

MICRO SWITCH

product sheet 66SW6-51, 66SW6-52
and 78SW6-44

INTERACTIVE VISUAL DISPLAY KEYBOARDS

The three Hall effect solid state keyboards described in this product sheet are tailored to IBM 3270—interactive terminals with visual display.

These keyboards are the most reliable and versatile available because they combine MOS encoding with our Hall effect solid state keys. MOS increases the number of functions the keyboard can perform, while it allows significant cost reduction.

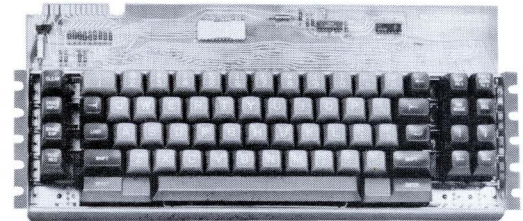
Two-key rollover and one-character storage are built into the MOS circuit. Two-key rollover allows the operator to roll keys during “burst” speed typing of familiar words without entering an erroneous code. One-character holds the data bits at the output for the last valid key depression. This allows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

These 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, Flip-Flop Enable and Electronic Shiftlock give the flexibility to meet a variety of requirements.

The 66SW6-52 keyboard has additional applications and features. As a Data Entry keyboard it is 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 all the features and options described above, the 66SW6-52 has a System Up-Shift Input which allows the system to put the keyboard in the numeric field. This input is over-riden by the ALPHA key on the keyboard.

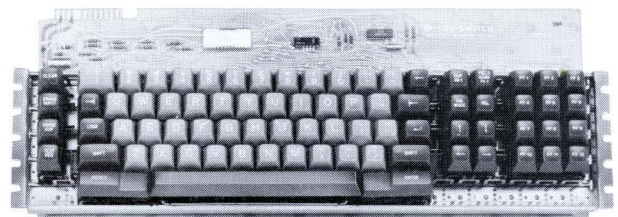
If you are working on a visual display terminal or data entry system, call your nearby MICRO SWITCH branch office for complete assistance in selecting a keyboard. Branch office locations are shown on the back of this sheet.



66SW6-51
(Typewriter Array)



66SW6-52
(Data-Entry Array)



78SW6-44 (Typewriter Array)

features

HALL EFFECT SOLID STATE KEYS COUPLED
TO MOS ENCODING

TWO-KEY ROLLOVER

ONE CHARACTER STORAGE

DUAL-MODE . . . EBCDIC CODE ASSIGNMENT

ELECTRONIC SHIFT LOCK

TIMED REPEAT

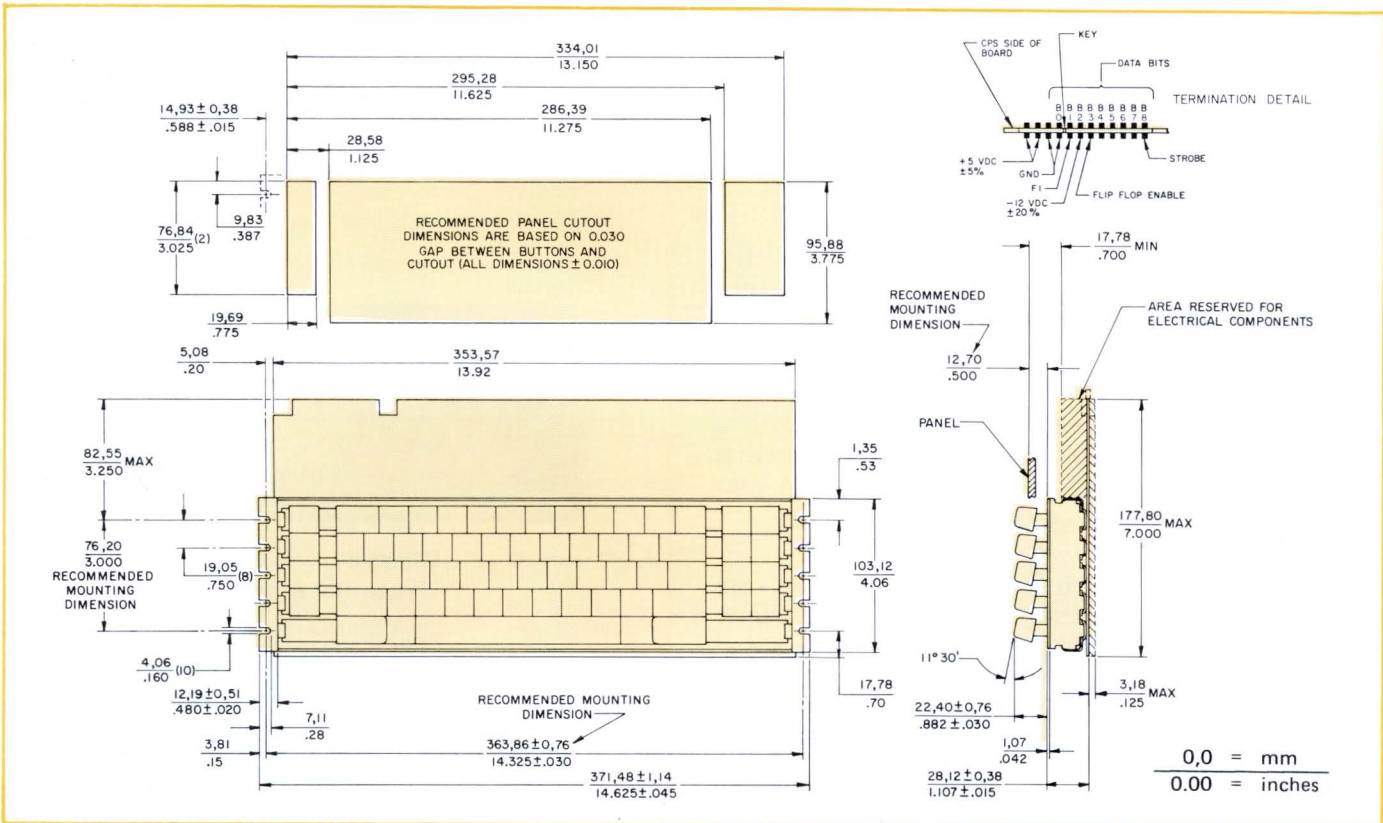
FLIP-FLOP ENABLE

SYSTEM UPSHIFT INPUT (66SW6-52 only)

INTERACTIVE VISUAL DISPLAY KEYBOARDS

product sheet **66SW6-51, 66SW6-52
and 78SW6-44**

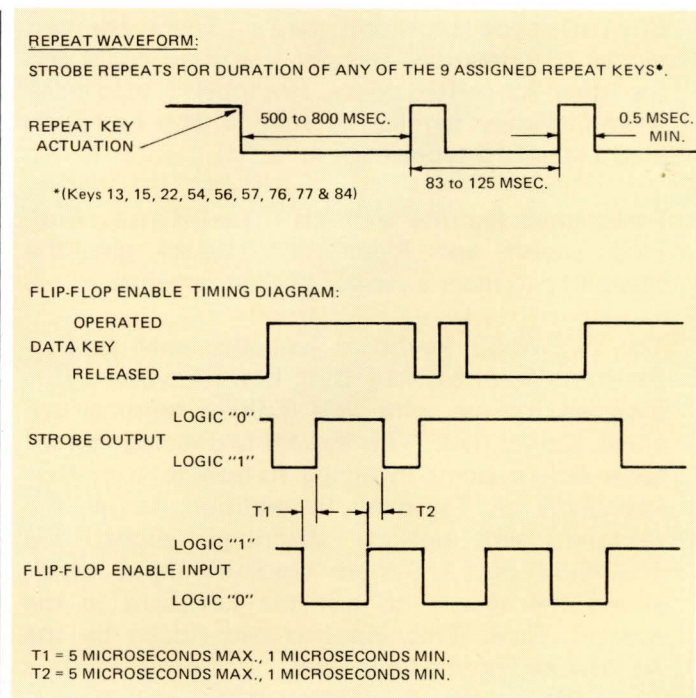
MOUNTING DIMENSIONS FOR 66SW6-51 TYPEWRITER ARRAY



ELECTRICAL DATA

Power Requirements	+5 volts DC $\pm 5\%$ @ 0.5 ampere (max.). -12 volts DC $\pm 20\%$ @ 5 milliamperes (max.). Keyboard Ground @ 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. NOTE: Tolerances include ripple.
Function Key Outputs (Key #82)	Logic "1" Operated: +0.45 volts DC maximum @10.1 milliamperes (current sinking) Logic "0" Released: +2.6 volts DC minimum @0.12 milliamperes (current 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.)
Data Key Outputs (EBCDIC CODE . . . Positive Logic)	Logic "1" +2.55 volts DC minimum @0.12 milliamperes maximum (current sourcing) Logic "0" +0.6 volts DC maximum @1.6 milliamperes (current sinking)
Strobe: Level DC	Logic "1" Strobe True: +0.45 volts DC maximum @10.1 milliamperes (current sinking) Logic "0" +2.6 volts DC minimum @ 0.012 milliamperes (current 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.)
Flip-Flop Enable Input	Logic "1" Enable: +3.6 volts DC minimum while sourcing 0.010 milliamperes Logic "0" Inhibit: +0.6 volts DC maximum with 2 milliamperes maximum (current sinking required) Rise and fall time 1.0 microseconds maximum. (The rise and fall time for the flip-flop enable input is measured between +0.9 volts DC and +3.0 volts DC.)
Parity	Odd parity is generated by data bit 8, based on the "1" condition of Data bits 0-7.

SPECIFICATIONS



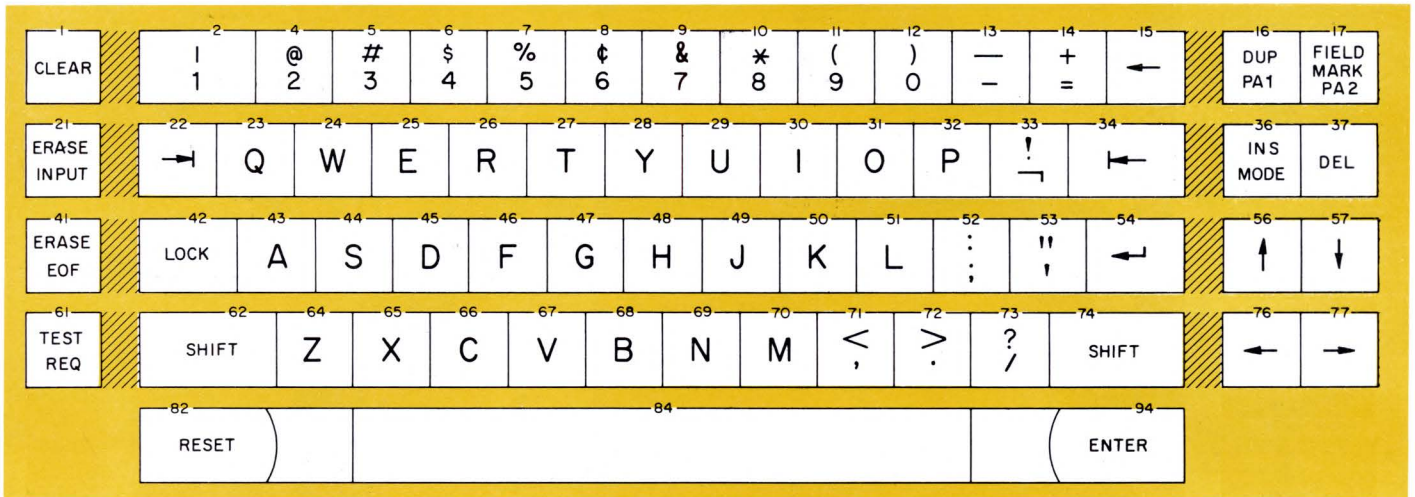
OUTPUT INTERFACE

Card-edge output with gold plated terminals accept standard connectors such as: Cinch-Jones #250-12-30-170 with between contact key, or equivalent.

INTERACTIVE VISUAL DISPLAY KEYBOARDS

product sheet 66SW6-51, 66SW6-52
and 78SW6-44

CODE AND CHARACTER ASSIGNMENT 66SW6-51 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.

EBCDIC CODE ... ODD PARITY

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

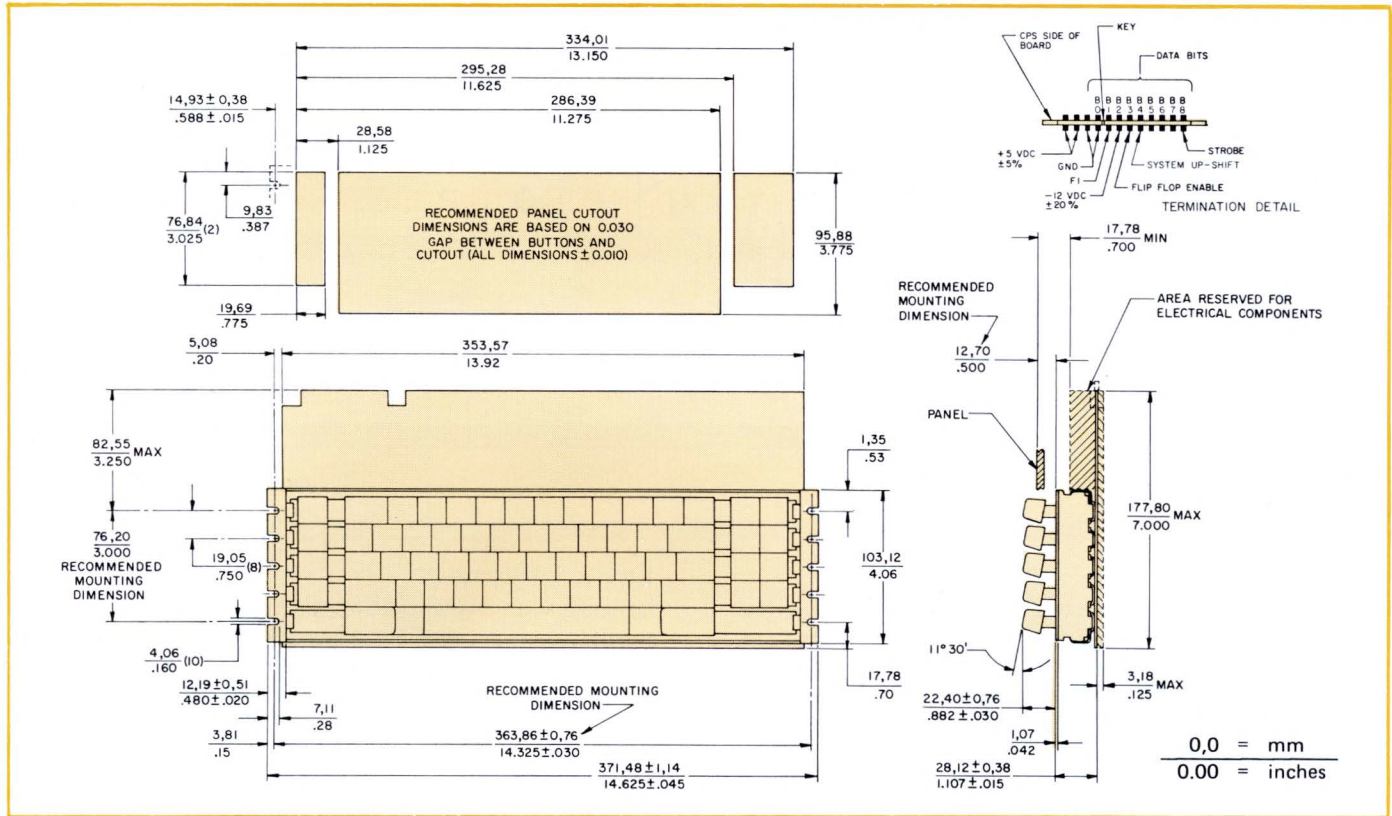
SHIFT OPERATION

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

INTERACTIVE VISUAL DISPLAY KEYBOARDS

product sheet **66SW6-51, 66SW6-52**
and **78SW6-44**

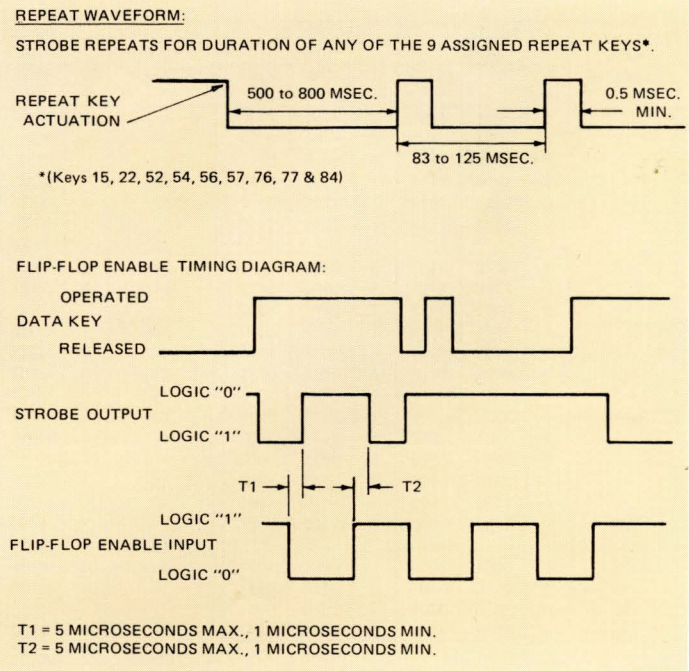
MOUNTING DIMENSIONS FOR 66SW6-52 DATA ENTRY ARRAY



ELECTRICAL DATA

Power Requirements	+5 volts DC $\pm 5\%$ @ 0.5 ampere (max.). -12 volts DC $\pm 20\%$ @ 5 milliamperes (max.). Keyboard Ground @ 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. NOTE: Tolerances include ripple.
Function Key Outputs (Key #82)	Logic "1" Operated: +0.45 volts DC maximum @ 10.1 milliamperes (current sinking) Logic "0" Released: +2.6 volts DC minimum @ 0.12 milliamperes (current 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.)
Data Key Outputs (EBCDIC CODE . . . Positive Logic)	Logic "1" +2.55 volts DC minimum @ 0.12 milliamperes maximum (current sourcing) Logic "0" +0.6 volts DC maximum @ 1.6 milliamperes (current sinking)
Strobe: Level DC	Logic "1" Strobe True: +0.45 volts DC maximum @ 10.1 milliamperes (current sinking) Logic "0" +2.6 volts DC minimum @ 0.012 milliamperes (current 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).
Flip-Flop Enable Input	Logic "1" Enable: +3.6 volts DC minimum while sourcing 0.010 milliamperes Logic "0" Inhibit: +0.6 volts DC maximum with 2 milliamperes maximum (current sinking required) Rise and fall time 1.0 microseconds maximum. (The rise and fall time for the flip-flop enable input is measured between +0.9 volts DC and +3.0 volts DC).
Parity	Odd parity is generated by data bit 8, based on the "1" condition of Data bits 0-7.
Up-Shift Input	Logic "1" (shifted) +2.6 VDC Min. @ .010 MA Sourcing Logic "0" (unshifted) +0.45 VDC Max. @ 1.6 MA Sinking

SPECIFICATIONS



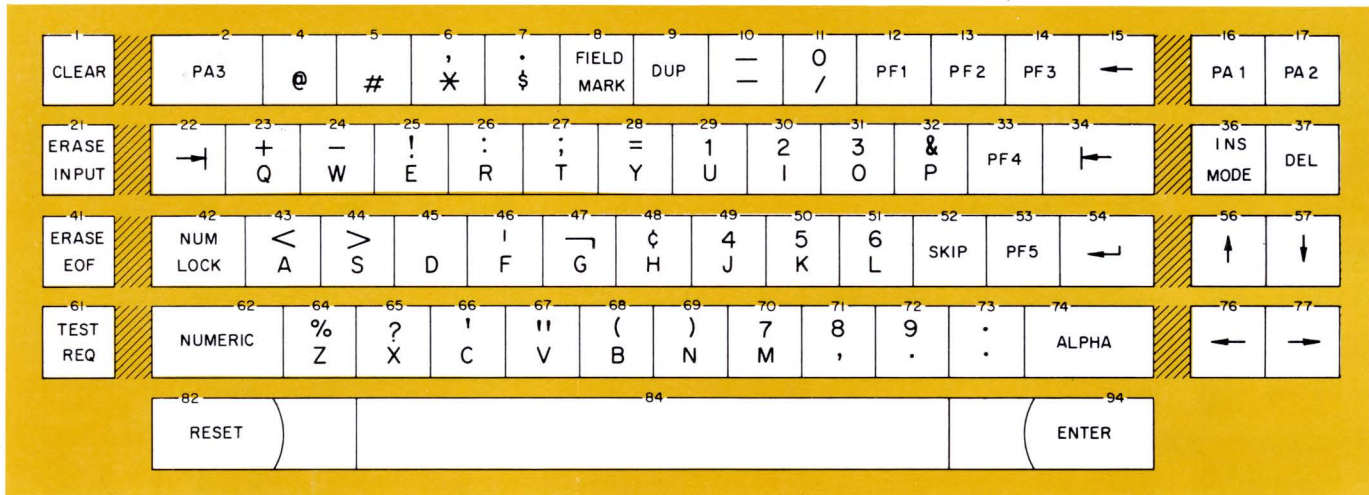
OUTPUT INTERFACE

Card-edge output with gold plated terminals accept standard connectors such as: Cinch-Jones #250-12-30-170 with between contact key, or equivalent.

INTERACTIVE VISUAL DISPLAY KEYBOARDS

product sheet 66SW6-51, 66SW6-52
and 78SW6-44

CODE AND CHARACTER ASSIGNMENT 66SW6-52 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 gray with black

legends in the upper case and white legends 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.

EBCDIC CODE . . . ODD PARITY SHIFT OPERATION

Operation of key 62 or a System Up-Shift logic 1 will place the keyboard in Up-Shift status (Mode 2) for the duration of key operation or logic 1 condition. Operation of key 42 will lock the keyboard in Up-Shift until it is released and operated again. Operation of key 74 will over ride the Up-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.

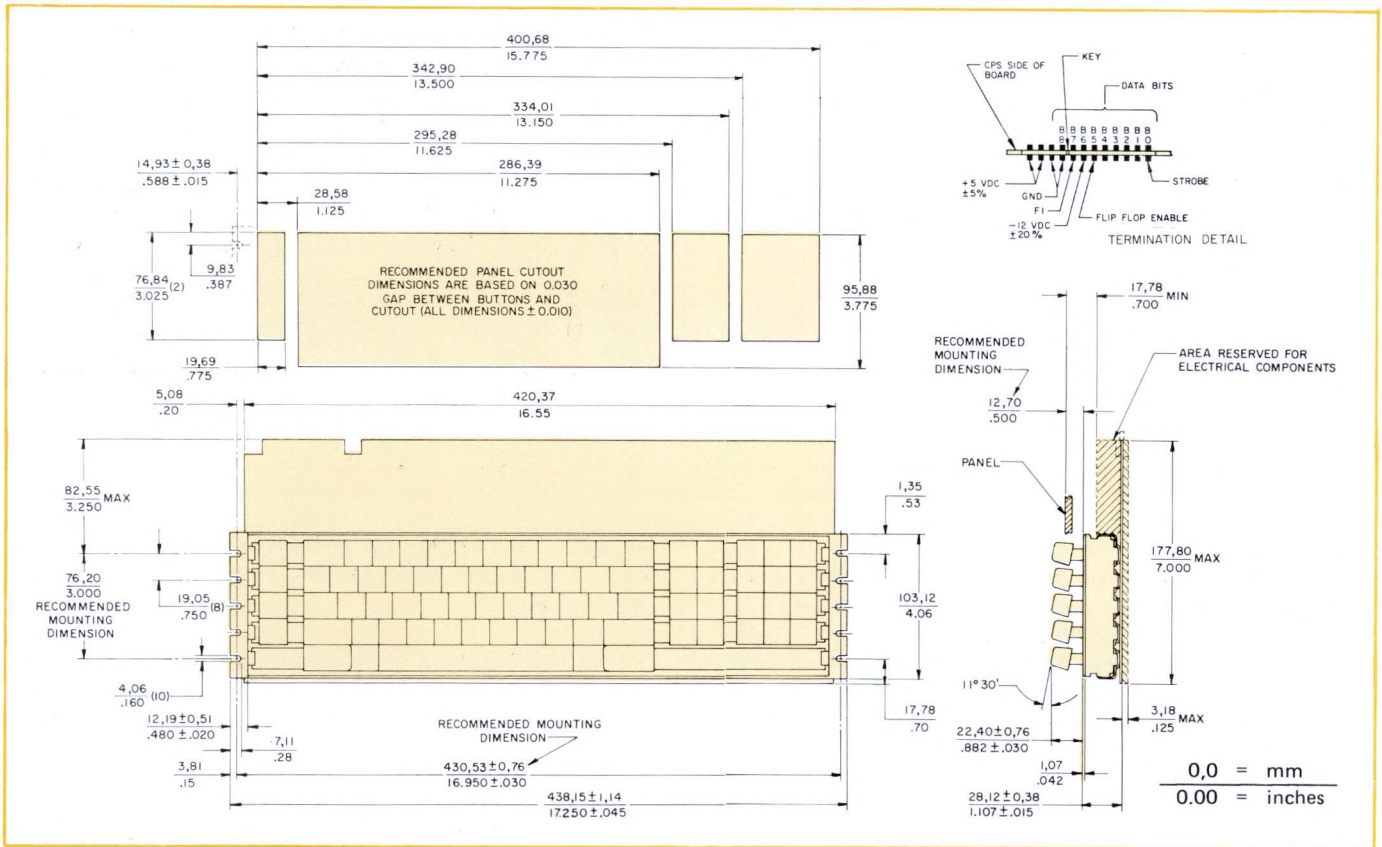
KEY NUMBER	MODE 1			MODE 2		
	8 P	7654	3210	8 P	7654	3210
1	1	1011	0100	1	1011	0100
2	1	1101	0100	1	1101	0100
4	0	0011	1110	0	0000	0010
5	1	1101	1110	0	0000	0010
6	1	0011	1010	0	1101	0110
7	0	1101	1010	1	1101	0010
8	0	0111	1001	0	0111	1001
9	1	0011	1001	1	0011	1001
10	1	0000	0110	1	0000	0110
11	0	1000	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	0111	0	1011	0110
25	1	1010	0011	1	0101	1010
26	0	1001	1011	0	0101	1110
27	0	1100	0111	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 KEYBOARDS

product sheet **66SW6-51, 66SW6-52
and 78SW6-44**

MOUNTING DIMENSIONS FOR 78SW6-44 TYPEWRITER ARRAY



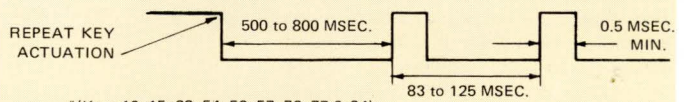
ELECTRICAL DATA

Power Requirements	+5 volts DC $\pm 5\%$ @ 0.5 ampere (max.). -12 volts DC $\pm 20\%$ @ 5 milliamperes (max.). Keyboard Ground @ 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. NOTE: Tolerances include ripple.
Function Key Outputs (Key #82)	Logic "1" Operated: +0.45 volts DC maximum @10.1 milliamperes (current sinking) Logic "0" Released: +2.6 volts DC minimum @0.12 milliamperes (current 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.)
Data Key Outputs (EBCDIC CODE . . . Positive Logic)	Logic "1" +2.55 volts DC minimum @0.12 milliamperes maximum (current sourcing) Logic "0" +0.6 volts DC maximum @1.6 milliamperes (current sinking)
Strobe: Level DC	Logic "1" Strobe True: +0.45 volts DC maximum @10.1 milliamperes (current sinking) Logic "0" +2.6 volts DC minimum @ 0.012 milliamperes (current 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).
Flip-Flop Enable Input	Logic "1" Enable: +3.6 volts DC minimum while sourcing 0.010 milliamperes Logic "0" Inhibit: +0.6 volts DC maximum with 2 milliamperes maximum (current sinking required) Rise and fall time 1.0 microseconds maximum. (The rise and fall time for the flip-flop enable input is measured between +0.9 volts DC and +3.0 volts DC).
Parity	Odd parity is generated by data bit 8, based on the "1" condition of Data bits 0-7.

SPECIFICATIONS

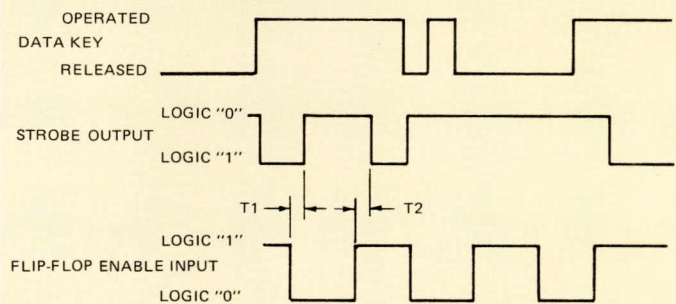
REPEAT WAVEFORM:

STROBE REPEATS FOR DURATION OF ANY OF THE 9 ASSIGNED REPEAT KEYS*.



*(Keys 13, 15, 22, 54, 56, 57, 76, 77 & 84)

FLIP-FLOP ENABLE TIMING DIAGRAM:



T1 = 5 MICROSECONDS MAX., 1 MICROSECONDS MIN.
T2 = 5 MICROSECONDS MAX., 1 MICROSECONDS MIN.

OUTPUT INTERFACE

Card-edge output with gold plated terminals accept standard connectors such as: Cinch-Jones #250-12-30-170 with between contact key, or equivalent.

INTERACTIVE VISUAL DISPLAY KEYBOARDS

product sheet **66SW6-51, 66SW6-52
and 78SW6-44**

CODE AND CHARACTER ASSIGNMENT 78SW6-44 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, 79, 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 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 and a 3 x 4 key block array on the right.

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
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

SHIFT OPERATION

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

INTERACTIVE VISUAL DISPLAY KEYBOARDS

product sheet **66SW6-51, 66SW6-52
and 78SW6-44**

ordering information

Contact your nearest MICRO SWITCH Branch Office and a Field Engineer will be glad to work with you in satisfying your keyboard requirements: proper selection, pricing and delivery scheduling. These experienced keyboard experts will provide sound and practical answers to your needs.

branch offices

... in the East

Boston Office
Bedford, Massachusetts 01730
4 Preston Court
617/275-2440

Hartford, Connecticut 06101
90 Brainard Road
203/549-3800

New York Office
Elmsford, New York 10523
570 Taxter Road
914/592-3200
516/420-0620

Philadelphia Office
Blue Bell, Pennsylvania 19422
Merion-Towle House
1777 Walton Road
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100 Metro Park
716/461-1600

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Cleveland, Ohio 44103
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In Pittsburgh, PA: 412/391-9490

Davenport, Iowa 52807
3435 Spring Street
319/355-6456
In Omaha, NB: 402/393-8300

Dayton, Ohio 45404
2314 Stanley Avenue
513/461-4480
In Cincinnati, OH: 513/628-1073

Detroit Office
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17515 W. Nine Mile Road
313/424-3569
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Indianapolis, Indiana 46241
5739 Professional Circle
317/243-0831

Kansas City, Missouri 64133
8401 East 50 Highway
816/358-4200

Milwaukee, Wisconsin 53222
2979 North Mayfair Road
414/771-6300

Minneapolis, Minnesota 55435
Twin City Branch
7400 Metro Blvd.
612/830-3516

St. Louis Office
Creve Coeur, Missouri 63141
10000 Old Olive Street Road
314/991-4100

Wichita, Kansas 67216
2801 South Madison
316/522-3435

... down South

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404/321-2565
In Charlotte, NC: 704/364-4770
Orlando, FL: 305/894-3131

Dallas, Texas 75240
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214/661-5459
In Fort Worth, TX: 817/263-2311

Memphis, Tennessee 38131
2005 Nonconnah Boulevard
901/396-6222

Houston, Texas 77042
8440 Westglen Drive
713/785-3200
In New Orleans, LA: 504/833-7241

... out West

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303/771-2340
In Salt Lake City, UT: 801/487-0681

Los Angeles, California 90040
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213/726-6132
In Phoenix, AZ: 602/263-2251

San Francisco Office
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910 Thompson Place
408/732-0120

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Mercer Island, Washington 98040
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