Power Supply
Sockets
Parameters Saved
Function Keys
Editing function
Eproms Selection Guide
Display Examples
Memory type selection and access time
Copy of a master eprom
Number of Sockets Selection
2 copies of a Master Eprom
Access time Automatic Verify
Load and Program of 2 2764 eproms with 2 different contents
Empty Verify
RAM transfer from a memory
RAM Editing
Block Change
Bloc transfer
Automatic Search of 4 successive addresses
Search and automatic modify of 4 successive addresses Contents
Split Function
Ckecksum of full or partial RAM Memory
Parallel or Serial Interface
Input- Output
Formats

Power Supply

The programmer has a built-in Voltage Selector 240V/220V/120V/110V (to Select Voltage See Picture I and II)

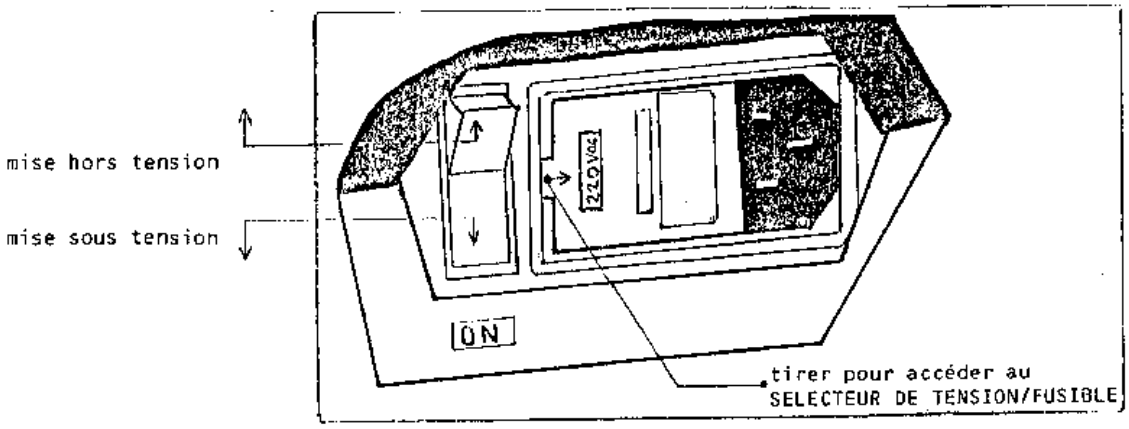


FIGURE I

The Power ratings are around 20 Watts
Main Line frequency: 50/60Hz
Fuse T 500mA (5x20) if 240/220V use
Fuse T 1A (5x20) if 110/120V use

To power the programmer press the switch to the bottom (ON). Then an automatic test will begin and display the Memory Type.

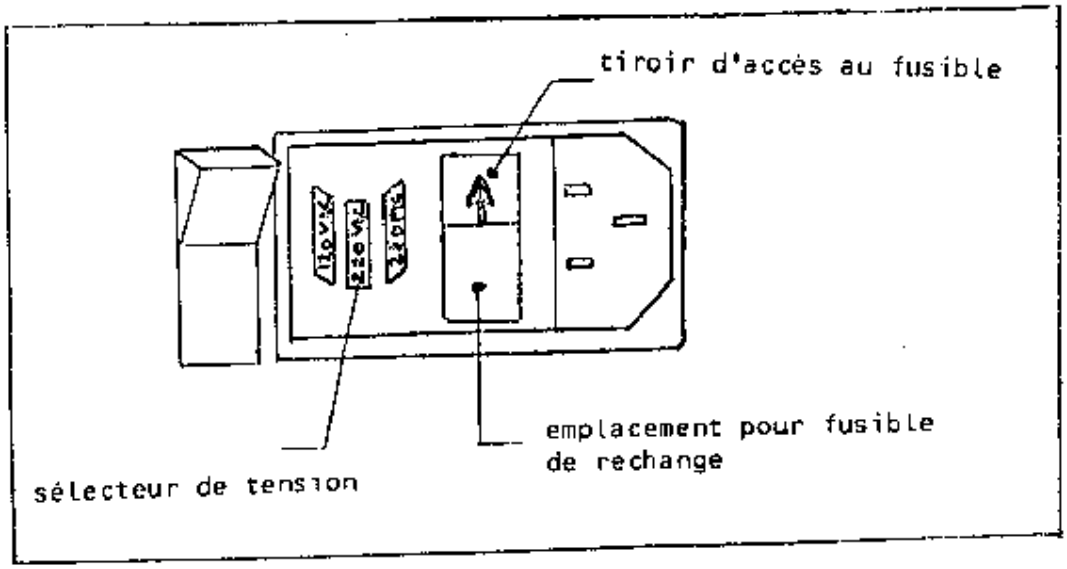


FIGURE II

Sockets

The sockets are ZIF.
No voltage until Empty, Verify and other functions Selected

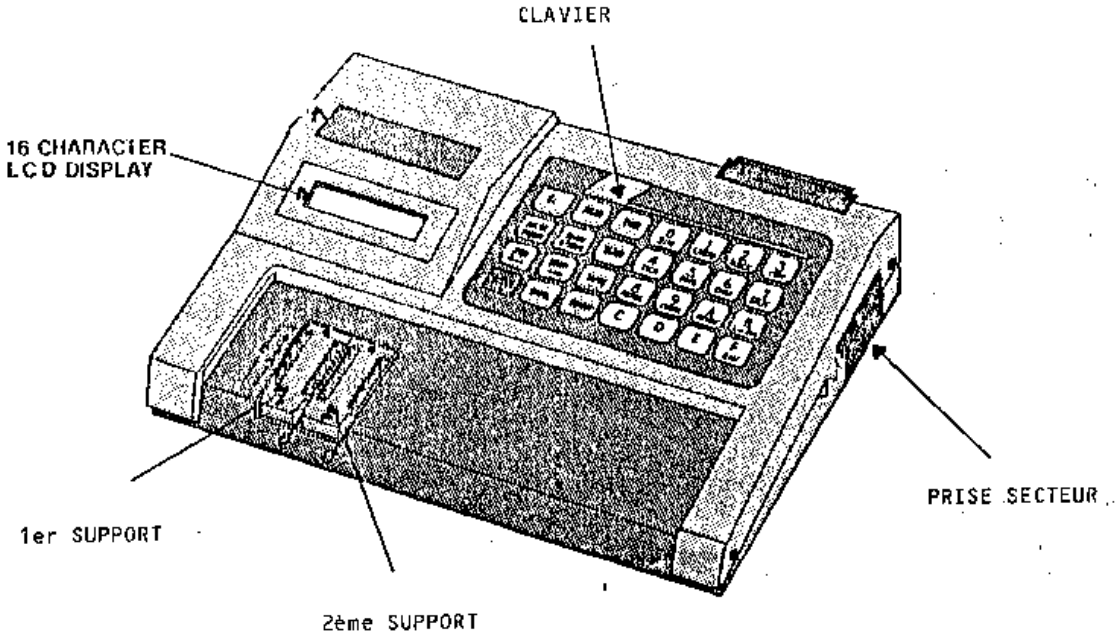
28-pins Memories : Pin N°1 is bottom left
24-pins Memories : Pin N°1 is in the third pin from top left

Handing Cares

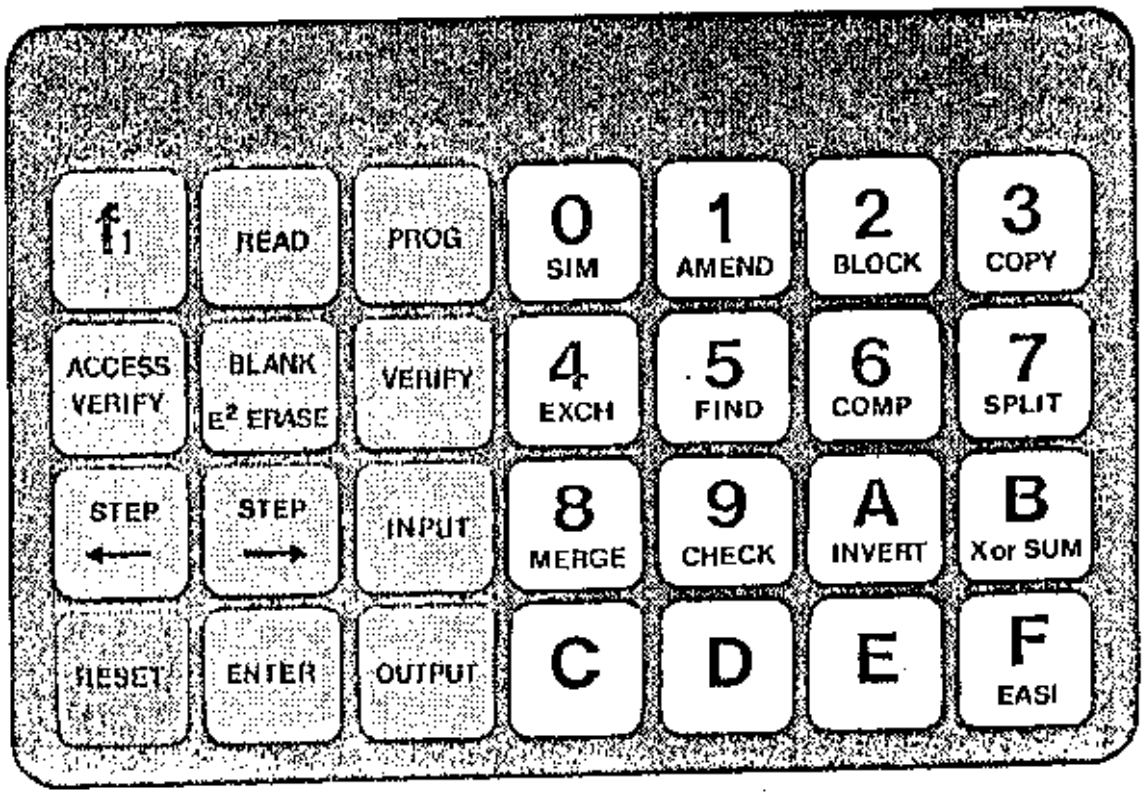
- Do not operate in non –ESD environment
- Do not power the programmer with Eprom inserted.
- Do not insert or remove memories when system is working progress
- fix the Memory in the right position; inverting is detected in most cases.

Backuped parameters

A battery included save the parameters of a 2Kx8 Ram saved in the previous Operation.
Parameters as memory types, Access time, Mode, Number of Sockets, Serial Line or Parallel connection parameters.



C 41 COMPACT PROGRAMMER



MEMBRANE KEYPAD

Function Keys

F1 unused – reserved for future use
READ: Eprom Memory content sent to programmer's RAM from a selected Address.
PROG: Allow programming of the memories inserted in sockets 1 and 2 from a particular address of the RAM.
ACCESS VERIFY: automatic Access Time Verify
BLANK: Empty-Verify
VERIFY: Compare the content of an Eprom in Socket 1 or 2 to the RAM content from a defined Address
STEP: decrement or increment of the memories type, access times, number of memories to copy, addresses when editing memory content when RAM against Copy compare.

INPUT: input: RS-232 transfer to RAM
RESET: Access to different steps of the selection
ENTER: Confirm current operation
OUTPUT: transfer RAM content to the serial or parallel line

Editing mode functions:
0-F: hexadecimal keyboard
0: simulating
1: addresses Selection
2: a value in RAM area
3: block transfer
4: Automatic change of the content of 4 successive addresses max.
5: Search of characters
6: Compare parity addresses
7: separate parity addresses
8: compare even or odd addresses
9: checksum
A: Complement RAM data

Guide of EPROMs selection
Tp : programming Access time
Vpp programming Voltage

2508
2516/2716/27C16
2532
2732/27C32 Vpp: 25V
2732A Vpp: 21V
2564
2764 normal Mode Tp 6mn
2764 INT fast INTEL Mode: Tp 50 seconds approx. Vpp: 21V
2764 INT ID fast INTEL Mode + manufacturer identification Vpp: 21V
2764 FUJ Mode quick FUJI: Tp 25 seconds approx. Vpp: 21V
2764A Fast INTEL Mode : Vpp: 12.5V
QP2764A INT Quick pulse INTEL Mode: Tp : 4 seconds Approx. Vpp: 12.75V
QP 2764A INT Quick pulse INTEL Mode + manufacturer ID
27C64 INT

27C64 INT ID
87C64 Vpp: 12.5V
87C64 INT ID
QP87C64 Vpp: 12.75V
QP87C64 INT ID
68764
27128 normal Mode : Tp:13 mn Approx.
27128 INT Fast INTEL mode : Tp: 1.40 mn Approx. Vpp : 21V
27128 INT ID Fast INTEL mode + Manufacturer Id
27128 FUJ Quick FUJI Mode : Tp 50 seconds Vpp: 21V
27128A Fast INTEL mode Vpp :12.5V
QP27128A Quick Pulse INTEL Mode : Tp: 10 seconds, Vpp:12.75V
QP27128A INT ID Quick Pulse INTEL Mode + Manufacturer Identification
27256 INT fast INTEL mode: Tp:3.3mn Vpp:12.5V
27256 INT ID fast INTEL mode + Manuf. Id Vpp: 12.5V
QP27256 Quick pulse INTEL mode: Tp: 20 seconds Vpp:12.75V
QP27256 ID Quick pulse INTEL mode + Manufacturer Id.

Important:
27C256 FUJ 21V only quick mode FUJI Tp:2mn Approx. Vpp:21V
27256 FUJ NMOS Use INTEL Fast mode Vpp:12.5V
27512 INT Fast INTEL Mode Vpp:12.5V
27512 INT ID Fast INTEL mode + Id. Vpp:12.5V
27512 AMD ID Fast AMD mode + Id.
27512 INT
27513 INT ID
48016

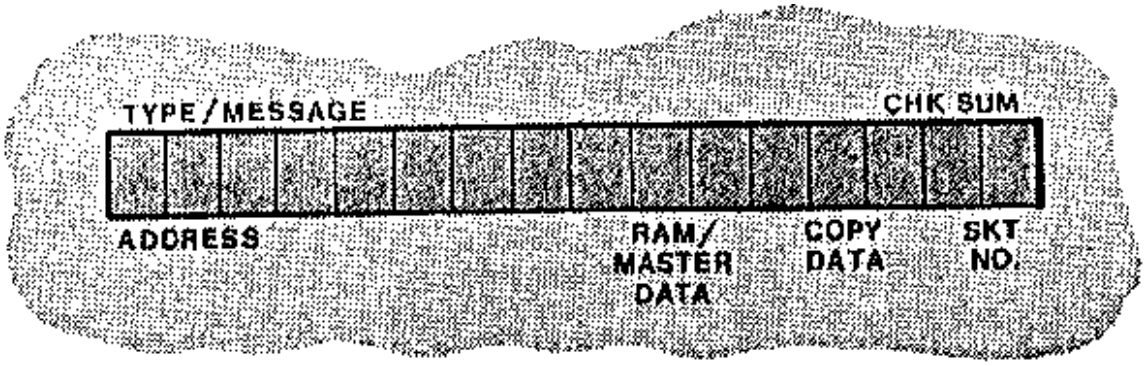
E4 Adapter required:
8741 E4
8742 E4
8748 E4
8748 H E4
8749 H E4
8755 A E4

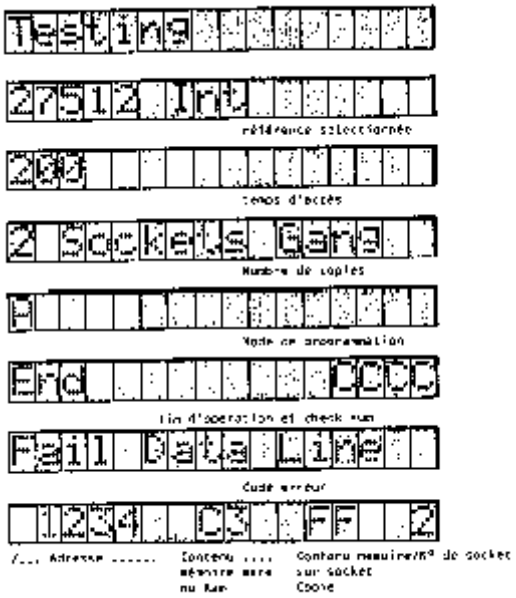
E7 Adapter required:
8751 E7
8752 E7

E5 Adapter required:
68701 E5
68701U4 E5

3-Voltages memories E13 Adapter required:
2704 E13
2708 E13
2716 E13

Display Examples





Memory type Selection and Access-time

1- Display indicates : example
2- Press “RESET” : display blinks
3- Keep key “STEP ←- or →” pressed until type you want to select 2732
4- Press “RESET again : system beeps and indicates access time that can be changed with “STEP ← or →”keys between 100 to 450 ns
5- Press “RESET” for the 3rd time : display indicates number of sockets to will be used en modes used 1 SOCKET
6- Press “RESET” and select with “STEP” key mode B only for 2764 Texas ; mode A for all other types : A

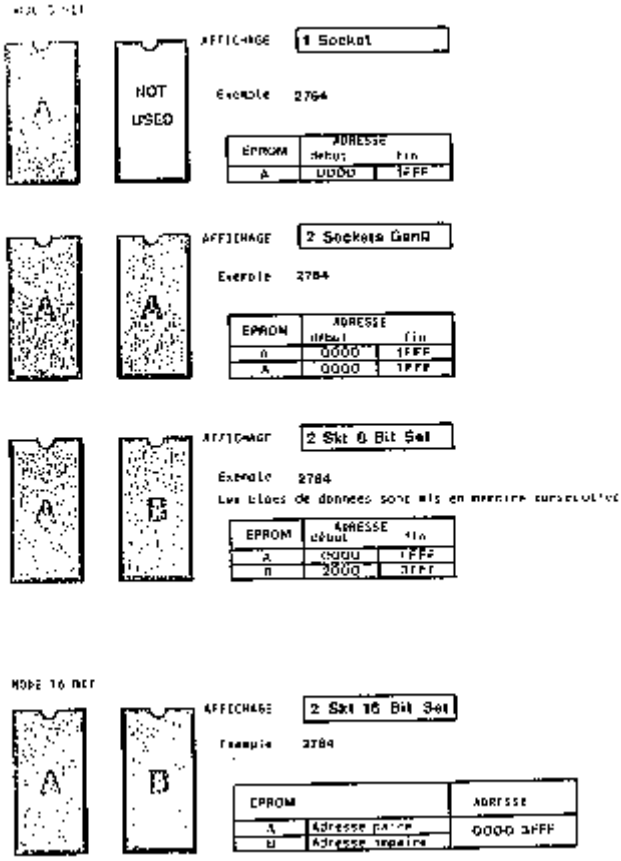
COPY of an EPROM from a master

Example: 2732

1- After selecting with above procedure the parameters 2732/350 select master memory on the left socket

2- To transfer the master content into RAM press “READ” : display indicates start address of RAM loading ; Press ENTER to confirm display indicates the Checksum.
3- Replace master memory with empty EPROM
4- Press “PROG” : displays indicates Validate by “ENTER” : Programming is done from Start Address 0000 (RAM) to the copy

The end of operation is confirmed by 8 beeps and display indicates END XXYY, XXYY is the Checksum.



2 IDENTICAL COPIES FROM A MASTER

Example 2 x 2732

Follow the steps part1 and 2 of the above last example.

3- Place 2 empty memories on the sockets

4- Modify the selection of the number of sockets by pressing 3 times the “RESET” key and increment by the “STEP” key until display indicates 2 SOCKETS GANG

5- Press “PROG” displays indicates 0000

The end of operation is signalled by 8 beeps end display indicates END XXYY

Automatic Access time Verify

Place the memory and transfer its contents into RAM

Press “RESET”

Press “ACCES VERIFY”

Validate with “ENTER”

Display indicates for example: ACC.TIME 250-1

RAM transfer Content into Memory

1- Select the type and place the EPROM in socket
2- Press “READ”: Display indicates start address for loading into RAM that can be modified with the keypad.
3- Validate by pressing “ENTER” : Ram transfer is executed and display indicates the checksum

RAM Editing

1- AMEND : to see the content of an address and eventually modify this content
2- BLOCK AMEND Place the same content between a start address and the end address to be defined
3- COPY BLOCK : Copy a block of data in a different zone of the RAM
4- EXCHANGE STRING : Search and modify 4 successive addresses Contents
5- FIND STRING Search 4 successive addresses contents
6- COMPARE RAM : Compare Ram to memory Master
7- SPLIT : place the content of odd addresses in start of RAM and even addresses in end of RAM
8- MERGE Opposite SPLIT Operation
9- CHECK SUM Calculate the checksum in a RAM area.

<u>EXAMPLE:</u>

AMEND

Replace the content of address
123 from 45 to 67
124 from A1 to A2
126 from C2 to 11

1- Select 1 on the keypad	000
2- Enter 123: Press “ENTER” to confirm	123
3- Enter 67: Press “STEP →”	123 45 67
4- Enter A2: Press “STEP →”	124 A1 A2
5- Enter 11:	124 C2 11

6- Press “STEP →” or press “STEP ←” to verify.
7- Press “ENTER”
8- Press “RESET”

BLOCK CHANGE

Example: put the same data in RAM zone 5 5 from 150 to 175

1- Press 2: display indicates 0000
2- Enter 150
3- Validate with “ENTER”
4- Enter 0175
5- Validate with “ENTER” display indicates FF
6- Enter 55
7- Validate with “ENTER”
8- Finished

BLOCK Transfer

Example transfer the content of the previous example 55 from 150 to 175

1- Press 3 : display indicates : 0000

2- Enter start address 150
3- Enter end address 175
4- Enter target address 200
5- Confirm with “ENTER”
That’s finished.

Automatic Search of content of 4 successive addresses

Example: enter 41, then 42, then 43, then 44 from address 100
1- Select 5: display indicates 0000
2- Set start address of the search zone 0000
Validate with “ENTER”
3- Define end address of the search zone
Display blinks and indicates: 1FFF
4- Enter successively 41,42,43,44
If it exists in RAM the same content, the system will indicate the first address of it. To know if it exists other similar content press “ENTER”.
On the other hand it is not necessary to enter the full data of the 4 addresses: you can enter 42, 43, 44 ENTER – ENTER.

Search and automatic change of the content of 4 successive addresses
Example: Replace all contents 41,42,43,44 by 41,42,44,45

1- Press 4 Validate start address of the search
2- Validate the end address 13FFF
3- Enter 41, 42, 43, 44: display blinks
4- Enter 41, 42, 44, 45 : change is done everywhere the content is found.

“Split” Function
Press 7: display appear and disappear when operation is finished : This function set the data of odd addresses in start of ram from address 0 and the content of even addresses in middle of the RAM area which is 8000 depending of the base model capacity. It is better to realize this function during programming to take advance 2 SKT 18 BIT SET

Checksum Calculation of all or part of the RAM

1- Press 9
2- Enter start address of the RAM zone by pressing “ENTER”
3- Enter end address by pressing “ENTER”

Serial and Parallel Interfaces
Important: Before selecting input or output of the RAM content by the serial and parallel interfaces, proceed as follow:

A- For RS232, Select:
1- Format
2- Speed
3- Parity, number of bits, number of stop bits

Note the corresponding references and requested values on the hereafter table:

FORMAT	VITESSE	PARITE	AFFICHAGE
LABEL Printing	50		
ASCII Hex Space	75	PAIRE	EV/PAR
INTEL std | 8086	110	IMPAIRE	OD/PAR
BINARY - no header	135	NO	NO/PAR
Tek Hex	150	Data Bits	
Mos Tech	200	7	7 Db
Motorola S Rec	300	8	8 Db
Dec Binary	600	Stop Bits	
Binary - header	1200	1	1 St
Block Dump	1800	2	2 St
RCA Cosmac	2400	Exemple :	
PPX	4800	8 Db 2 St no/par =	
Texas Tags	9600	8 Data bits, 2 stop bits, No parity	
ASCII BNPF	19200		

Press “RESET” key until hearing 2 beeps.
Display is blinking and indicates for example INTEL STD X 8086

a) increment or decrement by “STEP ← or →” to select the format. When required format is ok , press “RESET”
b) Display blinks and indicates, for example BAUD RATE 9600 Press “STEP ← or →” When requested Speed is selected press “RESET”

Display indicates for example 8 DB 2 ST NO PARITY
Press “STEP ← or →” until getting the right information ; Confirm with “ENTER”

B- For the parallel interface:
- Press “RESET to get 2 beeps
- Display indicates the format
- Press twice “RESET” display indicates speed, parity
- Increment by “STEP →” or decrement by “STEP←” to get on the display : “PARALLEL”
- Confirm by pressing “ENTER”

INPUT : Allow RAMD loading through the serial RS232 line

1- Select the type of communication
2- Press “INPUT”

a) With the formats INTEL/ MOTOROLA/ TEK HEX, display indicates : 0

It may be necessary to introduce an OFFSET
The RAM of the programmer is in the limit from 0000 to FFFF (or 1FFF with the 128 Kbytes Option) if start address is at C5000 (ex. With INTEL format) after input select C
The loading will done from address 5000

b) With formats ASCII/BINARY/ DEC BINARY/ BINARY HEADER/ BLOCK DUMP/ ASCII BNPF, displays indicates: 0000

And can be modified in the limits of the RAM capacity from 0 to FFFF (1FFFF if 128Kbytes Option)

c) Press 0 or 1 or 2 or 3 on the keypad to select the address of the EPROM content in your program (0000 to F000 for 8 bits) : 0 1000 20

3- Confirm with “ENTER”

OUTPUT : After pressing “OUTPUT” display indicates : 0000

If the start address of the RAM is OK then press “ENTER”
Display indicates (example) end address of the RAM : 3FFF
If it is ok, Press “ENTER”
Otherwise enter the expected address and confirm with “ENTER”
NOTA: For the formats 1,3,7,8 the addresses scroll immediately after “ENTER” For the other formats it is necessary to press 0 for a target address 0000.

DEVICE	ARRAY SIZE	TECH.	PIN OUT	PROGRAMMER SELECTION	t PRGMR CODE REMOTE	@ FAMILY PIN OUT REMOTE
			HITACHI			
HN480160	2k X 8	NMOS	24	48016	1A	-
HN462716	2k X 8	NMOS	24	2716	01	1923
HN462716G	"	"	"	"	01	1923
HN462532	4k X 8	"	"	2532	02	3125
HN462732	"	"	"	2732	03	1924
HN482732A	"	"	"	2732A	04	2724
HN482732AG	"	"	"	"	"	"
HN482764	8k X 8	HMOS	28	2764 Int	07	7933
HN482764G	"	"	"	"	07	7933
HN482764P	"	"	"	"	"	"
HN27C64	"	CMOS	"	"	"	"
HN27C64G	"	"	"	"	"	"
HN4827128	16k X 8	HMOS	"	27128 Int	0E	7951
HN4827128G	"	"	"	"	"	"
HN4827128P	"	"	"	"	"	"
HN27256	32k X 8	"	"	27256 Int	12	9332
HN27256G	"	"	"	"	"	"
HN27C256	"	CMOS	"	"	"	"
HN27C256G	"	"	"	"	"	"
			INTEL			
2758	1k X 8	MOS	24	2508	00	1922
2716	2k X 8	NMOS	"	2716	01	1923
2815	2k X 8	HMOS	"	2815	18	8523
2816	"	"	"	2816	19	3723
2732	4k X 8	NMOS	"	2732	03	1924
2732A	"	"	"	2732A	04	
2764	8k X 8	"	28	2764 Int	07	7933
2764A	"	"	"	2764A	0A	9333
27C64	"	CMOS	"	27C64 Int or 2764A	26	
87C64	"	"	"	87C64 Int	28	
27128	16k X 8	NMOS	"	27128 Int	0E	7951
27128A	"	"	"	27128A	11	9351
27256	32k X 8	"	"	27256 Int Id	13	-
27512	64k X 8	"	"	27512 Int Id	16	
27513	16k X 8	"	"	27513 Int	24	

[X4 pages]

APPENDIX A (Continued)

DEVICE	ARRAY SIZE	TECH.	PIN OUT	PROGRAMMER SELECTION	† PRGMR CODE REMOTE	@ FAMILY PIN OUT REMOTE
OKI						
MSM2758	1k X 8	NMOS	24	2508	00	1922
MSM2716	2k X 8	"	"	2716	01	1923
MSM2532	4k X 8	"	"	2532	02	3125
MSM2732	"	"	"	2732	03	1924
MSM2732A	"	"	"	2732A	04	2724
MSM2764	8k X 8	"	28	2764 Int	07	7933
ROCKWELL INTERNATIONAL						
R87C32	4k X 8	CMOS	24	2732A		
SEEQ TECHNOLOGY						
5213 *1	2k X 8	NMOS	24	2816	19	3723
5133	8k X 8	"	28	2764	07	7933
5143	16k X 8	"	"	27128 Int	0E	7951
27C256	32k X 8	CMOS	"	27256 Int	12	9332
SGS-ATES Semiconductor Corporation						
M2716	2k X 8	NMOS	24	2716	01	1923
M2532	4k X 8	"	"	2532	01	3125
SIEMENS						
SAB2716	2k X 8	NMOS	24	2716	01	1923
SYNERTEK						
SY2716	2k X 8	NMOS	24	2716	01	1923
TEXAS INSTRUMENTS						
TMS2516	2k X 8	NMOS	24	2716	01	1923
TMS2532	4k X 8	"	"	2532	02	3125
TMS2732	"	"	"	2732	03	1924
TMS2564	8k X 8	"	"	2564	05	3130
TMS2764 *2	"	"	"	2764	06	3533

DEVICE	ARRAY SIZE	TECH.	PIN OUT	PROGRAMMER SELECTION	t PRGMR CODE REMOTE	@ FAMILY PIN OUT REMOTE
THOMSON (see EUROTECHNIQUE)						
TOSHIBA						
TMM323D	2k X 8	NMOS	24	2716	01	1923
TMM2732	4k X 8	"	"	2732	03	1924
TMM2732D	"	"	"	"	03	1924
TMM2764 *3	8k X 8	"	28	2764 Int	07	7951
TMM27128D *3	16k X 8	"	"	27128 Int	0E	7951
TC57256D * 3	32k X 8	"	"	27256 Fuj	14	-
TMM27256	32k X 8	"	" "	"	"	-

*1. Can be programmed but cannot be chip-erased in one operation.

*2. Use suppressed verify during programming for early versions of this device (i.e., mode B).

*3. These devices may exhibit a noise problem in gang programming which gives mis-read or mis-verify. Select mode B and slow programming (2764 or 27128) and reduce number of devices in gang to three.

F O R M A T S - EXEMPLES

1 - ASCII HEX SPACE

```
3A 23 40 27 3D 22 2D 61 62 63 64 65 66 67 68 69
2D 2D 2D 2D 2D 2D 2D 6A 6B 6C 6D 6E 6F 70 71 72
2D 2D 2D 2D 2D 2D 2D 7E 73 74 75 76 77 78 79 7A
2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D
```

a) Caractère de départ "Control A"

b) Data - space - data - space etc .....

c) Caractère de fin "control C"

2 - INTEL

```
:20100002D922D2D2D892D2D2D2D2D932D2D2D2D0000000200003000000000000000000D4
:2010200000000000000000000000000000000000000000500000004000000000000000A7
:20104000000000000000000000000000000000003A2340273D222D6162636465666768 69B3
:20106000 2D2D2D2D2D2D2D6A6B6C6D6E6F7071722D2D2D2D2D2D2D7E737475767778797AEA
:20108000 2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D7B41424344546474849 8A
:00000001FF
```

3 - FORMAT OPTIONAL - Binaire

```
/10002032D922D2D2D892D2D2D2D2D932D2D2D2D0000000200003000000000000000000F0
/1020200500000000000000000000000000000000000000500000004000000000000000009
/1040200700000000000000000000000000000003A2340273D222D6162636465666768 69A5
/10602009 2D2D2D2D2D2D2D6A6B6C6D6E6F7071722D2D2D2D2D2D2D7E737475767778797ADA
/1080200B 2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D7B41424344546474849 AD
/00000000
```

4 - FORMAT TECKTRO

5 - FORMAT MOSTEK

```
;2010002D922D2D2D892D2D2D2D2D932D2D2D2D0000000200003000000000000000000042C
;2010200000000000000000000000000000000000000005000000400000000000000000059
;2010400000000000000000000000000000003A2340273D222D6162636465666768690540
;2010602D2D2D2D2D2D2D6A6B6C6D6E6F7071722D2D2D2D2D2D2D7E737475767778797A0B16
;2010802D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D7B41424344454647484907 76
;0000000000
```

6 - FORMAT MOTOROLA

```
S0090000454C414E204571
S1231002D922D2D2D892D2D2D2D2D932D2D2D2D0000000200003000000000000000000D0
S123102000000000000000000000000000000000000005000000400000000000000000A3
S12310400000000000000000000000000000003A2340273D222D6162636465666768690AF
S12310602D2D2D2D2D2D2D6A6B6C6D6E6F7071722D2D2D2D2D2D2D7E737475767778797AE6
S12310802D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D2D7B41424344454647484986
S9030000FC
```

7 - FORMAT DEC BINARY

Binaire avec en-tête FFFF

8 - BINARY - BINAIRE

9 - BLOCK DUMP

1040	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
1050	3A	23	40	27	3D	22	2D	61	62	63	64	65	66	67	68	69
1060	2D	2D	2D	2D	2D	2D	2D	6A	6B	6C	6D	6E	6F	70	71	72
1070	2D	2D	2D	2D	2D	2D	2D	7E	73	74	75	76	77	78	79	7A
1080	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D
1090	2D	2D	2D	2D	2D	2D	7B	41	42	43	44	45	46	47	48	49

```
:£à'="-abcdefghi
-------jklmnopqr
-------šŧuvwxyz
----------------
------éABCDEFGHI
```