

CHAPTER 3

INTERFACE

3.1 GENERAL

The flexibility achieved with the address select logic and the eight-position address select switch permits the RK05 Disk Drive to be connected to a variety of computer systems. In the RK11-C and RK8/E systems, up to four drives can be serially connected to a single bus; in the RK11-D system, up to eight drives can be serially connected.

Interface cable connection of the RK05 Disk Drive is made to card position 7 or 8 of the electronic module. These card positions are parallel-wired so that several drives may be daisy-chained in a multidrive configuration; that is, card position 7 or 8 of the first drive is connected to card position 7 or 8 of the succeeding drive, etc. (By convention, card position 7 is used for input signals; card position 8 is used for output signals.) If there is only one drive in the system, an M930 terminator card must be installed in the unused interface card position; if there is more than one drive in the system, only the last drive on the bus must have the M930 terminator card in the unused interface card position. The interface signal levels are determined by the M930 terminator card. An assertion, or logic 1, is approximately +0.5 Vdc, and a negation, or logic 0, is approximately +3.5 Vdc.

Figure 3-1 illustrates and the following paragraphs describe the function of each interface line. The signals listed, being bus signals, operate according to negative logic; they are asserted low. Appendix A contains a glossary of RK05 backplane connections.

3.2 INPUT INTERFACE LINES

3.2.1 RK11-D

This line (BUS RK11-D L) transmits a signal that configures the address select logic to operate with a particular controller type. A logical 0 on this line indicates that the controller is not an RK11-D (thus, the controller is either an RK11-C or an RK8/E, both of which control only four drives on a single bus), while a logical 1 indicates that the controller is an RK11-D.

3.2.2 Select (4 lines)

BUS SEL DR 0/A/E, 1/B/F, 2/C/H, and 3/D/J L operate in conjunction with the RK11-D interface line and an eight-position address select switch on the M7700 card to determine the drive address assignment and selection by one of the following two methods:

- a. With a logical 0 on the RK11-D line, the M7700 selection circuit is configured to decode the four selection lines as a linear set. In a particular drive, only one of the four lines is internally connected (via positions 0 through 3 of the address select switch) to the drive control logic. To select a drive, the controller places a logical 1 on the desired select line. This line remains at logical 1 throughout the entire data transfer or control operation.
- b. With a logical 1 on the RK11-D line, the M7700 selection is configured to decode the four selection lines as a binary-encoded set. To select a drive, the controller places a 3-bit binary code, which corresponds to the drive address, on these select lines. This binary code is then translated by a three-line-to-eight-line decoder to activate only one of the eight address select switch positions.

3.2.3 Cylinder Address (8 lines)

BUS CYL ADD 0 L through BUS CYL ADD 7 L determine the cylinder position of the read/write heads. In order to move the heads to a desired cylinder, the controller places a corresponding 8-bit binary code on the lines (valid codes=0 through 202_{10}). These lines are gated by the Strobe signal to position the heads at the selected cylinder. The binary code remains on the lines until either the Address Acknowledged or the Address Invalid signal is returned from the drive (Paragraph 3.3.3).

3.2.4 Strobe

BUS STROBE L transmits a signal that gates the Cylinder Address or Restore line. The controller places a logical 1 on the Strobe line, only after the Cylinder Address or the Restore signals are fully settled on their respective lines.