Model 100 ROM Functions
(700-2245)

Model 100 ROM Functions

These pages provide essential information for using ROM functions.

LCD Functions

Function Name	Description	Entry Address (Hex.)
LCD	Displays a character on the LCD at current cursor position. (Also RST 4) Entry condition: A = character to be displayed Exit condition: none	4B44
SETCUR	Move cursor to specified location. Entry conditions: D = column number (1-40) E = row number (1-8) Exit conditions: none	7440
PLOT	Turn on pixel at specified location. Entry conditions: D = x coordinate (0-239) E = y coordinate (0-63) Exit condition: none	744C
UNPLOT	Turn off pixel at specified location. Entry conditions: D = x coordinate (0-239) E = y coordinate (0-63) Exit condition: none	744D
POSIT	Set cursor position. Entry conditions: H = column number (1-40) L = row number (1-8) Exit condition: none	427C
ESCA	Send specified Escape Code Sequence. Entry conditions: A = escape code Exit conditions: none	4270

Routines for Generating Common LCD Functions and Escape Codes

Function Name	Description	Entry Address (Hex.)	Equiv. ESC
CRLF	Generate a Carriage Return and Line Feed	4222	--
HOME	Move cursor to Home position (1,1)	422D	--
CLS	Clear Display	4231	--
SETSYS	Set system line (lock line 8, LABEL)	4235	T
RSTSYS	Reset system line (unlock line 8, LABEL)	423A	U
LOCK	Lock display (no scrolling)	423F	Y
UNLOCK	Unlock display (scrolling)	4244	W
CURSON	Turn on cursor	4249	P
CUROFF	Turn off cursor	424E	Q
DELLIN	Delete line at current cursor position	4253	M
INSLIN	Insert a blank line at cursor position	4258	L
ERAEOL	Erase from cursor to end of line	425D	K
ENTREV	Set Reverse character mode	4269	p
EXTREV	Turn off Reverse character mode	426E	q

Variable and Status Locations

Name	Contents	Address
CSRY	Cursor Position (ROW)	F639
CSRX	Cursor Position (Column)	F63A
BEGLCD	Start of LCD memory	FE00
ENDLCD	End of LCD memory	FF40

Keyboard Functions

Function Name	Description	Entry Address (Hex.)
KYREAD	Scan keyboard for a key. Return with or without one. Entry conditions: none Exit conditions: A = Character, if any Z Flag -- set if no key found -- reset if key found Carry -- set (character in code table below) -- reset (normal character set code) When Carry is set (1), Register A will contain one of the following: Register A — Key Pressed 0 — F1 7 — F2 2 — F3 3 — F4 4 — F5 5 — F6 6 — F7 7 — F8 8 — LABEL 9 — PRINT 0A — SHIFT-PRINT 0B — PASTE	7242
CHGET	Wait and get character from keyboard. Entry conditions: none Exit conditions: A = character code Carry -- set if special character -- reset if normal character (<F1> - <F8> return preprogrammed strings)	12CB
CHSNS	Check keyboard queue for characters Entry conditions: none Exit conditions: Z flag set if queue empty, reset if keys pending	13DB

KEYX	Check keybord queue for characters or BREAK Entry conditions: none Exit conditions: Z flag set if queue empty, reset if keys pending Carry -- Set when BREAK entered Reset with any other key	7270
BRKCHK	Check for BREAK characters only (CTRL-C or -S) Entry conditions: none Exit conditions: Carry -- set if BREAK or PAUSE entered -- reset if no BREAK characters	7283
INLIN	Get line from keyboard (terminated by <ENTER> Entry conditions: none Exit conditions: data stored at location F685	4644

Using Function Keys Routines

The function table consists of character strings to be used by the keyboard driver when processing <F1> - <F8> keys. The strings have maximum length of 16 characters and are terminated by a "80" (Hex.) code. If the last character of the string is OR'ed with 80, the character will also serve as a terminator. The entire string will be placed in the keyboard buffer when the appropriate strings for all 8 key is pressed. You must specify character strings for all 8 function keys (use the terminator byte for any you wish to ignore).

Example of Function table:

```
FCTAB   DEFM   'Files'    ; F1
        DEFW    0D80
        DEFM   'Load'     ; F2
        DEFB    80
        DEFM   'Save'     ; F3
        DEFB    80
        DEFM   'Run'      ; F4
        DEFW    0D80
        DEFM   'List'     ; F5
        DEFW    0D80
        DEFB    80        ; Ignore F6
        DEFB    80        ; Ignore F7
        DEFM   'Menu'     ; F8
        DEFW   0D80
```

Function Name	Description	Entry Address (Hex.)
STFNK	Set Function key definitions Entry conditions: HL = Address of function table (above) Exit conditions: none	5A7C
CLRFLK	Clear function key definition table (fills with 80's) Entry conditions: none Exit conditions: none	5A79
DSPNFK	Display function keys Entry conditions: none Exit conditions: none	42A8
STDSPF	Set and display function keys Entry conditions: HL = Start address of function table Exit conditions: none	42A5
ERAFNK	Erase function key display Entry conditions: none Exit conditions: none	428A
FNKSB	Display function table (if enabled) Entry conditions: none Exit conditions: none	5A9E

Printing Routines

Function Name	Description	Entry Address (Hex.)
PRINTR	Send a character to the line printer Entry conditions: A = character to be printed Exit conditions: Carry -- set if cancelled by BREAK -- reset if normal return	6D3F
PNOTAB	Print character without expanding tab characters Entry conditions: A = character to be printed Exit conditions:	1470
PRTTAB	Print a character expanding tabs to spaces Entry conditions: A = character to be printed Exit conditions:	4B55
PRTLCD	Print contents of LCD Entry conditions: none Exit conditions: none	1E5E

RS232-C and Modem Routines

Function Name	Description	Entry Address (Hex.)
DISC	Disconnect Phone Line Entry conditions: none Exit conditions: none	52DD
CONN	Connect Phone Line Entry conditions: none Exit conditions: none	52D0
DIAL	Dial a specified phone number Entry conditions: HL = ph. number address Exit conditions: none	532D

RCVX	Check RS232 queue for characters Entry conditions: none Exit conditions: A = number of characters in queue Z flag -- set if no data -- reset if characters pending	6D6D
RV232C	Get a character from RS232 receive queue Entry conditions: none Exit conditions: A = character received Z flag -- set if O.K. -- reset if error (PE, FF, or OF) Carry -- set if BREAK pressed, else reset	6D7E
SENSCQ	Send an XON resume character (CTL-Q) Entry conditions: none Exit conditions: none	6E0B
SENDCS	Send an XOFF pause character (CTL-S) Entry conditions: none Exit conditions: none	6E1E
SD232C	Send a character to the RS-232 or Modem (with XON/XOFF) Entry conditions: A = character to be sent Exit conditions:	6E32
CARDET	Detect carrier Entry conditions: none Exit conditions: A = 0 if carrier Z Flag -- Set if carrier, else reset	6EEF
SNDCOM	Send a character to RS232-C or modem (without XON/XOFF flow control) Entry conditions: C = character to be sent Exit conditions:	6E3A
BAUDST	Set Baud rate for RS232-C Entry conditions: H = Baud rate (1-9,M) Exit conditions: none	6E75

INZCOM — Initialize RS232-C and Modem — 6EA6

Entry conditions: H = Baud rate (1-9,M)
L = UART configuration code
(see UART byte description below)
Carry -- set if RS232-C
-- reset if modem
Exit conditions: none

BIT(S)	Description
0	Specifies number of Stop Bits: 0=1, 1=2
1-2	Parity Setting: 00=None, 01=Even, 10=Odd
3-4	Word Length: 00=6, 01=7, 10=8

The byte is ANDed with 1FH to ignore Bits 5-7. The text string containing the current STAT setting is located at F65BH (5 Bytes): Baud, Length, Parity, Stop Bits, and XON/XOFF switch.

SETSER — Set serial interface parameters and activate RS232-C/Modem — 17E6

Entry conditions: HL = start address of ASCII string containing parameters terminated by a binary zero ('78E1E', 0). Syntax same as in Telcom's STAT
Carry -- set for RS232-C
-- reset for Modem
Exit conditions: none

CLSCOM — Deactivate RS232-C/Modem — 6ECB

Entry conditions: none
Exit conditions: none

Cassette Recorder Routines

Function Name	Description	Entry Address (Hex.)
DATAR	Read character from cassette (no checksum) Entry conditions: none Exit conditions: D = character from cassette	702A

CTON	Turn motor on Entry conditions: none Exit conditions: none	14A8
CTOFF	Turn motor off Entry conditions: none Exit conditions: none	14AA
CASIN	Read a character from cassette and update checksum Entry conditions: C = current checksum Exit conditions: A = character C = contains the updated checksum	14B0
CSOUT	Send character to cassette and update checksum Entry conditions: A = character to be sent C = current checksum Exit conditions: C = updated checksum	14C1
SYNCW	Write cassette header and sync byte only Entry conditions: none Exit conditions: none	6F46
SYNCR	Read cassette header and sync byte only Entry conditions: none Exit conditions: none	6F85
DATAW	Write a character to cassette (no checksum) Entry conditions: A = character to be sent Exit conditions: none	6F5B

RAM Files Routines

The Directory Table (located at F962) contains all file location, type, and status information.

Each file is managed by an 11-byte directory entry in the format:

Byte 1: Directory Flag (for file type and status)
Bytes 2-3: Address of file
Bytes 4-11: 8 Byte filename

The Directory Flag contains the following information:

Bit 7 (MSB)	1 if a valid entry
Bit 6	1 for ASCII text file (DO)
Bit 5	1 for Machine language (CO)
Bit 4	1 for ROM file
Bit 3	1 for invisible file
Bit 2	reserved for future use
Bit 1	reserved for future use
Bit 0	internal use only

Function Name	Description	Entry Address (Hex.)
MAKTXT	Create a text file Entry conditions: filename (max. 8 bytes) must be stored in FILNAM (0FC93).'DO' extension not required Exit conditions: HL = TOP address of new file DE = address of Directory entry (Flag) Carry -- set if file already exists -- reset if new file	220F
CHKDC	Search for file in directory Entry conditions: DE = address of filename to find (ASCII filename + 0 byte terminator Exit conditions: HL = start address (TOP) of file Z Flag -- 0 (file found) -- 1 (file not found)	5AA9
GTXTTB	Get top address of file Entry conditions: HL = address of directory entry for file Exit conditions: HL = TOP start address of file	5AE3
KILASC	Kill a text (DO) file Entry conditions: DE = file TOP start address HL = address of directory entry (flag) Exit conditions: none	1FBE
INSCHR	Insert a character in a file Entry conditions: A = character to insert HL = address to insert character Exit conditions: HL = +1 Carry -- set if out of memory	6B61

MAKHOL	Insert a specified number of spaces in a file Entry conditions: BC = number of spaces to insert HL = address to insert spaces Exit conditions: HL & BC are preserved Carry -- set if out of memory	6B6D
MASDEL	Delete specified number of characters Entry conditions: BC = number of characters to delete HL = address of deletion Exit conditions: HL & BC are preserved	6B9F

Other Routines

Function Name	Description	Entry Address (Hex.)
INITIO	Cold start reset Entry conditions: none Exit conditions: none	6CD6
IOINIT	Warm start reset Entry conditions: none Exit conditions: none	6CE0
MENU	Go to Main Menu Entry conditions: none Exit conditions: none	5797
MUSIC	Make tone (see owner's manual for frequency and duration information) Entry conditions: DE = frequency B = duration Exit conditions: none	72C5
TIME	Read system TIME Entry conditions: HL = address of 8=byte area for TIME Exit conditions: HL => TIME (hh:mm:ss)	190F
DATE	Read system DATE Entry conditions: HL = address of 8-byte area for DATE Exit conditions: HL => DATE (mm/dd/yy)	192F

DAY	Read system DAY of the week	1962
	Entry conditions: HL = address of 3 byte area for DAY	
	Exit conditions: HL => DAY (ddd)	
