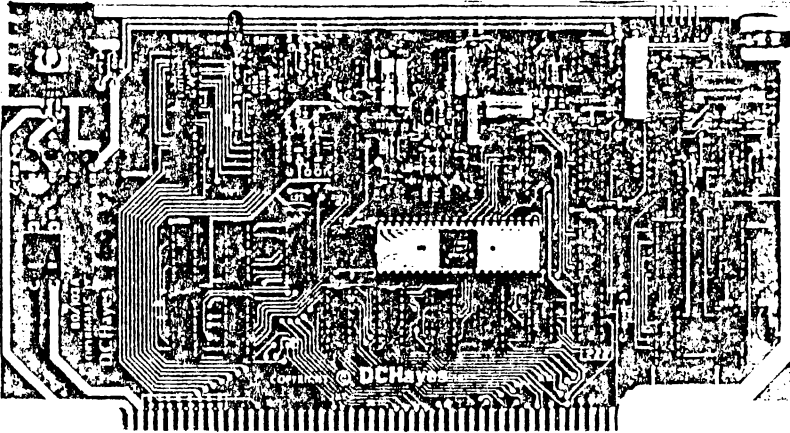
**JOHNSON COMPUTER P.O. BOX 523  
MEDINA, OHIO 44256 216-725-4560**



# TIMESHARING

The 80-103A works both ways. Your system can call a timesharing service and communicate as an intelligent terminal OR your S-100 system can be the timesharing system where the 80-103A answers the phone and communicates with terminals or other processors.

## 80-103A DATA COMMUNICATIONS ADAPTER



*The 80-103A DATA COMMUNICATIONS ADAPTER was developed to function as an S-100 bus compatible serial interface incorporating a fully programmable modem and Telco interface. These functions are usually accomplished by the use of two separate modules: 1) a serial I/O board, and 2) an external modem. By combining these features on a single board, the 80-103A can offer microcomputer applications significant cost/performance advantages over other implementations.*

- FULLY PROGRAMMABLE FEATURES
- AUTOMATED DIALING AND ANSWER
- ORIGINATE OR ANSWER MODE
- 110-300 BIT/SEC DATA RATES
- CHARACTER FORMAT AND PARITY
- ERROR DETECTION
- FULLY BUFFERED, OUTPUTS DRIVE 25 S-100 BUS LOADS

DC Hayes Associates offers a full range of capabilities for solving your information handling problems. Whether your problem is large or small, we will apply innovative techniques for finding the best solution. Contact us about our products and services.

- STANDARD U.S. FREQUENCIES
- FULL TELCO COMPATIBILITY WHEN ATTACHED TO DAA
- COMPATIBLE WITH EXISTING TELETYPE AND TIME SHARING MODEMS
- ALL DIGITAL MODULATION AND DEMODULATION. NO ADJUSTMENTS REQUIRED.

### PRICES:

Assembled 80-103A with 48 hour burn in and 90 day warranty is \$279.95

Bare Board with manual is \$49.95

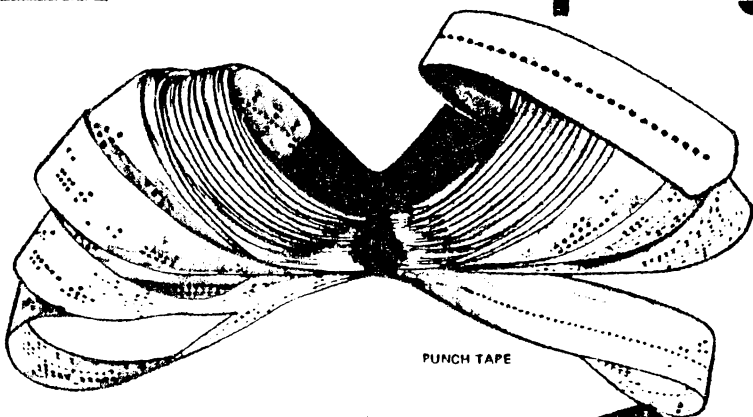
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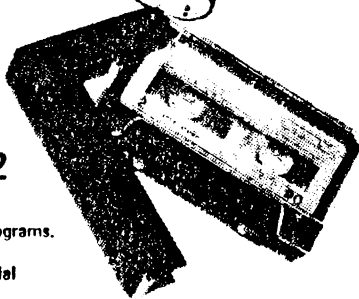


# Reduce programming costs



PUNCH TAPE

## DATA1-K RESIDENT ASSEMBLER/EDITOR FOR THE MOS TECHNOLOGY 6502



ALSO AVAILABLE IN CASSETTE

The DATA1-K resident assembler/editor is the new, efficient approach to the assembly of microcomputer programs. All assembler editor functions are performed entirely within memory. In most cases there is no need for a special computer system! Program with the DATA1-K on the system which will ultimately make use of the object code. This not only lowers the initial cost of a development system but greatly decreases the amount of time spent on program debugging.

The DATA1-K assembles fast—over 600 lines per minute—and uses the standard MOS Technology Assembler Language. The DATA1-K features a truly general purpose line oriented text editor with error correction and paged output capability. The DATA1-K is currently in use by: General Electric, Western Electric, Eaton, Monitor Systems, the University of Cincinnati, and many others.

It is presently available on KIM-1 format paper tape or cassette and it includes one year warranty and update.

Price: \$250.00

Available from Johnson Computer, P.O. Box 523, Medina, OH 44256. Phone: (216) 725-4560.

Terms: Payment with order/add \$2.00 shipping and handling/add \$10.00 for cassette version. Delivery: stock to 30 days.

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COMPUTER**

P. O. BOX 523 MEDINA, OHIO 44256

# SPECIFICATIONS

## ASSEMBLER FEATURES

Fully compatible with MOS TECHNOLOGY Cross Assembler language. Accepts free-form input of assembly language statements. Accepts input directly from Editor source file. Provides full assembly listing including line number, memory address, machine code and source line. Page control automatically paginates all output. Pinpoints assembly errors with pointer to location of error within source line and diagnostic error message. Errors—Only assembly option speeds program development by only printing lines containing assembly errors. Three types of object (machine) code may be selected for output: Loadable object tape in KIM-1 format, Object code placed directly into origin specified by assembly source, and Object code placed into memory at special location—for dumping in non KIM format, transfer to floppy disc, etc. Common symbols feature permits separate assembly of program modules with ability to reference common symbols. High Throughput—Over 600 lines per minute assembly speed.

## EDITOR FEATURES

Fully general purpose—may be used for editing any language, any type of source file. Line Oriented—accepts line numbers from 1-65535. Special line number 0 permits insertion after the previously entered line regardless of line number. Permits easy correction of entry errors with character delete and line delete commands. Resequencing command—may be used to renumber lines. Entered source text may be printed by line, group of lines, from start of file to specified line or specified line to end of file. Page control automatically paginates all printouts. Delete command allows selective deletion of lines or groups of lines. Easy creation of tape copy of source text and easy reloading of text files from tape. Also easily used with floppy disc and other mass storage devices. Conserves memory by compressing source text before storage.

## GENERAL

Provides full 6502 software development capability at low cost. Runs directly on 6502 system, no large in-house computer required as with Cross Assembler. Low Cost—A fraction of Cross Assembler price. One-time Expense—No monthly charges of \$100.00 to \$1000.00 as with timesharing services. Greatly facilitates program development by allowing assembly on your actual product prototype. Minimize capital expense. Equipment needed to support assembler is usually same as used in ultimate product. Available in the following configurations: for KIM-1 with teletype, occupies addresses 2000-30FF; for KIM-1 with teletype and custom memory, occupies addresses 0200-12FF; for TIM. Easily modified for other 6502 systems and peripherals—specify your needs. Available on 2708 PROM board for KIM systems—60 days. One year warranty and update service provided at no additional cost. Currently in use by General Electric, Eaton Corp., Western Electric, University of Cincinnati, and many others. Memory requirements: 4.25K for Assembler/Editor, approximately 4K additional memory per 200 lines of source text to be assembled (200 lines of source text generates about 400 bytes of object code). Source code is maintained in RAM along with the Assembler/Editor and with the object code resulting from an assembly. This permits rapid alternation between edit/assembly and debug to speed program development.

## DATA1-K DOCUMENTATION

License—mailed out on receipt of P. O. or REQ. We will ship the Assembler on receipt of signed agreement and payment (or P. O.). Cassette Load Instructions. Paper Tape Load Instructions. Paper Tape Spool Handling Instructions. V-61202—user's documentation for version which loads at 2000 hex. Resident Assembler Documentation. Editor Documentation. TIM Mods—software modifications to use the DATA1-K on systems using the TIM monitor (6530-004). 0200 Mods—software modifications to reload DATA1-K at 0200. MOS Technology Cross Assembler Manual.

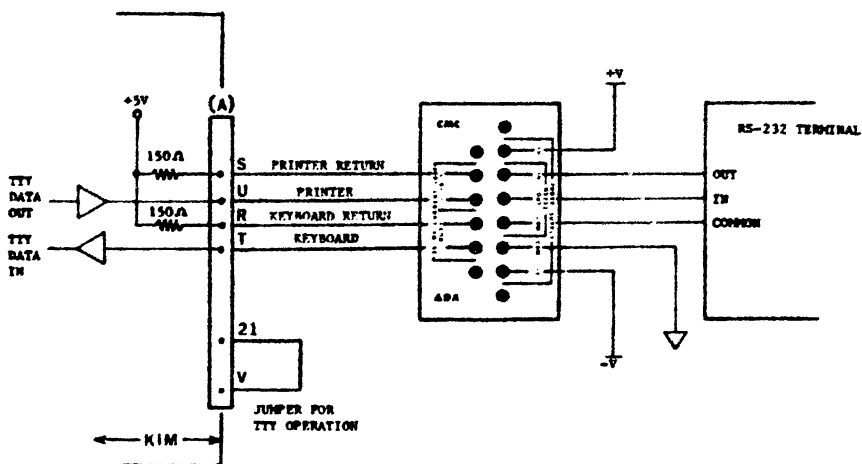


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## RS-232 ADAPTER FOR KIM

### KIM INSTRUCTIONS FOR ADA



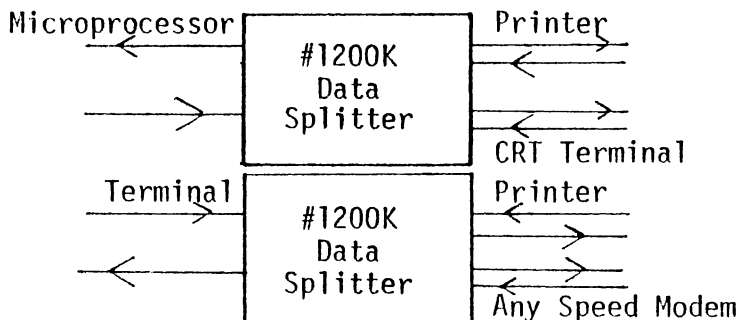
Connecting an RS-232 terminal to KIM is easy with ADA. This ADAPTER converts KIM's 20 ma. current loop port to an RS-232 port. ADA does not affect the baud rate and uses standard power supplies. The unit comes complete with instructions, is assembled and tested, and measures 3" x 3-1/2" x 1". KIM is isolated from the RS-232 device by optoisolators.

ADA sells for \$24.50 with drilled, plated through solder pads for all connections - or - with barrier strips and screw terminals for \$29.50.

P.O. BOX 523 - MEDINA, OH 44256 - 216/725-4560



## TWO APPLICATIONS OF THE MODEL 1200K DATA SPLITTER



Model 1204K RS-232 Data Splitter. This is a 4 in, 1 out Data Splitter; a larger version of the Model 1200K. It is used if one microprocessor wishes to connect several peripheral devices to it. Assembly instructions, schematic, PC Board, parts, 5-RS-232 Connectors, and housing are included; can be daisy chained. See product brochure for applications information. Estimated assembly and test time is 6 hours.

KIT-\$89.00 Completed & Tested; 12 Mos. Warranty-\$150.00

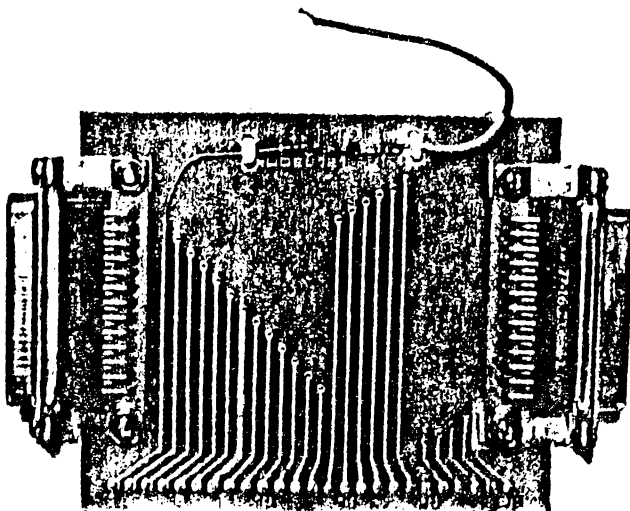
The Model 900K Programmable Line & Terminal Simulator. This is also called an ASCII Code Generator. Here is a crystal controlled device which looks like a Microprocessor to a Terminal, and a Terminal to a Microprocessor. Use it to exercise and check out Terminals, Microprocessors, and Modems after construction, and repair, and as an incoming inspection tool. Many industrial companies use the 900 to burn in digital devices after construction. Complete assembly and test instructions are included. Kit includes housing, all parts, PC Boards, and completed Harness Assembly. Estimated assembly and test time is 10 hours.

KIT - \$199.00

Completed & Checked Out Unit; 12 Mos. Warranty-\$349.00

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#440K Line Tester Kit. This PC Board has 2 RS-232 Interfaces; 1 Male, 1 Female. It enables the user to check all lines to see which ones are active. Probe Posts and an LED are included. PC Board, 2 connectors, LED, installation and test instructions are included. Estimated assembly and test time is 3 hrs.

KIT - \$39.00

Model 1200K RS-232 Data Splitter. This diode network provides a low cost dual output interface from any microprocessor or terminal with an RS-232 Interface. It allows a Printer and a Modem, a printer, and a plotter to be connected to a terminal, or microprocessor, and isolates the two output lines from each other. Housing, RS-232 Connectors (3), parts, and PC Boards, and installation instructions are all included. Data Splitters can be daisy chained. Estimated assembly and test time is four hours.

KIT-\$49.00 Completed & Tested; 12 Mos. Warranty-\$99.00

# MVM 1024 MICROPROCESSOR VIDEO MODULE

**KIM-1  
GOES  
VIDEO**

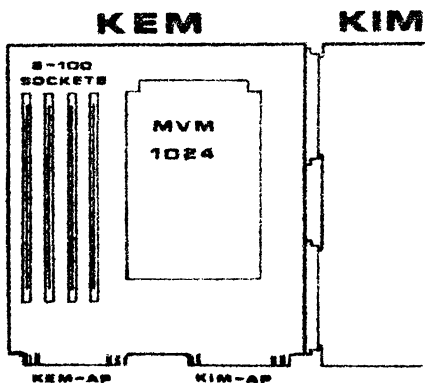
THE KIM-1 COMES ALIVE WITH A VIDEO DISPLAY. At last there's a sophisticated display that interfaces easily to the KIM-1

- \*\*\* 1K bytes on-board, cursor addressed RAM
- \*\*\* Read/writable true blinking cursor
- \*\*\* 16 rows of 64 characters, upper/lower case ASCII
- \*\*\* Reversed video characters, full screen video reverse
- \*\*\* Tangent block characters for block graphics and Op Art
- \*\*\* Byte parallel display, whole screen can be written in milliseconds
- \*\*\* Text editing and monitor functions available in 1K x 8 KIMBUG EPROM

Please write for further information. We support our products.

## KEM KIM-1 EXPANSION MODULE

Have you ever envied S-100 Bus users? ENVY NO MORE. Be the envy with your KIM-1 and KEM. Use low-cost S-100 bus RAM and other S-100 accessories with your KIM-1. Add the best display available. It's all yours with the KEM.



- \* Buffered data, address, and controls for the S-100 bus
- \* Comes with two S-100 connectors, room for two more, expandable
- \* Connector and interface for MVM-1024 Display
- \* Connector KIM-1 appl. ports, audio etc.
- \* KEM application connector, ASCII keyboard interface
- \* Space for four 1K x 8 2708 EPROMs (These are down to \$30 now and getting even cheaper. Maybe \$25 by year's end.)

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F I N A L L Y !  
EPROM FOR KIM-1/KIM-4

Now available from JOHNSON COMPUTER:

Model KM8KR0, EPROM board.  
Same dimensions as KIM-2/3 memory.  
Plugs directly into KIM-4.  
Completely assembled, tested,  
ready to use.  
Accepts 8 2707 EPROMS for 8K total.  
Easily converted for 2716 for 16K total.  
Sockets installed for EPROMS.  
Draws less than 1 watt, fully loaded.  
Complete documentation includes KIM-1  
software for programming on popular  
programmers.  
Industrial grade construction throughout.

Order: Model KM8KR0 (EPROMs not included)  
Price: \$195.00 Each  
F.O.B. JOHNSON COMPUTER  
Availability: STOCK

NOTE: OAE Model PP-2708/16 Programmer  
Available - \$295.00  
Adaptor card for using PP2708 with  
KIM - \$23.95

**JOHNSON**  
**COMPUTER**

P.O. BOX 523  
MEDINA, OHIO 44256  
(216) 725-4560

# KM-8KRO MODULE SPECIFICATIONS

CHARACTERISTIC	SPECIFICATION
Module Type	Read Only Memory
Memory Type:	(1) 2708 U.V. Erasible or Similar
Size	(1) 8K x 8 Array
Speed	(1) 450ns Access (Max.)
Bus Type:	KIM-4 Compatible
Connectors	22/44 pin; Vector R644 or equivalent on .156" centers
Physical Characteristics:	
Width x Height	10 in. x 7 in.
Board Thickness	0.062 in.
Power Requirements:	<p>+5 VDC <math>\pm</math> 5% @ .5 A NOM.</p> <p>or</p> <p>+8 VDC to + 10 VDC (raw) @ .5 A NOM.</p> <p>+15 VDC <math>\pm</math> 10% @ .75 A NOM.</p> <p>-15 VDC <math>\pm</math> 10% @ .5 A NOM.</p>
Operating Temperature:	0° to 70°C



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