83 KEY IBM*PERSONAL COMPUTER COMPATIBLE PAD CAPACITIVE SOLID STATE KEYBOARD IN A 30mm DIN ENCLOSURE
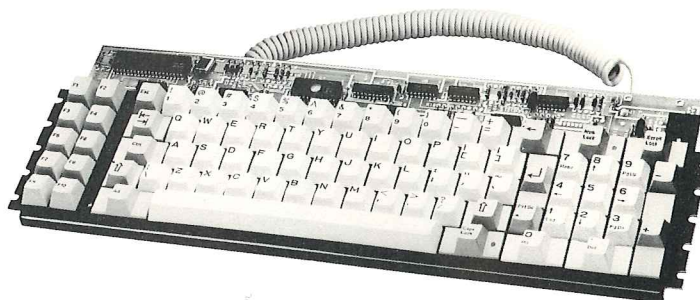
STANDARD FEATURES

- Selectable output formats:
  1. IBM* compatible interface at 18K Baud serial output with UP/DOWN codes and special handshaking.
  2. ASCII jumpers allow conversion to serial with TTL differential output. (Baud rates 300, 1200 or 9600)
- 2-shot molded keycaps with matte finish
- Full N-key rollover
- Lighted "alpha lock" and "num lock" keys
- Chassis ground ● External reset ● Matching color, shielded coil cord with 5-pin circular DIN connector. ● Auto-repeat
- Low profile—30mm (1.181") from enclosure base to center point at home row keycap top
- Use flat…or use standard, built-in bail at rear for 13° tilt (See below *)
- Molded of tough, high impact polystyrene structural foam
- Flame retardant (UL 94V0)
- Solid metal bottomplate for rigidity, stability
- Input Power: +5VDC @ 250 mA typ., 360mA max.

FACTORY INSTALLED OPTIONS
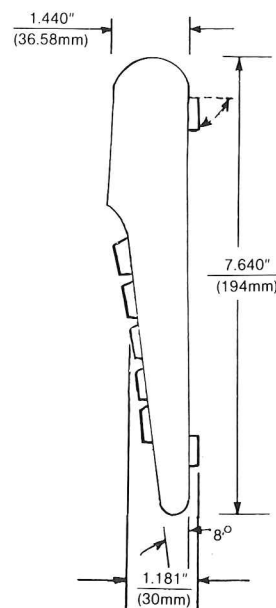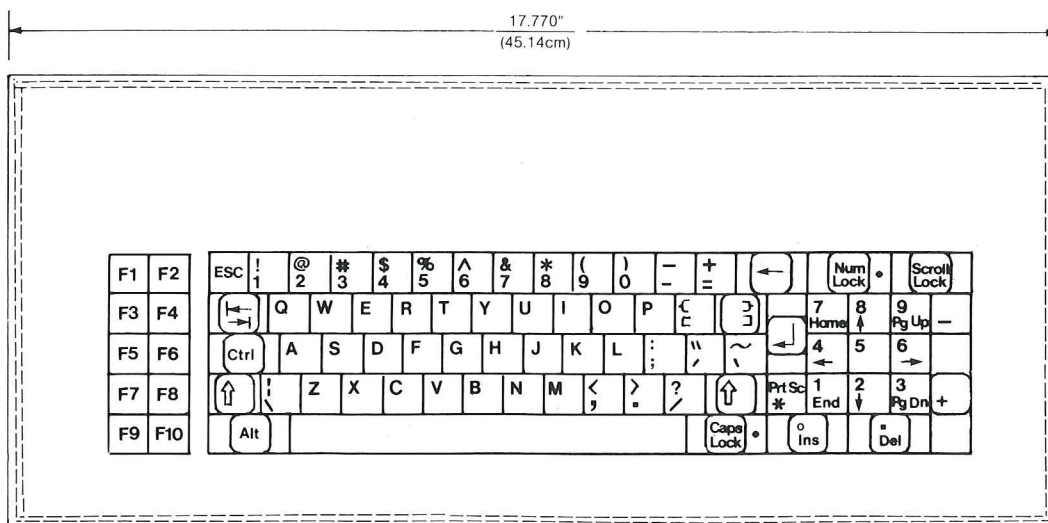
- 12VDC operation
- Watchdog circuit for extra ESD protection.

Part Number KFN3-8354
(Without housing specify **Part Number BFN3-8354**)

MECHANICAL SPECIFICATIONS

Key Total Travel	0.150 in. (3.8 mm)
Key Actuating Force	2.0 oz. (57 gm)
Keytop Color (Main Array)	White
Keytop Color (Function Keys)	Sand Brown

17.770"
(45.14cm)

1.440"
(36.58mm)

7.640"
(194mm)

8.0°

1.181"
(30mm)

*IBM is the registered trademark of the International Business Machines Corp.

OUTPUT FORMAT

Diodes determine the Baud Rate as shown in Table 1. Note that the BFN3-8354 keyboard comes with all diodes installed. These can be clipped from the top side of the circuit board to allow change of Baud Rate without removing the keyboard from the base plate. To do this, place the enclosure upside down on a clean, soft surface and remove the four screws closest to the front and back edges of the housing.
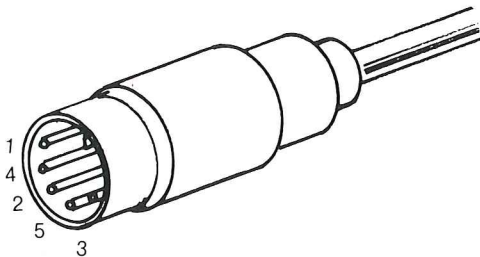
If changes also require removal of the base plate, remove the four screws closest to the left and right edges.

TABLE 1—FORMAT SELECTION

FORMAT	DIODES		
	CR15	CR16	CR18
Synchronous (IBM)	IN	IN	
Asynchronous			
300 Baud	OUT	IN	
1200 Baud	IN	OUT	
9600 Baud	OUT	OUT	
IBM Codes			IN
ASCII Codes			OUT

ASSEMBLY OF KEYBOARD INTO HOUSING

1. Place the keyboard face down on a clean, soft surface.

2. Position the base plate so that the standoffs at each edge of the keyboard align with the holes in the base plate and the cutout is over the connector.

3. Using the four long screws, attach the base plate to the keyboard.

4. Using the four short screws, assemble the keyboard and base plate to the housing.

CONNECTOR PIN ASSIGNMENT

PIN	FUNCTION	
	SYNCHRONOUS	ASYNCHRONOUS
1	CLOCK	DATA—
2	DATA	DATA+
3	RESET	RESET
4	GND	GND
5	+5V	+5V
SHELL	SHIELD	SHIELD

DESCRIPTION OF OPERATION

Table 2 provides the output codes for ASCII and IBM format. All keys repeat on both versions, 12Hz after a .5 second delay. Both keyboards are also capable of buffering 32 codes. If the buffer is filled, subsequent codes are lost and Hex FF is placed at the end of the FIFO.

SYNCHRONOUS FORMAT

KBDDATA and KBDCLK are pulled up whenever the keyboard is idle or between scan code transmissions. The keyboard looks at KBDDATA and KBDCLK and verifies both are high before a code can be sent. The first bit clocked into the main unit receive register is the "Start Bit" and is a one. Eight clocks after the Start Bit or on the ninth clock transition, the main unit logic will request an interrupt and clamp KBDDATA low. The KBDDATA is held low by the main unit until the character in the register is read and the interrupt cleared.

The main unit can request the keyboard to reinitialize by pulling the clock line low for 40 ± 20 milliseconds. The keyboard responds within 20 milliseconds after the clock goes high.

The keyboard contains a complete diagnostic self-test initiated either upon Power-Up or whenever requested by the main unit. When powering up or requested by the main unit the keyboard is initialized and sends Hex AA to indicate it is OK. Any other codes are interpreted as a failure.

ASYCHRONOUS FORMAT
Serial data is in the form of one start bit, eight data bits, one parity bit (odd), and one stop bit. If DATA+ is clamped low the keyboard will not transmit until DATA+ is released.

IBM FORMAT
In this mode of operation, the keyboard generates a "make" and a "break" code. The break code equals the make code plus Hex 80.

ASCII CODE
In this mode of operation, depressing the ALT key will result in Bit 7 held low as subsequent keys are pressed.

TABLE 2—OUTPUT CODES

IBM CODE

LEGEND	CODE	LEGEND	CODE
F1	3B	G	22
F2	3C	H	23
ESC	01	J	24
1	02	K	25
2	03	L	26
3	04	;	27
4	05	:	28
5	06	'	29
6	07	↵	1C
7	08	←	4B
8	09	5	4C
9	0A	→	4D
Ø	0B	F7	41
—	0C	F8	42
=	0D	SHIFT ⇧	2A
	0E	\	2B
NUM LOCK	45	Z	2C
SCROLL LR	46	X	2D
F3	3D	C	2E
F4	3E	V	2F
➞|	0F	B	30
Q	10	N	31
W	11	M	32
E	12	,	33
R	13	.	34
T	14	/	35
Y	15	SHIFT ⇧	36
U	16	↑	4F
I	17	END	4F
O	18	↓	50
P	19	PG DN	51
[	1A	+	4E
]	1B	F9	43
HOME ↑	47	F10	44
	48	ALT	38
PG UP	49	SPACE	39
—	4A	CAPS LOCK	3A
F5	3F	INS	52
F6	40	DEL	53
CTRL	1D		
A	1E		
S	1F		
D	20		
F	21		

ASCII CODE

LEGEND	UNSHIFT	SHIFT	CONTROL	CONTROL AND SHIFT	LEGEND	UNSHIFT	SHIFT	CONTROL	CONTROL AND SHIFT
F1	80	80	80	80	G	67	47	07	07
F2	81	81	81	81	H	68	48	08	08
ESC	1B	1B	1B	1B	J	6A	4A	0A	0A
1	31	21	31	21	K	6B	4B	0B	0B
2	32	40	32	00	L	6C	4C	0C	0C
3	33	23	33	23	;	3B	3A	3B	3A
4	34	24	34	24	'	27	22	27	22
5	35	25	35	25	↵	60	7E	60	7E
6	36	5E	36	1E		0D	0D	0D	0D
7	37	26	37	26	←	12	34	12	34
8	38	2A	38	2A	5	35	35	35	35
9	39	28	29	28	→	13	36	13	36
Ø	30	29	30	29	F7	86	86	86	86
—	2D	5F	1F	1F	F8	87	87	87	87
=	3D	2B	3D	2B	⇧			SHIFT	
←	08	08	08	08	\	5C	7C	1C	1C
			NUM LOCK			Z	7A	5A	1A	1A
SCROLL LK	8B	8B	8B	8B	X	78	58	18	18
F3	82	82	82	82	C	63	43	03	03
F4	83	83	83	83	V	76	56	16	16
➞|	09	89	09	89	B	62	42	02	02
Q	71	51	11	11	N	6E	4E	0E	0E
W	77	57	17	17	M	6D	4D	0D	0D
E	65	45	05	05	,	2C	3C	2C	3C
R	72	52	12	12	.	2E	3E	2E	3E
T	74	54	14	14	/	2F	3F	2F	3F
Y	79	59	19	19	⇧			SHIFT	
U	55	55	15	15	↑	2A	AA	2A	AA
I	69	49	09	09	END	B1	31	B1	31
O	6F	4F	0F	0F	↓	14	2	14	32
P	70	50	10	10	PG DN	B3	B3	B3	33
[	5B	7B	1B	1B	+	2B	2B	2B	2B
]	5D	7D	1D	1D	F9	37	37	37	37
HOME ↑	B7	B7	B7	B7	F14	8A	8A	8A	8A
	11	38	11	38	ALT			ALT	
PG UP	B9	39	89	39	SPACE	20	20	20	20
—	2D	2D	2D	2D	CAPS LOCK				
F5	84	84	84	84	INS	B0	30	B0	30
F6	85	85	85	85	DEL	7F	2E	7F	2E
			CTRL						
A	61	41	01	01					
S	73	53	13	13					
D	64	44	04	04					
F	66	46	06	06					

CHERRY 🍒 KEYBOARDS