

Keyboard III

PolyMorphic
Systems

460 Ward Drive Santa Barbara California 93111 (805) 967-2351

SCOPE

This Manual describes the interface characteristics
and operation of Keyboard III (PolyMorphic P/N 009013).

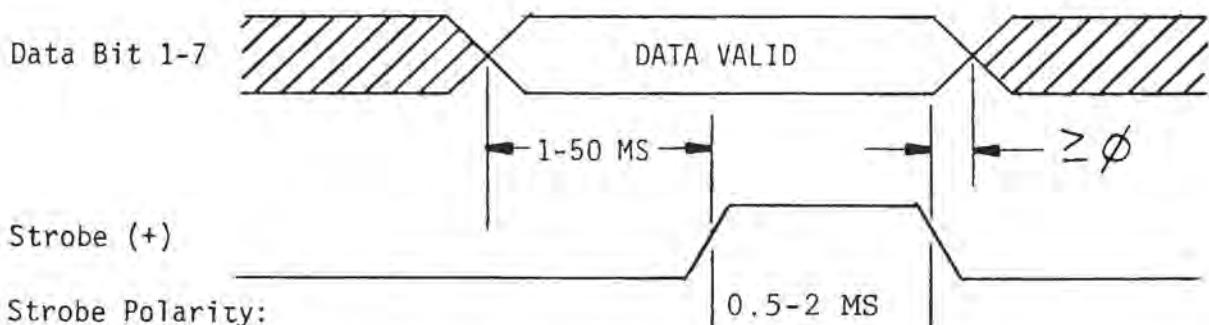
1. Power requirements: +7.5 to 10VDC unregulated, 200ma max.
2. Mating Connector: DB-25S Cinch
3. Connector pinout:

| | |
|----|------------|
| 1 | Data Bit 1 |
| 2 | Data Bit 2 |
| 3 | Data Bit 3 |
| 4 | Data Bit 4 |
| 5 | Data Bit 5 |
| 6 | Data Bit 6 |
| 7 | Data Bit 7 |
| 8 | Ground |
| 9 | Strobe |
| 14 | Ground |
| 21 | Ground |
| 22 | Ground |
| 25 | Power |

4. Signal Levels: "0"-0 to +0.4V
"1"-2.4 to +5.0V

~12V
11V 4.742A
1205

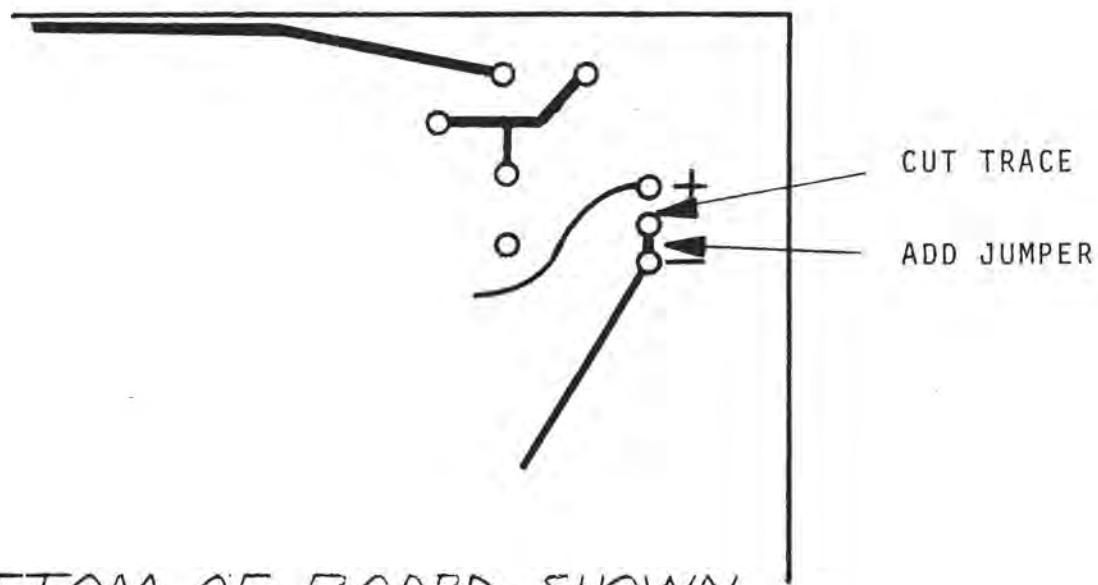
5. Strobe Timing:



6. Strobe Polarity:

The keyboard is shipped wired for a positive strobe. To modify

for a negative strobe, cut the trace from "+" to the center pad and install a jumper from the center pad to "-", as shown below.



BOTTOM OF BOARD SHOWN

7. "CAPS LOCK" key, shifts all letter keys to upper case
and unshifts the following keys: @ [/] ^

No other keys are affected.

8. An underline may be generated by the Shift-Del combination.
9. If a key is depressed for more than 1-1.5 seconds, the character will be repeated 3-5 times per second until released.
10. The four function keys (top row of numeric pad) are enclosed as listed below:

| <u>Key</u> | <u>ASCII Characters</u> |
|------------|-------------------------|
| I | FS |
| II | GS |
| III | US |
| IV | RS |

11. All hexboard characters generate the corresponding ASCII codes which are defined in the following 3 pages.

USA Standard Code for Information Interchange

1. Scope

This coded character set is to be used for the general interchange of information among information processing systems, communication systems, and associated equipment.

2. Standard Code

| b ₇ → b ₆ → b ₅ → | | | | | 0 0 0 | 0 0 1 | 0 1 0 | 0 1 1 | 1 0 0 | 1 0 1 | 1 1 0 | 1 1 1 | |
|--|----------------|----------------|----------------|----------------|--------|-------|-------|-------|-------|-------|-------|-------|-----|
| Bits | b ₄ | b ₃ | b ₂ | b ₁ | COLUMN | ROW | | | | | | | |
| | 1 | 1 | 1 | 1 | | | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| | 0 | 0 | 0 | 0 | 0 | NUL | DLE | SP | 0 | • | P | ‘ | p |
| | 0 | 0 | 0 | 1 | 1 | SOH | DC1 | ! | 1 | A | Q | a | q |
| | 0 | 0 | 1 | 0 | 2 | STX | DC2 | " | 2 | B | R | b | r |
| | 0 | 0 | 1 | 1 | 3 | ETX | DC3 | # | 3 | C | S | c | s |
| | 0 | 1 | 0 | 0 | 4 | EOT | DC4 | \$ | 4 | D | T | d | t |
| | 0 | 1 | 0 | 1 | 5 | ENQ | NAK | % | 5 | E | U | e | u |
| | 0 | 1 | 1 | 0 | 6 | ACK | SYN | & | 6 | F | V | f | v |
| | 0 | 1 | 1 | 1 | 7 | BEL | ETB | ' | 7 | G | W | g | w |
| | 1 | 0 | 0 | 0 | 8 | BS | CAN | (| 8 | H | X | h | x |
| | 1 | 0 | 0 | 1 | 9 | HT | EM |) | 9 | I | Y | i | y |
| | 1 | 0 | 1 | 0 | 10 | LF | SUB | * | : | J | Z | j | z |
| | 1 | 0 | 1 | 1 | 11 | VT | ESC | + | ; | K | [| k | { |
| | 1 | 1 | 0 | 0 | 12 | FF | FS | , | < | L | \ | l | ‘ |
| | 1 | 1 | 0 | 1 | 13 | CR | GS | - | = | M |] | m | } |
| | 1 | 1 | 1 | 0 | 14 | SO | RS | . | > | N | ^ | n | ~ |
| | 1 | 1 | 1 | 1 | 15 | SI | US | / | ? | O | — | o | DEL |

4.2 Graphic Characters

| Column/Row | Symbol | Name |
|------------|--------|---|
| 2/0 | SP | Space (Normally Non-Printing) |
| 2/1 | ! | Exclamation Point |
| 2/2 | " | Quotation Marks (Diacresis ¹) |
| 2/3 | # | Number Sign ^{2,4} |
| 2/4 | \$ | Dollar Sign |
| 2/5 | % | Percent |
| 2/6 | & | Ampersand |
| 2/7 | ' | Apostrophe (Closing Single Quotation Mark; Acute Accent ²) |
| 2/8 | (| Opening Parenthesis |
| 2/9 |) | Closing Parenthesis |
| 2/10 | * | Asterisk |
| 2/11 | + | Plus |
| 2/12 | , | Comma (Cedilla ²) |
| 2/13 | - | Hyphen (Minus) |
| 2/14 | . | Period (Decimal Point) |
| 2/15 | / | Slant |
| 3/10 | : | Colon |
| 3/11 | ; | Semicolon |
| 3/12 | < | Less Than |
| 3/13 | = | Equals |
| 3/14 | > | Greater Than |
| 3/15 | ? | Question Mark |
| 4/0 | @ | Commercial At ³ |
| 5/11 | [| Opening Bracket ³ |
| 5/12 | \ | Reverse Slant ³ |
| 5/13 |] | Closing Bracket ³ |
| 5/14 | ^ | Circumflex ^{2,3} |
| 5/15 | — | Underline |
| 6/0 | ~ | Grave Accent ^{2,3} (Opening Single Quotation Mark) |
| 7/11 | { | Opening Brace ³ |
| 7/12 | | Vertical Line ³ |
| 7/13 | } | Closing Brace ³ |
| 7/14 | — | Overline ³ (Tilde ³ ; General Accent ³) |

¹The use of the symbols in 2/2, 2/7, 2/12, 5/14, 6/0, and 7/14 as diacritical marks is described in Appendix A, A5.2.

²These characters should not be used in international interchange without determining that there is agreement between sender and recipient. (See Appendix B4.)

³In applications where there is no requirement for the symbol #, the symbol & may be used in position 2/3.

3. Character Representation and Code Identification

The standard 7-bit character representation, with b_7 , the high-order bit and b_1 , the low-order bit, is shown below:

EXAMPLE: The bit representation for the character "K," positioned in column 4, row 11, is

| | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|
| b_7 | b_6 | b_5 | b_4 | b_3 | b_2 | b_1 |
| 1 | 0 | 0 | 1 | 0 | 1 | 1 |

The code table position for the character "K" may also be represented by the notation "column 4, row 11" or alternatively as "4/11." The decimal equivalent of the binary number formed by bits b_7 , b_6 , and b_5 , collectively, forms the column number, and the decimal equivalent of the binary number formed by bits b_4 , b_3 , b_2 , and b_1 , collectively, forms the row number.

The standard code may be identified by the use of the notation ASCII or USASCII.

The notation ASCII (pronounced as'-key) or USASCII (pronounced you-sas'-key) should ordinarily be taken to mean the code prescribed by the latest issue of the standard. To explicitly designate a particular (perhaps prior) issue, the last two digits of the year of issue may be appended, as, "ASCII 63" or "USASCII 63".

4. Legend

4.1 Control Characters

| | | | |
|-----|--|-----|--------------------------------|
| NUL | Null | DLE | Data Link Escape (CC) |
| SOH | Start of Heading (CC) | DC1 | Device Control 1 |
| STX | Start of Text (CC) | DC2 | Device Control 2 |
| ETX | End of Text (CC) | DC3 | Device Control 3 |
| EOT | End of Transmission (CC) | DC4 | Device Control 4 (Stop) |
| ENQ | Enquiry (CC) | NAK | Negative Acknowledge (CC) |
| ACK | Acknowledge (CC) | SYN | Synchronous Idle (CC) |
| BEL | Bell (audible or attention signal) | ETB | End of Transmission Block (CC) |
| BS | Backspace (FE) | CAN | Cancel |
| HT | Horizontal Tabulation (punched card skip) (FE) | EM | End of Medium |
| LF | Line Feed (FE) | SUB | Substitute |
| VT | Vertical Tabulation (FE) | ESC | Escape |
| FF | Form Feed (FE) | FS | File Separator (IS) |
| CR | Carriage Return (FE) | GS | Group Separator (IS) |
| SO | Shift Out | RS | Record Separator (IS) |
| SI | Shift In | US | Unit Separator (IS) |
| | | DEL | Delete ¹ |

NOTE: (CC) Communication Control
(FE) Format Effector
(IS) Information Separator

¹In the strict sense, DEL is not a control character. (See 5.2.)