

3.5 INTERFACING AND PROGRAMMING INFORMATION

3.5.1 Remote Frequency Control

Logic Type: TTL

Fan Out Per Line: Each line from the controller must be capable of driving four standard TTL loads.

Format: Positive true, parallel BCD, eleven digits with one strobe line.

Timing Characteristics: See Figure 3-4, Timing Diagram.

NOTE

Cables driving the FS 2000C frequency remote parallel interface which are longer than 3 feet, and/or operation in an electrically noisy environment, may cause multiple strobes or other programming malfunctions. If the FS 2000C must be operated with long cables or in an electrically noisy environment, contact the factory for interface options. These options include differential receivers and low impedance terminations.

3.5.2 Remote Modulation Control:

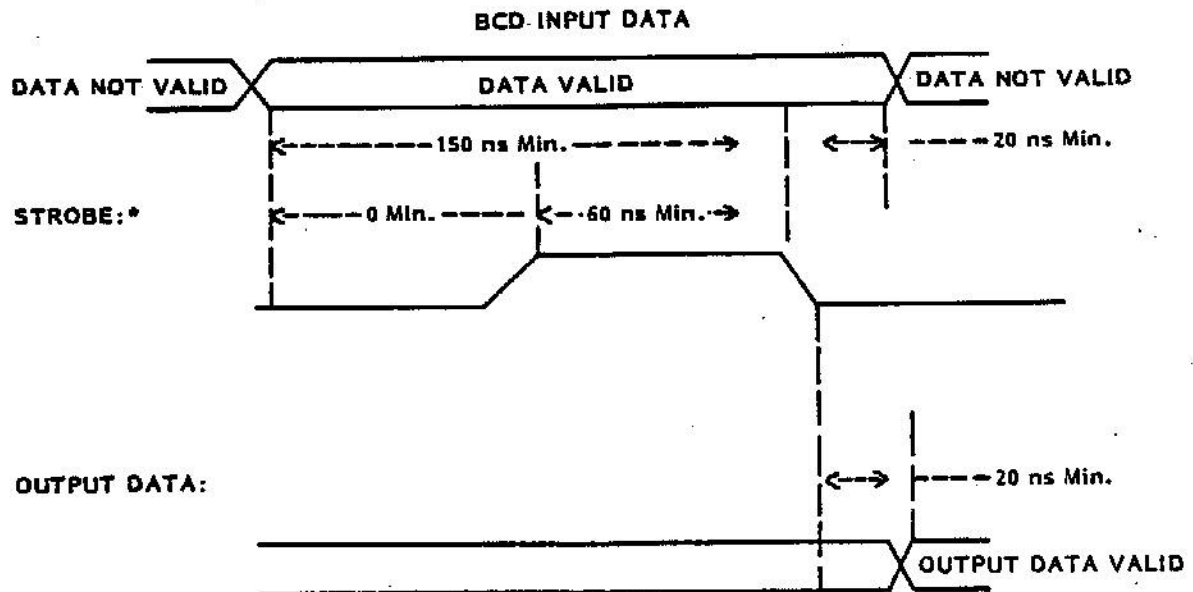
Logic Type: TTL

Fan Out Per Line: Each line from the controller must be capable of driving four standard TTL loads.

Format: Positive true, parallel, 14 bits

Timing Characteristics: See Figure 3-4, Timing Diagram.

INPUT DATA:**



* INPUT DATA STROBED ON TRAILING EDGE

** INPUT PRESENTS 4-LOGIC LOAD TO OUTSIDE CONTROLLER (TTL LOGIC)

NOTE: The strobe allows for edge-triggered latching of data for programming the synthesizer; however, the display uses transparent D-Latches. As a result, the display will change to match the BCD data present at the programming input when the strobe is asserted high, but synthesizer frequency will not change until a negative-going edge occurs.

Figure 3-3. Timing Diagram for Programming Input Signals

Prepare mating connector per Table 3-2 and 3- Any unused logic inputs must be grounded.

Programming of output frequency is accomplished by sending the appropriate data, followed by a strobe, according to the requirements shown in Figure 3-4, Timing Diagram.

- (1) The front panel display indicates the programmed frequency. (Refer to timing diagram note concerning transparent display latches.)

Table 3-2. Remote Frequency Control Input
(Mating Connector Amp P/N 229940-1)

PIN NO.	FUNCTION	PIN NO.	FUNCTION
1	Out of Range	26	1 kHz-2
2	10 kHz-2	27	1 kHz-1
3	10 kHz-1	28	1 kHz-4
4	10 kHz-4	29	1 kHz-8
5	10 kHz-8	30	* Double
6	* Growth	31	* Growth
7	* Growth	32	* Growth
8	100 kHz-4	33	100 kHz-2
9	100 kHz-8	34	100 kHz-1
10	* Growth	35	* Growth
11	* Growth	36	* Growth
12	Local/Remote	37	Power ON/OFF
13	1 GHz-1	38	* Growth
14	Strobe	39	1 MHz-2
15	100 MHz-8	40	1 MHz-1
16	100 MHz-4	41	1 MHz-4
17	100 MHz-2	42	1 MHz-8
18	10 Hz-8	43	10 Hz-4
19	10 Hz-1	44	10 Hz-2
20	10 MHz-2	45	100 MHz-1
21	10 MHz-4	46	10 MHz-1
22	100 Hz-4	47	10 kHz-8
23	100 Hz-1	48	100 Hz-2
24	* Growth	49	100 Hz-8
25	Logic Ground	50	Logic Ground

NOTE: With Option III programming above 2 GHz (2 - 4 GHz) is accomplished by programming at one-half the desired frequency and asserting the "double bit" Pin 30 (positive true).

Table 3-3. Remote Modulation Control Input
(AMP Champ Plug 552284-1)

Bits 13 and 14 determine the type of modulation as follows:

Bit 14	Bit 13	Modulation
0	0	Not used
0	1	Frequency
1	0	Amplitude
1	1	CW

Bits 11 and 12 select the modulation source:

Bit 12	Bit 11	Mod Source
0	0	Not used
0	1	External
1	0	Not used
1	1	Not used

Bits 9 and 10 determine the ranges available for each type of modulation. These ranges are given in terms of percent modulation for AM and frequency deviation for FM. The logic for modulation range control is as follows:

Modulation Type	Bit 10	Bit 9	Range
AM	0	0	0 to 100%
	0	0	0 to 10 kHz
FM	0	1	0 to 100 kHz
	1	0	0 to 1 MHz

The modulation level data byte is an eight bit binary number that dictates the desired modulation index in terms of the percentage of available range. That is, the binary number has a valid decimal range of 0 to 200 which represents 0 to 100% of full scale. The modulation control LSB then equals 0.5% of full scale. The technique is summarized below:

Bit	8	7	6	5	4	3	2	1	Decimal Value	% of Full Scale
Weight	128	64	32	16	8	4	2	1		
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	1	1	0.5
	0	1	1	0	0	1	0	0	100	50
	1	1	0	0	1	0	0	0	200	100

Pin utilization for modulation connector is as follows:

Pin No.	Function	Pin No.	Function
1	Bit 1	10	Bit 10
2	Bit 2	11	Bit 11
3	Bit 3	12	Bit 12
4	Bit 4	13	Bit 13
5	Bit 5	14	Bit 14
6	Bit 6	15	Growth
7	Bit 7	16	Growth
8	Bit 8	17	Ground
9	Bit 9	18 thru 36	Growth

3.5.3 Front Panel Keyboard FS 2000C

Getting Started

Before turning on the FS2000C check the following items:

The Front Panel Remote/Local switch is in the proper position.

- | | |
|--------|--|
| Remote | The unit can be programmed from the rear remote parallel inputs. The keyboard is disabled. |
| Local | The Front Panel keyboard can be used. The remote interfaces are disabled. |