

# MICRO SWITCH

product sheet **66SD and  
78SD Series**

## INTERACTIVE VISUAL DISPLAY KEYBOARD



78SD6-5/78SD12-13 [Typewriter Array]



66SD6-7/66SD12-11 [Typewriter Array]



66SD6-6/66SD12-10 [Data Entry Array]

The 66SD and 78SD Series low profile keyboards described in this product sheet are tailored to IBM 3270-interactive terminals with visual display. These keyboards are about half as high as the popular SW line, yet built into them are the time-proven technology and reliability that have made MICRO SWITCH the number one solid state keyboard manufacturer.

The 66SD and 78SD Series keyboards combine MOS encoding with Hall effect solid state keys. MOS increases the number of functions the keyboard can perform, while it allows significant cost reduction.

Two-key or N-key rollover and one-character storage are built into the MOS circuit. Two-key rollover allows the operator to roll keys during "burst" speed typing of familiar words without entering an erroneous code. One-character storage holds the data bits at the output for the last valid key depression. This allows the system ample time to "read" the keyboard output.

As opposed to two key rollover, N-key rollover depends only on the down stroke of key operation. The sequence of key release doesn't effect the data entry. Data bits are set by a pulse from the down stroke of each key depressed and stored in the MOS memory. When a second key is operated, new data is set into the memory even though the first key may be still depressed. Thus, there is no possibility of missing a character or of transposing characters as the result of the order of key release. With N-key rollover any number of keys may be depressed and held depressed and the sequence of release doesn't effect the proper sequence of data entry. The pulse output is part of the solid state chip within each key.

The 66SD and 78SD Series keyboards are encoded with the eight bit EBCDIC code plus odd parity.

There are two modes of operation: one for unshifted codes and the other for shifted codes. The touch-typing array is immediately familiar to anyone who has operated a standard typewriter.

Predesigned features such as Timed Repeat and Electronic Shiftlock give the flexibility to meet a variety of requirements.

The 66SD6-6 and 66SD12-10 keyboards have additional applications and features. As Data Entry keyboards they are designed for use with IBM 3790-a terminal oriented Key-to-Disk. This system is directed toward large disk systems involving sixteen to sixty-four keyboards per system. In addition to the features and options described above, the 66SD12-10 and 66SD6-6 have a System Shift Input (allows the system to put the keyboard in the numeric mode). This input is over-ridden by the ALPHA key on the keyboard.

If you are working on a visual display terminal or data entry system, call your nearby MICRO SWITCH branch office for complete assistance in selecting a keyboard. Branch office locations are shown on the back of this sheet.

### features

HALL EFFECT SOLID STATE KEYS COUPLED TO MOS ENCODING

**TWO-KEY OR N-KEY ROLLOVER**

ONE CHARACTER STORAGE

**DUAL-MODE . . . EBCDIC CODE ASSIGNMENT**

ELECTRONIC SHIFT LOCK

**TIMED REPEAT**

SYSTEM SHIFT INPUT (66SD6-6 or 66SD12-10)



# INTERACTIVE VISUAL DISPLAY KEYBOARD

product sheet 66SD and 78SD Series

## CODE AND CHARACTER ASSIGNMENT 66SD6-7 AND 66SD12-11 Typewriter Array



### BUTTONS

All buttons are truncated style with white legends unless otherwise specified. The button color for key stations 1, 15, 16, 17, 21, 22, 34, 36, 37, 41, 42, 54, 56, 57, 61, 62, 74, 76, 77, 82, and 94 is charcoal gray. The button color for key station 84 is charcoal gray with no legend. The button color for all remaining key stations is medium gray.

### KEYBOARD STYLE

Stepped, with a 3/8-3/16-3/8 offset between rows within the staggered array. A 1 x 4 key block array on the left and a 2 x 4 key block array on the right.

### REPEAT KEYS

Stations 13, 15, 22, 54, 56, 57, 76, 77, and 84.

### EBCDIC CODE . . . ODD PARITY

KEY NUMBER	MODE 1 BITS			MODE 2 BITS		
	8 P	7654	3210	8 P	7654	3210
1	1	1011	0100	1	1011	0100
2	0	1000	1111	0	1111	0010
4	0	0100	1111	0	0011	1110
5	1	1100	1111	1	1101	1110
6	0	0010	1111	0	1101	1010
7	1	1010	1111	1	0011	0110
8	1	0110	1111	0	0101	0010
9	0	1110	1111	1	0000	1010
10	0	0001	1111	1	0011	1010
11	1	1001	1111	1	1011	0010
12	1	0000	1111	0	1011	1010
13	1	0000	0110	0	1011	0110
14	1	0111	1110	1	0111	0010
15	1	1101	1000	1	1101	1000
16	0	0011	0100	1	0011	1001
17	1	0111	0100	0	0111	1001
21	1	1110	1000	1	1110	1000
22	0	1100	1000	0	1100	1000
23	0	0001	1001	1	0001	1011
24	1	0110	0101	0	0110	0111
25	0	1010	0001	1	1010	0011
26	1	1001	1001	0	1001	1011
27	1	1100	0101	0	1100	0111
28	0	0001	0101	1	0001	0111
29	0	0010	0101	1	0010	0111
30	0	1001	0001	1	1001	0011
31	1	0110	1001	0	0110	1011
32	0	1110	1001	1	1110	1011
33	1	1111	1010	1	0101	1010
34	1	0010	1000	1	0010	1000
36	1	1000	1000	1	1000	1000
37	0	0000	1000	0	0000	1000
41	0	0110	1000	0	0110	1000
42	SHIFT LOCK			SHIFT LOCK		
43	1	1000	0001	0	1000	0011
44	0	0100	0101	1	0100	0111
45	1	0010	0001	0	0010	0011
46	0	0110	0001	1	0110	0011
47	1	1110	0001	0	1110	0011
48	1	0001	0001	0	0001	0011
49	0	1000	1001	1	1000	1011
50	0	0100	1001	1	0100	1011
51	1	1100	1001	0	1100	1011
52	0	0111	1010	0	0101	1110
53	1	1011	1110	0	1111	1110
54	0	1010	1000	0	1010	1000
56	1	0001	1000	1	0001	1000
57	0	1001	1000	0	1001	1000
61	1	0000	1100	1	0000	1100
62	SHIFT			SHIFT		
64	1	1001	0101	0	1001	0111
65	0	1110	0101	1	1110	0111
66	0	1100	0001	1	1100	0011
67	1	1010	0101	0	1010	0111
68	1	0100	0001	0	0100	0011
69	1	1010	1001	0	1010	1011
70	0	0010	1001	1	0010	1011
71	0	1101	0110	0	0011	0010
72	1	1101	0010	0	0111	0110
73	0	1000	0110	1	1111	0110
74	SHIFT			SHIFT		
76	1	1101	1000	1	1101	1000
77	0	0101	1000	0	0101	1000
82	FUNCTION			FUNCTION		
84	0	0000	0010	0	0000	0010
94	0	1011	1100	0	1011	1100

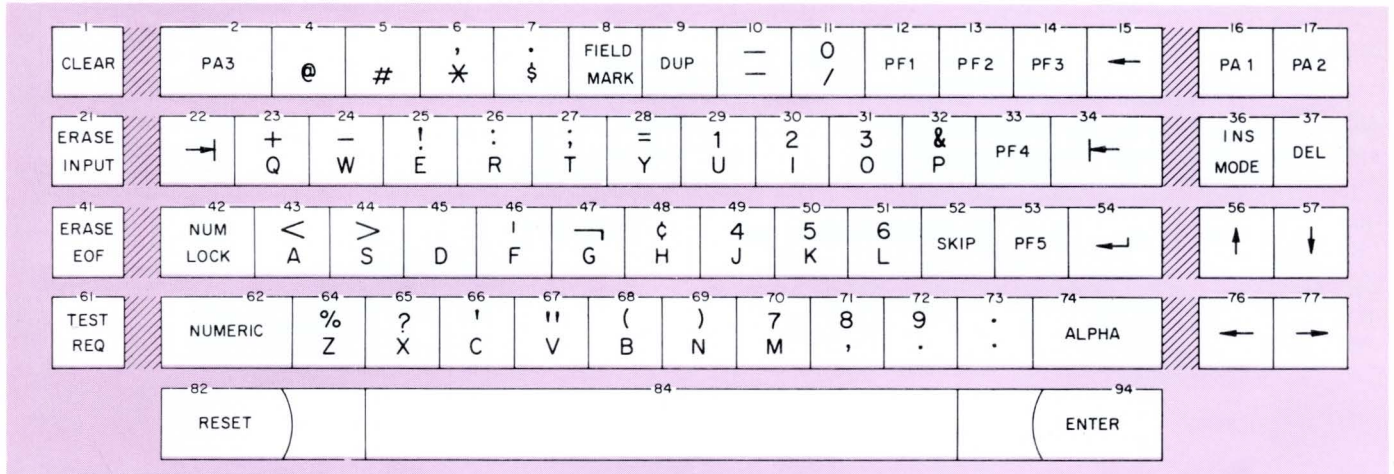
### SECRETARY SHIFT OPERATION [Electronic]

Keys 62 or 74 will put the keyboard in Mode 2 for the duration of key operation. Operation of key 42 will lock the keyboard in Mode 2 until key 62 or 74 is operated and released.

# INTERACTIVE VISUAL DISPLAY KEYBOARD

product sheet 66SD and 78SD Series

## CODE AND CHARACTER ASSIGNMENT 66SD6-6 AND 66SD12-10 DATA ENTRY ARRAY



### BUTTONS

All buttons are truncated style with white legends unless otherwise specified. The button color for key stations 1, 2, 8, 9, 12, 13, 14, 15, 16, 17, 21, 22, 33, 34, 36, 37, 41, 42, 52, 53, 54, 56, 57, 61, 62, 74, 76, 77, 82, and 94 is charcoal gray. The button color for key station 84 is charcoal gray with no legend. The button color for key stations 7, 10, 11, 29, 30, 31, 49, 50, 51, 70, 71, 72, and 73 is medium gray with black legends in the upper case and white in the lower

case. The button color for all remaining key stations is medium gray.

### KEYBOARD STYLE

Stepped, with a 3/8-3/16-3/8 offset between rows within the staggered array. A 1 x 4 key block array on the left and a 2 x 4 key block array on the right.

### REPEAT KEYS

Stations #15, 22, 52, 54, 56, 57, 76, 77, and 84.

### EBCDIC CODE ODD PARITY

#### System Shift Operation

Operation of key 62 or a System Shift logic 1 will place the keyboard in Mode 2 for the duration of key operation or logic 1 condition. Operation of key 42 will lock the keyboard in Mode 2 until it is released and operated again. Operation of key 74 will override the Shift status and place the keyboard in Mode 1 during the time it is operated. Keys 62 and 74 also give logic 1 function outputs to the system while operated.

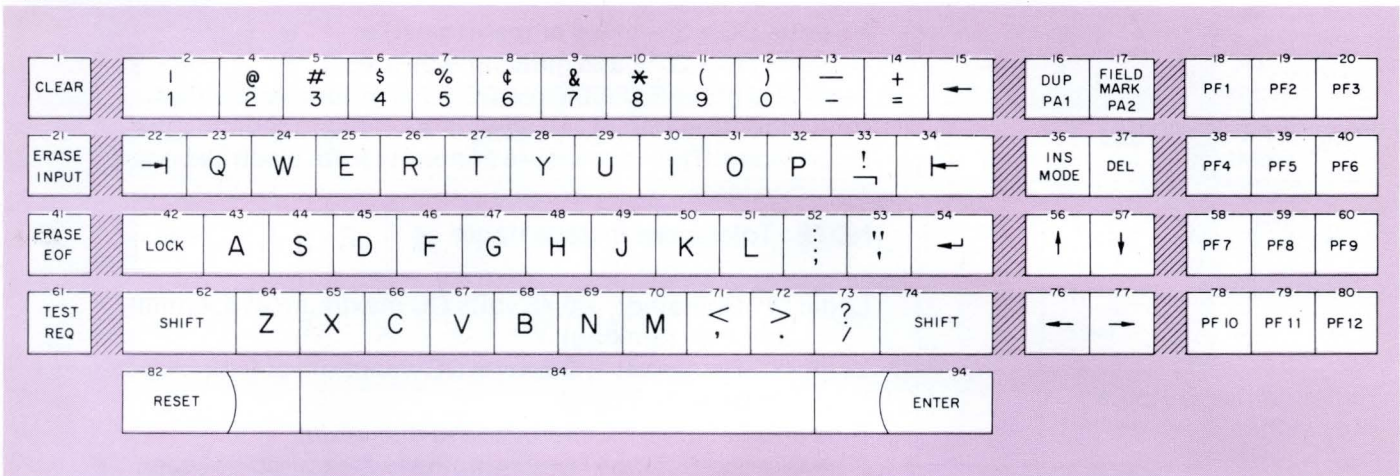
The Power-On condition will place the keyboard in Mode 1 when System Shift is held at logic "0".

KEY NUMBER	MODE 1			MODE 2		
	8 P	7654	3210	8 P	7654	3210
1	1	1011	0100	1	1011	0100
2	1	1101	0100	1	1101	0100
4	0	0011	1110	0	0000	0010
5	1	1101	1110	0	0000	0010
6	1	0011	1010	0	1101	0110
7	0	1101	1010	1	1101	0010
8	0	0111	1001	0	0111	1001
9	1	0011	1001	1	0011	1001
10	1	0000	0110	1	0000	0110
11	0	1000	0110	1	0000	1111
12	0	1000	1100	0	1000	1100
13	0	0100	1100	0	0100	1100
14	1	1100	1100	1	1100	1100
15	1	1101	1000	1	1101	1000
16	0	0011	0100	0	0011	0100
17	1	0111	0100	1	0111	0100
21	1	1110	1000	1	1110	1000
22	0	1100	1000	0	1100	1000
23	1	0001	1011	1	0111	0010
24	0	0110	0110	0	1011	0110
25	1	1010	0011	1	1010	1010
26	0	1001	1011	0	0101	1110
27	0	1100	0110	0	0111	1010
28	1	0001	0111	1	0111	1110
29	1	0010	0111	0	1000	1111
30	1	1001	0011	0	0100	1111
31	0	0110	1011	1	1100	1111
32	1	1110	1011	1	0000	1010
33	0	0010	1100	0	0010	1100
34	1	0010	1000	1	0010	1000
36	1	1000	1000	1	1000	1000
37	0	0000	1000	0	0000	1000
41	0	0110	1000	0	0110	1000

KEY NUMBER	MODE 1			MODE 2		
	8 P	7654	3210	8 P	7654	3210
42		NUM LOCK			NUM LOCK	
43	0	1000	0011	0	0011	0010
44	1	0100	0111	0	0111	0110
45	0	0010	0011	0	0000	0010
46	1	0110	0011	0	1111	0010
47	0	1110	0011	1	1111	1010
48	0	0001	0011	0	0101	0010
49	1	1000	1011	0	0010	1111
50	1	0100	1011	1	1010	1111
51	0	1100	1011	1	0110	1111
52	0	1100	1000	0	1100	1000
53	1	1010	1100	1	1010	1100
54	0	1010	1000	0	1010	1000
56	1	0001	1000	1	0001	1000
57	0	1001	1000	0	1001	1000
61	1	0000	1100	1	0000	1100
62		NUMERIC			NUMERIC	
64	0	1001	0111	1	0011	0110
65	1	1110	0111	1	1111	0110
66	1	1100	0011	1	1011	1110
67	0	1010	0111	0	1111	1110
68	0	0100	0011	1	1011	0010
69	0	1010	1011	0	1011	1010
70	1	0010	1011	0	1110	1111
71	0	1101	0110	0	0001	1111
72	1	1101	0010	1	1001	1111
73	1	1101	0010	1	1101	0010
74		ALPHA			ALPHA	
76	1	1101	1000	1	1101	1000
77	0	0101	1000	0	0101	1000
82		FUNCTION			FUNCTION	
84	0	0000	0010	0	0000	0010
94	0	1011	1100	0	1011	1100

# INTERACTIVE VISUAL DISPLAY KEYBOARD

## CODE AND CHARACTER ASSIGNMENT 78SD6-5 AND 78SD12-3 Typewriter Array



### BUTTONS

All buttons are truncated style with white legends unless otherwise specified. The button color for key stations 1, 15, 16, 17, 18, 19, 20, 21, 22, 34, 36, 37, 38, 39, 40, 41, 42, 54, 56, 57, 58, 59, 60, 61, 62, 74, 76, 77, 78, 80, 82, and 94 is charcoal gray. The button color for key station 84 is charcoal gray with no legend. The button color for all remaining key stations is medium gray.

### KEYBOARD STYLE

Stepped, with a 3/8-3/16-3/8 offset between rows within the staggered array. A 1 x 4 key block array on the left, a 2 x 4 key block and a 3 x 4 key block array on the right.

### REPEAT KEYS

Stations #13, 15, 22, 54, 56, 57, 76, 77, and 84.

KEY NUMBER	MODE 1 BITS			MODE 2 BITS		
	8 P	7654	3210	8 P	7654	3210
1	1	1011	0100	1	1011	0100
2	0	1000	1111	0	1111	0010
4	0	0100	1111	0	0011	1110
5	1	1100	1111	1	1101	1110
6	0	0010	1111	0	1101	1010
7	1	1010	1111	1	0011	0110
8	1	0110	1111	0	0101	0010
9	0	1110	1111	1	0000	1010
10	0	0001	1111	1	0011	1010
11	1	1001	1111	1	1011	0010
12	1	0000	1111	0	1011	1010
13	1	0000	0110	0	1011	0110
14	1	0111	1110	1	0111	0010
15	1	1101	1000	1	1101	1000
16	0	0011	0100	1	0011	1001
17	1	0111	0100	0	0111	1001
18	0	1000	1100	0	1000	1100
19	0	0100	1100	0	0100	1100
20	1	1100	1100	1	1100	1100
21	1	1110	1000	1	1110	1000
22	0	1100	1000	0	1100	1000
23	0	0001	1001	1	0001	1011
24	1	0110	0101	0	0110	0111
25	0	1010	0001	1	1010	0011
26	1	1001	1001	0	1001	1011
27	1	1100	0101	0	1100	0111
28	0	0001	0101	1	0001	0111
29	0	0010	0101	1	0010	0111
30	0	1001	0001	1	1001	0011
31	1	0110	1001	0	0110	1011
32	0	1110	1001	1	1110	1011
33	1	1111	1010	1	0101	1010
34	1	0010	1000	1	0010	1000
36	1	1000	1000	1	1000	1000
37	0	0000	1000	0	0000	1000
38	0	0010	1100	0	0010	1100
39	1	1010	1100	1	1010	1100
40	1	0110	1100	1	0110	1100

KEY NUMBER	MODE 1 BITS			MODE 2 BITS		
	8 P	7654	3210	8 P	7654	3210
41	0	0110	1000	0	0110	1000
42	SHIFT LOCK			SHIFT LOCK		
43	1	1000	0001	0	1000	0011
44	0	0100	0101	1	0100	0111
45	1	0010	0001	0	0010	0011
46	0	0110	0001	1	0110	0011
47	1	1110	0001	0	1110	0011
48	1	0001	0001	0	0001	0011
49	0	1000	1001	1	1000	1011
50	0	0100	1001	1	0100	1011
51	1	1100	1001	0	1100	1011
52	0	0111	1010	0	0101	1110
53	1	1011	1110	0	1111	1110
54	0	1010	1000	0	1010	1000
56	1	0001	1000	1	0001	1000
57	0	1001	1000	0	1001	1000
58	0	1110	1100	0	1110	1100
59	0	0001	1100	0	0001	1100
60	1	1001	1100	1	1001	1100
61	1	0000	1100	1	0000	1100
62	SHIFT			SHIFT		
64	1	1001	0101	0	1001	0111
65	0	1110	0101	1	1110	0111
66	0	1100	0001	1	1100	0011
67	1	1010	0101	0	1010	0111
68	1	0100	0001	0	0100	0011
69	1	1010	1001	0	1010	1011
70	0	0010	1001	1	0010	1011
71	0	1101	0110	0	0011	0010
72	1	1101	0010	0	0111	0110
73	0	1000	0110	1	1111	0110
74	SHIFT			SHIFT		
76	1	1101	1000	1	1101	1000
77	0	0101	1000	0	0101	1000
78	1	0101	1100	1	0101	1100
79	0	1101	1100	0	1101	1100
80	1	0011	1100	1	0011	1100
82	FUNCTION			FUNCTION		
84	0	0000	0010	0	0000	0010
94	0	1011	1100	0	1011	1100

### EBCDIC CODE ODD PARITY

### SECRETARY SHIFT OPERATION [Electronic]

Keys 62 or 74 will put keyboard in Mode 2 for the duration of key operation. Operation of key 42 will lock the keyboard in Mode 2 until key 62 or 74 is operated and released.

# INTERACTIVE VISUAL DISPLAY KEYBOARD

## ELECTRICAL DATA 66SD6-7, 66SD12-11, 78SD6-5, and 78SD12-3

Power Requirements	<p>+ 5 volts DC <math>\pm</math> 5% at 0.5 ampere (max.).          -12 volts DC <math>\pm</math> 20% at 5 milliamperes (max.).          Keyboard ground at 0.0 volts DC (This ground is isolated from mounting frame). An adequate keyboard ground must be provided. This is to insure immunity from electrical noise and transients.</p> <p>NOTE: Tolerances include ripple.</p>
Function Key Outputs (Key #82)	<p>Logic "1" Operated: + 0.45 volts DC maximum at 6.4 milliamperes (Sinking)          Logic "0" Released: + 2.6 volts DC minimum at 0.12 milliamperes (Sourcing)          Rise and fall time 1.0 microsecond maximum.          (The rise and fall time for all outputs is measured between + 0.8 volts DC and + 2.0 volts DC.)</p>
Data Key Outputs (EBCDIC CODE . . . Positive Logic)	<p>Logic "1" + 2.55 volts DC minimum at 0.12 milliamperes maximum (Sourcing)          Logic "0" + 0.6 volts DC maximum at 1.6 milliamperes (Sinking)</p>
Strobe: Negative Logic (See Waveform Specifications, Page 7)	<p>Logic "1" Strobe True: + 0.5 volts DC maximum at 11.4 milliamperes (Sinking)          Logic "0" + 2.5 volts DC minimum at 0.12 milliamperes (Sourcing)          Rise and fall time 1.0 microsecond maximum          (The rise and fall time for all outputs is measured between + 0.8 volts DC and + 2.0 volts DC)</p>
Parity	<p>Odd parity is generated by data bit 8, based on the "1" condition of Data bits 0-7.</p>

## ELECTRICAL DATA 66SD6-6 and 66SD12-10

The same as the Electrical Data listing above, with the following additional parameter:

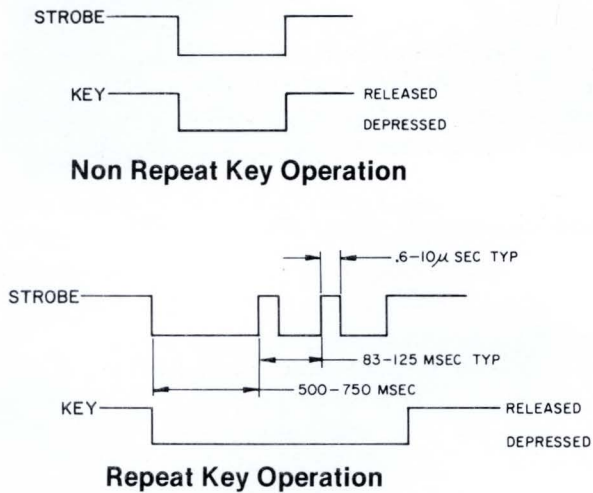
System Shift Input	<p>Logic "1" (shifted) + 2.6 VDC min. at .010mA Sourcing          Logic "0" (unshifted) + 0.45 VDC max. at 1.6mA Sinking</p>
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# INTERACTIVE VISUAL DISPLAY KEYBOARD

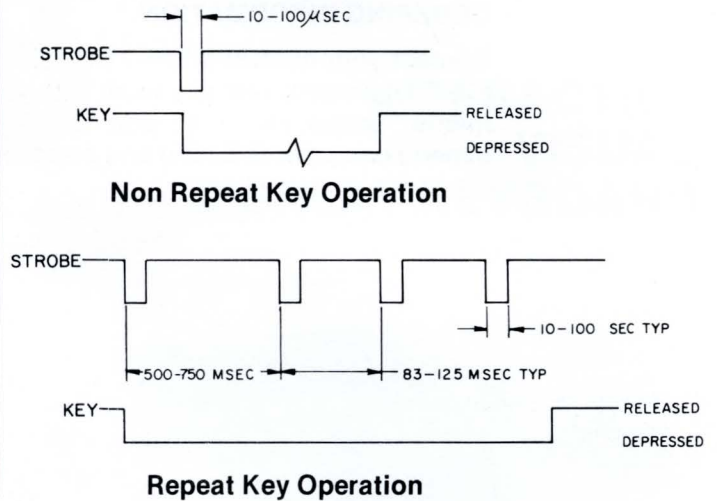
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## WAVEFORM SPECIFICATIONS

### 66SD6 and 78SD6 Series



### 66SD12 and 78SD12 Series



## 3270 FAMILY CATALOG LISTINGS

Listing	Array	Strobe: Negative Logic	Timed Repeat	Secretary Shift [Electronic]	System Shift Input	N-Key Roll- over	Two-Key Roll- over
66SD6-7	Typewriter	X	X	X			X
66SD12-11	Typewriter	X	X	X		X	
66SD6-6	Data Entry	X	X		X		X
66SD12-10	Data Entry	X	X		X	X	
78SD6-5	Typewriter	X	X	X			X
78SD12-13	Typewriter	X	X	X		X	

## STANDARD OPTIONS

Additional flexibility has been engineered into the 3270 family of interactive visual display keyboards to inexpensively provide the following options:

1. Key number 82 (Reset) can be encoded 11110000.
2. Mechanical Secretary Shift or alternate action shiftlock can be provided for the 66SD6-7, 66SD12-11, 78SD6-5, and 78SD12-13.
3. The 66SD6-6 or 66SD12-10 can be furnished with alternate action for the Numeric Key.

# INTERACTIVE VISUAL DISPLAY KEYBOARD

*product sheet* **66SD and 78SD Series**

## ORDERING INFORMATION

Contact your nearest MICRO SWITCH Branch Office where an experienced Field Engineer is ready to work with you in satisfying your keyboard requirements: proper selection, pricing and delivery scheduling. These keyboard experts can provide sound and practical answers to your needs.

# MICRO SWITCH

FREEPORT, ILLINOIS 61032

A DIVISION OF HONEYWELL

**In Canada:** 740 Ellesmere Road, Scarborough, Ontario. **International:** Sales and service offices in all principal cities of the world.