

2.8 Seven Channel Multiplexer

2.8.1 Introduction

This board is an EIA/RS232 interface board with seven data channels. Each channel can communicate with either a VDU Terminal or a Printer. The configuration is set and will be the same on all like systems. This board will also control and monitor certain power fail functions.

2.8.2 Description and Operation Refer to Figs. 1 - 3

The KLE 5721 is a multi-channel communications controller which provides an interface between the CPU bus and RS232C compatible devices such as printer, asynchronous modems and VDU terminals. Each KLE 5721 controller will support up to seven peripherals at speeds of up to 9600 Baud in full duplex.

- (a) The TMS 9901 Programmable Systems Interface (PSI) provides interrupts, I/O ports and an interval timer for TMS 9900 microprocessor systems. It is TTL compatible on all inputs and outputs, including the power supply (+5V) and single-phase clock.
- (b) The TMS 9902 Asynchronous Communications Controller (ACC) is a peripheral device designed for use with the Texas Instruments 9900 family of microprocessors. It is TTL-compatible on all inputs and outputs, including the power supply (+5V) and single-phase clock. The TMS 9902 ACC provides an interface between a microprocessor and a serial, asynchronous, communications channel. The ACC performs the timing and data serialisation and deserialisation functions, facilitating microprocessor control of the asynchronous channel. The TMS 9902 ACC accepts EIA Standard RS232C protocol.

Refer to Fig.1 7 Channel Multiplexer block diagram.

2.8.3 Indications and Switches

(1) Indications

One LED is mounted on the edge of the board and its indication is as follows:

DS1 Flashes when an interrupt is raised from a peripheral device

Refer to Fig. 3 for location of indicator.

(2) Switches

One 4-way DIL switch is mounted on the board.

The function of the switch is as follows:

S1 Sets CRU Address Bits 4, 5, 6 and 7.

Refer to Fig. 3 for setting and location of switches.

NOTE: The normal setting of the switch is shown.

2.8.4 Input/Output Connections

Two input/output connectors are mounted on the board.
Refer to Fig. 3 for location.

Plug PI 80-Way Edge Connector

1	0V VSS	41	
2	0V VSS	42	-12V U7-1, U8-1, U9-1, U10-1
3	+5V VCC	43	
4	+5V VCC	44	
5		45	
6		46	
7		47	
8		48	
9		49	
10		50	U21-15
11		51	
12		52	U21-13
13		53	
14	U23-8	54	U21-12
15		55	
16		56	U21-10
17		57	
18	U23-7	58	
19		59	
20		60	U18-4
21		61	
22	U20-1	62	U22-3
23		63	
24		64	U22-2
25		65	
26		66	U20-6
27		67	

2.8.4 cont. Plug P1 80-Way Edge Connector

28		68	U22-1
29		69	
30		70	U23-2
31		71	
32	U23-4	72	
33		73	
34	U23-6	74	
35		75	
36	U23-3	76	
37		77	+5V VCC
38	U23-5	78	+5V VCC
39	+12V VDD R2	79	0V VSS
40	+12V VDD R2	80	0V VSS

Plug J1 50-Way Ribbon Connector
Ribbon Interconnection with 8-channel Communications
Interconnect Panel

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See Bottom of Document
For updated J1 details

2.8.4 cont. Plug J1 50-Way Ribbon Connector

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See bottom of document for updated

J1 connector details

2.8.5 I.C. List

U1 to U6	Line Drivers
U7 to U10	Line Receivers
U11 to U17	TMS9902A UARTs
U18	TMS9901 Programmable I/O
U19	74LS393 Dual 4-bit Binary Counter
U20	7416 HEX Inverter d.c.
U21	74LS84 4-bit Comparator
U22	74LS138 1 to 8 Line Decoder
U23	74LS245 HEX Line Buffer
Y1	10MHz Crystal

7 CHANNEL MULTIPLEXER

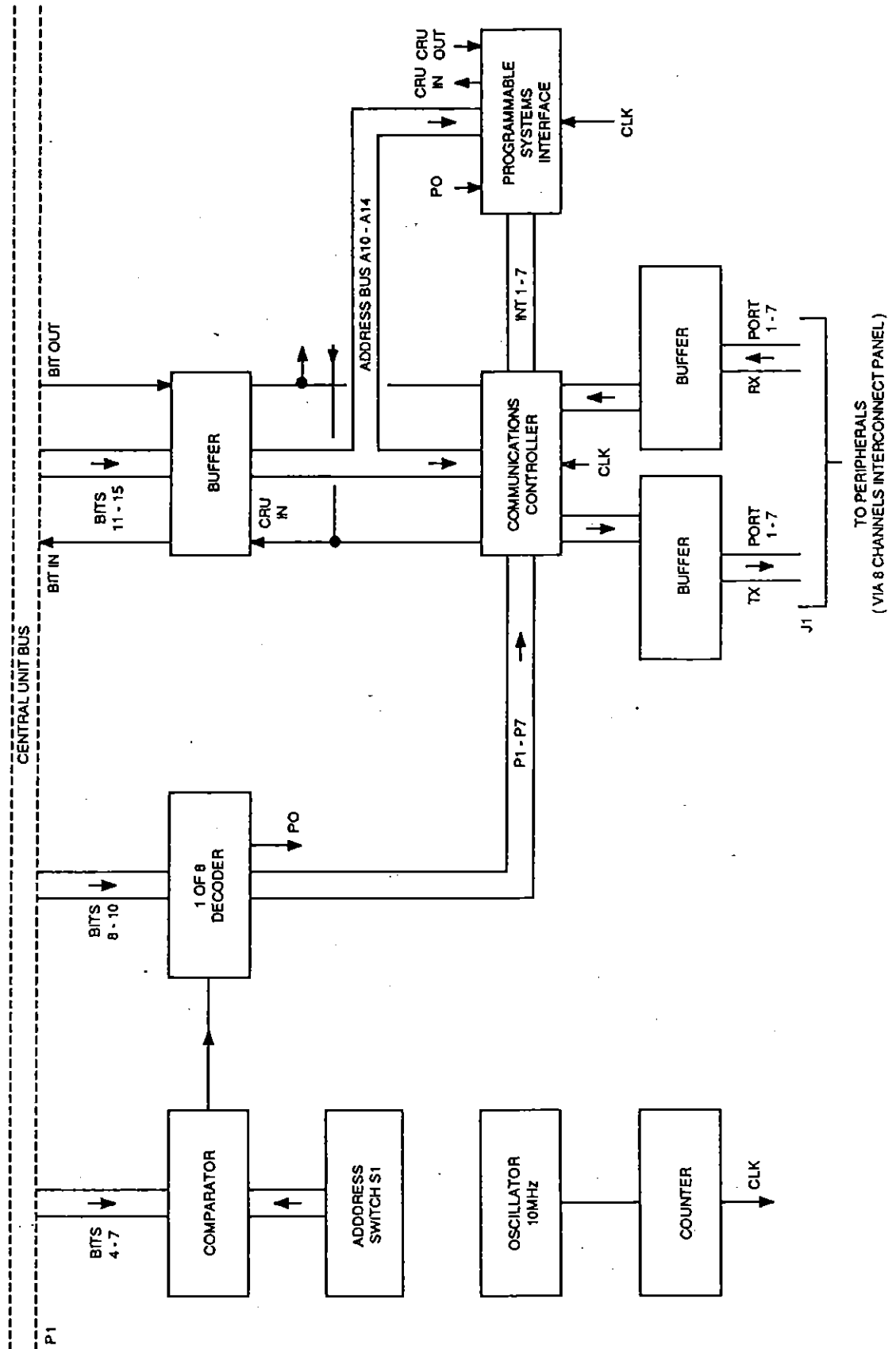


FIG 1

SWITCHES, LEDS AND CONNECTORS
SETTINGS AND LOCATIONS

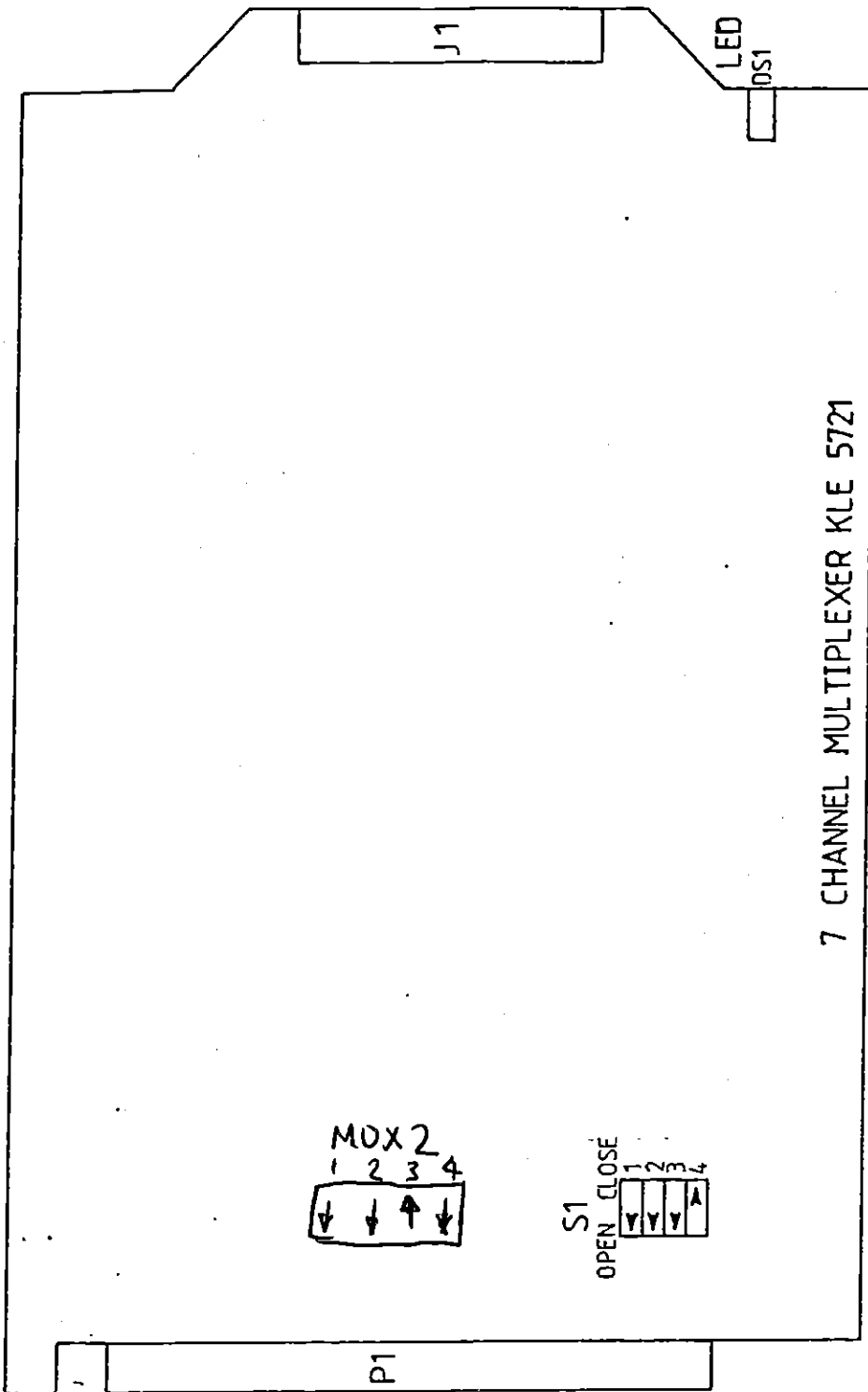


FIG. 3

7 Channel Mux Info KLE 5721 & KLE 047

Note Pin 7 of each DB25 connector on the distribution board is only connected to TB1-1 & not 0V of the Mux Card

If using a Mux distribution board ensure TB1-1 is connected to 0V of your system.

50 way Connector J1	Driver/Receiver CHIP-PIN	TMS9902 CHIP-PIN	CHANNEL	Function	Direction	Distribution Board DB25 Pinout	
1							
2	U10 - 6	U17 - 2	Chan 1	Tx	OUT	J1 - 3	
3			Chan 1	Gnd(0v)		J1 - 7	TB1 -1
4	U6 - 1	U17 - 3	Chan 1	Rx	IN	J1 - 2	
5	U10 - 3	U17 - 5	Chan 1	RTS	OUT	J1 - 5	
6	U6 - 4	U17 - 6	Chan 1	CTS	IN	J1 - 20	
7	U6 - 10	U17 - 7	Chan 1	DSR	IN	J1 - 4	
8							
9	U10 - 11	U16 - 2	Chan 2	Tx	OUT	J2 - 3	
10			Chan 2	Gnd(0v)		J2 - 7	TB1 -1
11	U6 - 13	U16 - 3	Chan 2	Rx	IN	J2 - 2	
12	U10 - 8	U16 - 5	Chan 2	RTS	OUT	J2 - 5	
13	U5 - 1	U16 - 6	Chan 2	CTS	IN	J2 - 20	
14	U5 - 4	U16 - 7	Chan 2	DSR	IN	J2 - 4	
15							
16	U9 - 6	U15 - 2	Chan 3	Tx	OUT	J3 - 3	
17			Chan 3	Gnd(0v)		J3 - 7	TB1 -1
18	U5 - 10	U15 - 3	Chan 3	Rx	IN	J3 - 2	
19	U9 - 3	U15 - 5	Chan 3	RTS	OUT	J3 - 5	
20	U5 - 13	U15 - 6	Chan 3	CTS	IN	J3 - 20	
21	U4 - 1	U15 - 7	Chan 3	DSR	IN	J3 - 4	
22							
23	U9 - 11	U14 - 2	Chan 4	Tx	OUT	J4 - 3	
24			Chan 4	Gnd(0v)		J4 - 7	TB1 -1
25	U4 - 4	U14 - 3	Chan 4	Rx	IN	J4 - 2	
26	U9 - 8	U14 - 5	Chan 4	RTS	OUT	J4 - 5	
27	U4 - 10	U14 - 6	Chan 4	CTS	IN	J4 - 20	
28	U4 - 13	U14 - 7	Chan 4	DSR	IN	J4 - 4	
29							
30	U8 - 6	U13 - 2	Chan 5	Tx	OUT	J5 - 3	
31			Chan 5	Gnd(0v)		J5 - 7	TB1 -1
32	U1 - 1	U13 - 3	Chan 5	Rx	IN	J5 - 2	
33	U8 - 3	U13 - 5	Chan 5	RTS	OUT	J5 - 5	
34	U1 - 4	U13 - 6	Chan 5	CTS	IN	J5 - 20	
35	U1 -10	U13 - 7	Chan 5	DSR	IN	J5 - 4	
36	U1 - 13			Pow Fail	IN	TB1 - 3	Power Fail
37	U 8 - 11	U12 - 2	Chan 6	Tx	OUT	J6 - 3	
38			Chan 6	Gnd(0v)		J6 - 7	TB1 -1
39	U3 - 1	U12 - 3	Chan 6	Rx	IN	J6 - 2	
40	U8 - 8	U12 - 5	Chan 6	RTS	OUT	J6 - 5	
41	U3 - 4	U12 - 6	Chan 6	CTS	IN	J6 - 20	
42	U3 - 10	U12 - 7	Chan 6	DSR	IN	J6 - 4	
43	U20 - 10				OUT	TB1 - 2	???
44	U7 - 6	U11 - 2	Chan 7	Tx	OUT	J7 - 3	
45			Chan 7	Gnd(0v)		J7 - 7	TB1 -1
46	U2 - 1	U11 - 3	Chan 7	Rx	IN	J7 - 2	
47	U7 - 3	U11 - 5	Chan 7	RTS	OUT	J7 - 5	
48	U2 - 4	U11 - 6	Chan 7	CTS	IN	J7 - 20	
49	U2 - 10	U11 - 7	Chan 7	DSR	IN	J7 - 4	
50				R2 VDD		PIN 6 ALL PORTS	