

EP-125KLIC Instruction Manual

Installation

1. Electrical

Power to the cash drawer is supplied through a small 12VDC 0.5 amp plug-in module similar to those used by portable telephone equipment and calculators. Use of this module removes a possibility of electrical shock from the metal drawer or components on the interface board and protects any equipment connected to the cash drawer from damage caused by accidental contact with the 115VAC potential of wall power. The female connector from the module plugs into the jack at the rear center of the cash drawer.

Important Note:

When changing the settings of the switches on the interface board, the power connector must be removed. Switch settings are only read by the interface at power-up. New settings will not be effective until power is removed and reapplied.

2. Configuring the Interface Board

The KLIC Universal Interface board supports all three commonly used interface schemes for communication to cash drawers. Selection of a particular scheme is accomplished by setting four banks of DIP (Dual In-line Package) switches on the interface board located inside the cash drawer on its rear panel. Access to the interface board and the DIP switches is gained by removing the plate at the rear of the cash drawer.

Important Note:

Factory settings for the interface boards are Dead End Serial mode operating at 1200 baud using a drawer open signal of CONTROL G. If this configuration meets your needs, no switch settings need be changed. Charts showing switch settings use "0" to indicate open/off and "1" to indicate closed/on.

To properly set the switches, you must know which interface scheme you will be using. This will be determined by the equipment available on your computer or terminal, and any software you are using with the cash drawer. The three interface schemes are:

Serial – communication to the cash drawer is via RS232 standard serial communication port

Parallel – communication to the cash drawer is via parallel communication port

Pulse – drawer open command is supplied via a voltage change from <2.5VDC to >3.5VDC.

Please skip to the heading that describes the communication scheme you will be using.

Serial

Serial communication with the cash drawer involves sending a unique drawer opening character at a specific rate called the BAUD rate. Any one of the standard ASCII character codes may be used as a drawer opening character as determined by preference or the software being used.

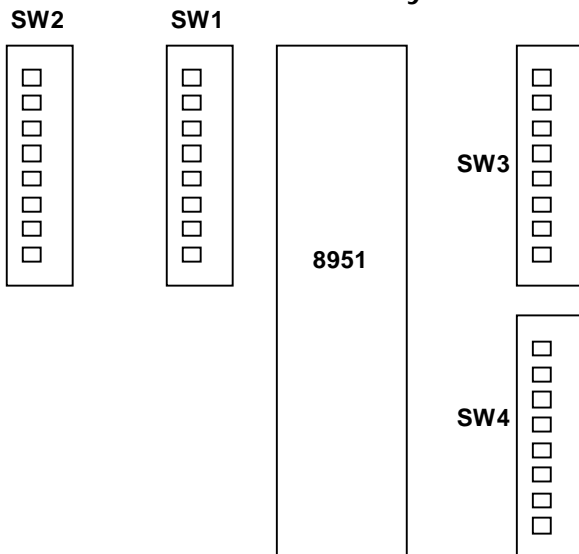
CONTROL G (ASCII 7) is often used because it is also the BEL character and many terminals emit a short beep as the drawer opens. You may also require an "ESC" prefix to the drawer opening by setting switch 8 of bank 1 to on. This requires that the "ESC" character immediately precede your drawer opening character to be recognized by the drawer.

Any of seven standard BAUD rates may be used. Speed is not usually an important factor when communicating with a cash drawer. So the selection may be based on preference, requirements of the software used, or requirements of other equipment such as a printer used in conjunction with the drawer. Factory settings are for 1200 BAUD.

The third consideration for serial communication is whether the cash drawer will be used in Dead End mode or in Parasite mode. Using Dead End mode means that the cash drawer is the only device connected to the serial port. If you will be using a printer, multiple cash drawers, or other devices connected to the same serial port, use the Parasite mode. * NOTE: When a cash drawer is the last device in the chain it must be set in Dead End mode.

Armed with the three pieces of information: opening character, BAUD rate, and mode, you

KLIC Switch Layout



are ready to set the switches for serial communication.

Serial Dead-End – No other device connected to this serial port. Use the KLIC layout diagram to locate switch banks.

Note: "0" indicates open/off
"1" indicates closed/on

Bank #1	Switch #	12345678		
			See ASCII/Timing Chart	
Bank #2	Switch #	12345678	<u>*Baud Rate Chart</u>	
		***00000	Switch #	Baud
			123	
Bank #3	Switch #	12345678	111	19200
		00000000	011	9600
			101	4800
Bank #4	Switch #	12345678	001	2400
		00011111	110	1200
			010	600
			100	300
			000	Not Used

Serial Parasite – A printer or other device is used on this port. Use KLIC layout diagram to locate switch banks.

Note: "0" indicates open/off
"1" indicates closed/on

Bank #1	Switch #	12345678		
			See ASCII/Timing Chart	
Bank #2	Switch #	12345678	<u>*Baud Rate Chart</u>	
		***00000	Switch #	Baud
			123	
Bank #3	Switch #	12345678	111	19200
		00000000	011	9600
			101	4800
Bank #4	Switch #	12345678	001	2400
		00011000	110	1200
			010	600
			101	300
			000	Not Used

Parallel

Parallel communication with the cash drawer involves sending a unique drawer opening character. Any one of the standard ASCII character codes may be used as a drawer opening character as determined by preference or the software being used. A favorite is the CONTROL G (ASCII 7). CONTROL G is often used because it is also the bell character and many terminals emit a short beep as the drawer opens. You may also require an "ESC" prefix to the drawer opening by setting switch 8 of bank #1 to on. This requires that the "ESC" character immediately precede your drawer opening character to be recognized by the drawer.

The other consideration for parallel communication is whether the cash drawer will be used in Dead End mode or in Parasite mode. Using Dead End mode means that the cash drawer is the only device connected to the parallel port. If you will be using a printer, multiple cash drawers, or other devices connected to the same parallel port, use the Parasite mode. * NOTE: When a cash drawer is the last device in the chain, it must be set in Dead End mode.

Armed with these two pieces of information – opening character and mode, you are ready to set the switches for parallel communication.

Parallel Dead-End – No other device used on this port. Use KLIC layout diagram to locate switch banks.

Note: "0" indicates open/off
"1" indicates closed/on

Bank #1	Switch #	12345678		
			See ASCII/Timing Chart	
Bank #2	Switch #	12345678		
		00011111		
Bank #3	Switch #	12345678		
		11111111		
Bank #4	Switch #	12345678		
		11100000		

Parallel Parasite – A printer or other device is used on this port. Use KLIC layout diagram to locate switch banks.

Note: "0" indicates open/off
"1" indicates closed/on

Bank #1	Switch #	12345678		
			See ASCII/Timing Chart	
Bank #2	Switch #	12345678		
		00000000		
Bank #3	Switch #	12345678		
		11111111		
Bank #4	Switch #	12345678		
		11100000		

Pulse (Serial Mode)

Pulse communication with the cash drawer involves sending a positive going pulse signal from the computer on pin 2 (Transmit Data (TXD)). The signal should be normally low (less than 2.5 volts) and should switch momentarily high to greater than 3.5 volts to open the drawer.

Pulse Mode – No other device used on this port. Use KLIC layout diagram to locate switch banks.

Note: "0" indicates open/off
"1" indicates closed/on

Bank #1	Switch #	12345678		
			See ASCII/Timing Chart	
Bank #2	Switch #	12345678		
		00000000		
Bank #3	Switch #	12345678		
		00000000		
Bank #4	Switch #	12345678		
		00011000*	Set ON to send drawer open/closed status to computer on pin 6 Data Set Ready (DSR).	

3. Cabling

The host computer, terminal, or point of sale device is connected to the cash drawer through a standard RS232 cable, the same as those commonly used to connect serial printers. Two DB-25 connectors are provided on the rear panel of the cash drawer – one male and one female. Either connector may be used to communicate with the host device and the other may be used to optionally connect a printer or additional drawers in daisy chain fashion.

Important Note:

The DB-9 connector is becoming increasingly popular as a replacement to the DB-25 connector for serial port applications. If your point of sale device uses the DB-9 connector for serial port output, it may be necessary to obtain an adapter to the DB-25 form. These can be purchased from M-S CASH DRAWER, your computer store, or an electronics parts house such as RADIO SHACK. See Appendix A for differences in pin-out.

4. Testing

A simple operational check of the KLIC interface can be done in pulse mode. Set the switch banks for pulse mode and apply a signal of 5VDC to 12VDC momentarily between pin 2 (positive) to pin 7 (negative) of the interface cable. The voltage source may be from the computer buss or simply a small battery. This check will test the KLIC's computer, power circuitry, solenoid driver, as well as the drawer circuitry. (Make sure the 12VDC plug-in adapter is connected and powered.)

Important Note:

Be sure to close the drawer when performing tests. The KLIC interface is smart enough not to energize the solenoid if the drawer is already open.

Serial Test Program

The following program is written in QBASIC for IBM computers and compatibles. The program provides all the commands necessary to set up the serial port and send characters to the drawer to test your drawer opening code.

```
10 CLS: INPUT "BAUD RATE?";BAUD
20 CLS: KEY OFF:PRINT"READY...":PRINT:LOCATE,,1
30 OPEN "COM1:"+STR$(BAUD)+" ,E,7,1,CS,DS" AS #1
40 B$=INKEY$:IF B$<>"*" THEN PRINT #1,B$;
50 IF B$="*" THEN END :REM ASTERISK TERMINATES
60 GOTO 40
```

Line 30 sets up the communications file.
COM1: Activates asynchronous communications adapter 1
BAUD transmission bit rate-same as set on KLIC interface
E use even parity
7 number of transmit data bits
1 number of stop bits
CS ignore Clear To Send (CTS) status
DS ignore Data Set Ready (DSR) status

MS-DOS Serial Test

Below is a test program to test the cash drawer from a DOS prompt in Serial Dead-End mode on COM1:.

Switches set to:

```
SW1: 1 1 1 0 0 0 0 0
SW2: 0 1 1 0 0 0 0 0
SW3: 0 0 0 0 0 0 0 0
SW4: 0 0 0 1 1 1 1 1
```

```
C:\> mode com1:9600,n,8,1 <Enter>
C:\> copy con COM1: <Enter>
^G ^Z <Enter>
```

^G – Hold Ctrl and press G
^Z – Hold Ctrl and press Z

Parallel Test Program

Below is a test program in QBASIC that can be used to test the KLIC interface in parallel mode.

```
10 CLS: KEY OFF:PRINT "PARALLEL TEST READY..."
:PRINT:LOCATE,,1
20 OPEN "LPT1:" FOR OUTPUT AS #1
30 B$=INKEY$:IF B$<>"*" THEN PRINT #1,B$
40 IF B$="*" THEN END :REM ASTERISK TERMINATES
50 GOTO 30
```

MS-DOS Parallel Test

Below is a test program to test the cash drawer from a DOS prompt in Parallel Dead-End mode.

Switches set to:

```
SW1: 1 1 1 0 0 0 0 0
SW2: 0 0 0 1 1 1 1 1
SW3: 1 1 1 1 1 1 1 1
SW4: 1 1 1 0 0 0 0 0
```

```
C:\> copy con LPT1: <Enter>
^G ^Z <Enter>
```

^G – Hold Ctrl and press G
^Z – Hold Ctrl and press Z