

Series DCX Quick Reference Guide

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SWITCH SETTINGS

o = open = OFF **U** = up
C = closed = ON **D** = down

Notes

ASCII Table

BINARY VALUE				b7	0	0	0	0	1	1	1	1
				b6	0	0	1	1	0	0	1	1
				b5	0	1	0	1	0	1	0	1
b4	b3	b2	b1	OCTAL VALUE	0	20	40	60	100	120	140	160
0	0	0	0	0	NUL	DLE	SP	0	@	P	`	p
0	0	0	1	1	SOH	DC1	!	1	A	Q	a	q
0	0	1	0	2	STX	DC2	"	2	B	R	b	r
0	0	1	1	3	ETX	DC3	# (£)	3	C	S	c	s
0	1	0	0	4	EOT	DC4	\$	4	D	T	d	t
0	1	0	1	5	ENQ	NAK	%	5	E	U	e	u
0	1	1	0	6	ACK	SYN	&	6	F	V	f	v
0	1	1	1	7	BEL	ETB	'	7	G	W	g	w
1	0	0	0	10	BS	CAN	(	8	H	X	h	x
1	0	0	1	11	HT	EOM	)	9	I	Y	i	y
1	0	1	0	12	LF	SUB	*	:	J	Z	j	z
1	0	1	1	13	VT	ESC	+	;	K	[	k	{
1	1	0	0	14	FF	FS	,	<	L	\	l	;
1	1	0	1	15	CR	GS	-	=	M	]	m	}
1	1	1	0	16	SO	RS	.	>	N	^	n	
1	1	1	1	17	SI	US	/	?	O	_	o	DEL

Note: Obtain the octal value by adding the OCTAL VALUE row and column.

General

Speed Lookup Table Data plus Stop Bits

SPEED	5+1.5	7+1	7+2	8+1	8+2
50	0	20	40	60	160
75	1	21	41	61	161
100	2	22	42	62	162
110	3	23	43	63	163
134.5	4	24	44	64	164
150	5	25	45	65	165
200	6	26	46	66	166
300	7	27	47	67	167
600	10	30	50	70	170
1200	11	31	51	71	171
1800	12	32	52	72	172
2000	13	33	53	73	173

Split Baud Rate adds 200 to code

SPEED	8+1	8+1+C	8+2	8+2+C
2400	14	54	114	154
3600	34	74	134	174
4800	15	55	115	155
7200	35	75	135	175
9600	16	56	116	156

Split Baud Rate adds 200 to code

C = Bit 6 set

CARD IN ABR = 37

CARD IN DLL = 377

LSC Number Physical Allocation (viewed from front)

		CHANNEL NUMBERS																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
SINGLE FRAME OR FIRST EXPANSION FRAME	1	5	9	13	17	21	25	29	33	37	41	45	49	53	57	61					
	2	6	10	14	18	22	26	30	34	38	42	46	50	54	58	62					
	3	7	11	15	19	23	27	31	35	39	43	47	51	55	59	63					
	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60	64					

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
SECOND EXPANSION FRAME	65	69	73	77	81	85	89	93	97	101	105	109	113	117	121	125					
	66	70	74	78	82	86	90	94	98	102	106	110	114	118	122	126					
	67	71	75	79	83	87	91	95	99	103	107	111	115	119	123	127					
	68	72	76	80	84	88	92	96	100	104	108	112	116	120	124	128					

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
THIRD EXPANSION FRAME	129	113	137	141	145	149	153	157	161	165	169	173	177	181	185	189					
	130	134	138	142	146	150	154	158	162	166	170	174	178	182	186	190					
	131	135	139	143	147	151	155	159	163	167	171	175	179	183	187	191					
	132	136	140	144	148	152	156	160	164	168	172	176	180	184	188	192					

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
FOURTH EXPANSION FRAME	193	197	201	205	209	213	217	221	225	229	233	237	241	245	249	253					
	194	198	202	206	210	214	218	222	226	230	234	238	242	246	250	254					
	195	199	203	207	211	215	219	223	227	231	235	239	243	247	251	255					
	196	200	204	208	212	216	220	224	228	232	236	240	244	248	252	256					

General

Notes

Front Panel Indications

LED	On	Flashing
GREEN	Link up	Link down
YELLOW	Channel or composite loopback	System error (over-rides loop indicator)
RED	Failed power-up self-test	One or more channels has default configuration

Note: All LEDs flashing: power-up self-test
All LEDs on: self-test failure

Supervisor Access

Local via supervisor port	ABR up to 2400 bps	<CR>GO (upper case)
Remote via channel 5 or 9		LOGON<SP>812 (upper case)

Notes

Channel Options

OPTIONS	SWITCHES							
	1	2	3	4	5	6	7	8
SPEEDS UP TO 2000								
50*	D	D	D	D				
75	U	D	D	D				
100	D	U	D	D				
110	U	U	D	D				
134.5	D	D	U	D				
150	U	D	U	D				
200	D	U	U	D				
300	U	U	U	D				
600	D	D	D	U				
1200	U	D	D	U				
1800	D	U	D	U				
2000	U	U	D	U				
CODE LEVEL (UP TO 2000) (Data bits including parity and stop bits)								
5+1.5						D	D	U
7+1						U	D	U
7+2						D	U	U
8+1						U	U	D
8+2						U	U	U
SPEEDS FROM 2400-9600								
2400								
3600	D	D	U	U	D			
4800	D	D	U	U	U			
7200	U	D	U	U	D			
9600	U	D	U	U	U			
CODE LEVEL (2400-9600) (Data bits including parity and stop bits)								
8+1							D	D
8+2							D	U
SPLIT BAUD RATE								
ENABLED								U
DISABLED								D
DOWN LINE LOAD	U	U	U	U	U	U	U	U
ABR (UP TO 2400)*	U	U	U	U	U	D	D	D

* not available on 815 SE

System Options

OPTIONS	SWITCHES							
	1	2	3	4	5	6	7	8
BUFFER OVERFLOW PROTECTION X-OFF DC2* (CNT R) X-ON DC1* (CNT Q) X-OFF DC3* (CNT S) X-ON DC1* (CNT Q) X-OFF CTS OFF (PIN 5) X-ON CTS ON (PIN 5) OPTION DISABLED	U	U						
WARNING MESSAGES (Link Up, Link Down Data Lost) ENABLED* DISABLED			U					
TERMINAL FLOW CONTROL (Parity must be set at remote end) X-OFF DC2* (CNT R) X-ON DC1* (CNT Q) X-OFF DC3* (CNT S) X-ON DC1* (CNT Q) X-OFF DTR (PIN 20) OFF X-ON DTR (PIN 20) ON OPTION DISABLED				U	U			
PARITY OF OPTIONS MARKED * EVEN ODD MARK (1) SPACE (0)						D	D	
FLYBACK BUFFERING (Must be set at both ends) ENABLED DISABLED								U
								D

System Errors on Power Up

(Displayed on UT Indicator)

0 (flashing)	DIL switches mis-set
1 (flashing)	Uart Error
2 (flashing)	9-bit RAM error
4 (flashing)	16-bit RAM error

System Errors During Running

Function = 4 , Select = 0

Blinking Indicators

Meaning

RL, VAL	Re-initialisation occurred
LL, VAL	Composite link has been down (UT indicator shows C)

Channel Errors During Running

Function = 4 , Select = 1-8

Blinking Indicators

Error Indicated

Likely Area of Fault

LL, RL	Incompatible speed/code received (speed on remote LSC isn't the same as this one)	Local and remote channel card speed/code mismatch.
LL, VAL, RL	Low speed interrupt failure	Channel not present.
LL, VAL	Overflow of buffer in LSC channel	Inappropriate speed setting. Flow-Control requirements not met.
VAL, RL	Port reset occurred	
LL	Framing Error (Data received from DTE does not match the characteristics expected)	DTE wrongly set, 815 wrongly set, 815 fault.

Composite Switches

OPTION	SWITCHES							
	1	2	3	4	5	6	7	8
CLOCK FROM MODEM	U	D	U	D	D	D	D	D
CLOCK FROM 815								
1200	D	U	D	U	U	U	D	D
2400	D	U	D	D	U	D	U	D
3600	D	U	D	U	U	D	U	D
4800	D	U	D	D	D	U	U	D
7200	D	U	D	U	D	U	U	D
9600	D	U	D	D	U	U	U	D

Function Thumbwheel

Position	Application	Action (with INITIATE)
0	SYSTEM (0) CHANNEL	Resets the local 815. Resets the selected channel.
1	CHANNEL	Sets/resets local channel loopback.
2	CHANNEL	Sets/resets remote channel loopback.
3	CHANNEL	Sets/resets validate.
4	SYSTEM or CHANNEL	Displays/clears error codes on LL, RL, VAL lights.
5	SYSTEM (0) CHANNEL	Clears buffer overflow (OVF) light. Displays V24 inputs (see table below).
6	SYSTEM (0) CHANNEL	Clears ERR light. Displays V24 outputs (see table below).
7	SYSTEM (0)	Sets/resets composite loopback.

FUNCTION	DEFINITION	INDICATOR LEDS			
		LL	RL	VAL	ACT
5	V24 Controls - input (from DTE)	DRS Pin 23	BO Pin 25	RTS Pin 4	DTR Pin 20
6	V24 Controls - output (to DTE)	CTS Pin 5	RI Pin 22	CD Pin 8	DSR Pin 6

Notes

Composite Switches

Note: These switches do not need to be set if used in an 825.

OPTION	SWITCHES																																																							
	1	2	3	4	5	6	7	8																																																
LINK BANDWIDTH PRIORITY FEATURE																																																								
ENABLED	D																																																							
DISABLED									U																																															
817 CLOCK TO MODEM (PIN 24, SWITCHES 4-7 SELECT SPEED)																																																								
YES	U																																																							
NO									D																																															
817 TRANSMIT CLOCK SOURCE																																																								
EXTERNAL (from Pin 15)	D																																																							
INTERNAL (switches 4-7 select speed)									U																																															
817 INTERNAL CLOCK SPEED																																																								
1200	<table border="0"> <tr> <td>U</td> <td>U</td> <td>U</td> <td>D</td> </tr> <tr> <td>D</td> <td>U</td> <td>D</td> <td>U</td> </tr> <tr> <td>U</td> <td>U</td> <td>D</td> <td>U</td> </tr> <tr> <td>D</td> <td>D</td> <td>U</td> <td>U</td> </tr> <tr> <td>U</td> <td>D</td> <td>U</td> <td>U</td> </tr> <tr> <td>D</td> <td>U</td> <td>U</td> <td>U</td> </tr> <tr> <td>U</td> <td>U</td> <td>U</td> <td>U</td> </tr> </table>								U	U	U	D	D	U	D	U	U	U	D	U	D	D	U	U	U	D	U	U	D	U	U	U	U	U	U	U																				
U									U	U	D																																													
D									U	D	U																																													
U									U	D	U																																													
D									D	U	U																																													
U									D	U	U																																													
D									U	U	U																																													
U									U	U	U																																													
2400																																																								
3600																																																								
4800																																																								
7200																																																								
9600																																																								
19200																																																								

Asynchronous System Options

OPTIONS	SWITCHES							
	1	2	3	4	5	6	7	8
BUFFER OVERFLOW PROTECTION X-OFF DC2* (CNT R) X-ON DC1* (CNT Q) X-OFF DC3* (CNT S) X-ON DC1* (CNT Q) X-OFF CTS OFF (PIN 5) X-ON CTS ON (PIN 5) OPTION DISABLED	U	U						
WARNING MESSAGES (Link Up, Link Down Data Lost) ENABLED* DISABLED			U					D
TERMINAL FLOW CONTROL (Parity must be set at remote end) X-OFF DC2* (CNT R) X-ON DC1* (CNT Q) X-OFF DC3* (CNT S) X-ON DC1* (CNT Q) X-OFF DTR OFF (PIN 20) X-ON DTR ON (PIN 20) OPTION DISABLED				U	U			
PARITY OF OPTIONS MARKED * 7/8 LEVEL 9 LEVEL EVEN EVEN ODD EVEN MARK (1) ODD SPACE (0) ODD						D	D	
FLYBACK BUFFERING (Must be set at both ends) ENABLED DISABLED								U D

Asynchronous Speed, Channels 1 and 2

Note: for channels 1 and 2 to work asynchronously, the last switch for that channel (switch 16) must be UP.

SELECTION			SWITCHES								
			1	2	3	4	5	6	7	8	
CHANNEL SPEEDS											
5 LEVEL	7 LEVEL	8, 9 LEVEL									
50	75	75	D	D	D						
75	300	300	U	D	D						
INVALID	600	600	D	U	D						
110	1200	1200	U	U	D						
150	INVALID	2400	D	D	U						
INVALID	INVALID	4800	U	D	U						
INVALID	INVALID	9600	D	U	U						
CODE LEVEL (Data including parity and stop bits)											
8 LEVEL + 1 STOP					U	D					
9 LEVEL + 1 STOP*					D	U					
5 LEVEL + 1.5 STOP					U	U					
7 LEVEL + 1 STOP					D	D					
* Parity must be set on system options											
SPECIAL CASES											
ABR (up to 2400)			U	U	U	U	D				
110 bps 8 level 2 stop bits			U	U	U	D	U				
DOWN LINE LOAD			U	U	U	U	U				
INVALID			U	U	U	D	D				
SPECIAL FEATURES											
No options enabled								D	D		
HP 3000 HP Protocol assistance (Must be set at both ends)								U	D		
Local echo								D	U		
INVALID								U	U		
Flow control translation disabled									D		
Flow control translation enabled									U		

Speeds, Channels 5-8

SELECTION			SWITCHES									
			1	2	3	4	5	6	7	8		
CHANNEL SPEEDS												
5 LEVEL	7 LEVEL	8, 9 LEVEL										
INVALID	75	75	D	D	D							
75	300	300	U	D	D							
100	600	600	D	U	D							
110	1200	1200	U	U	D							
150	INVALID	2400	D	D	U							
200	INVALID	4800	U	D	U							
INVALID	INVALID	9600	D	U	U							
CODE LEVEL (Data including parity and stop bits)												
8 LEVEL + 1 STOP					U	D						
9 LEVEL + 1 STOP*					D	U						
5 LEVEL + 1.5 STOP					U	U						
7 LEVEL + 1 STOP					D	D						
* Parity must be set on system options												
SPECIAL CASES												
ABR (up to 2400)			U	U	U	U	D					
110 bps 8 level 2 stop bits			U	U	U	D	U					
DOWN LINE LOAD			U	U	U	U	U					
INVALID			U	U	U	D	D					
SPECIAL FEATURES												
No options enabled								D	D			
HP 3000 HP Protocol assistance (Must be set at both ends)								U	D			
Local echo								D	U			
Split Baud Rate								U	U			
Flow control translation disabled										D		
Flow control translation enabled										U		

Synchronous Channels (1 and 2)

OPTION	SWITCHBANK 1		
	1	2	3
CHANNEL SPEED (BPS)			
1200	D	D	D
2400	D	D	U
3600	D	U	D
4800	D	U	U
7200	U	D	D
9600	U	D	U
Invalid	U	U	D
Down Line Load	U	U	U

V24 Control Characters

FUNCTION	DESCRIPTION	SWITCHBANK 1				
		4	5	6	7	8
Force RTS	RTS source = V24 interface (pin 4) RTS assumed 'on' always	D U				
Force DTR	DTR source = V24 interface (pin 20) DTR assumed 'on' always		D U			
DSR Source	DSR source = remote DTR DSR source = local conditioned DTR			D U		
RTS-CTS Delay	0-10 ms delay: CTS type control disabled				D	D
	0-10 ms delay				D	U
	20-30 ms delay				U	D
	160-170 ms delay				U	U

Clock Source Table

DEFINITION (With respect to DCE)	SWITCHBANK 2	
	1	2
Internal TX clock	D	
External TX clock	U	
Internal RX clock		D
External RX Clock		U

IBM BSC Protocol Specific Options

FUNCTION	DESCRIPTION	SWITCHBANK 2					
		3	4	5	6	7	8
Character Code	ASCII EBCDIC	D U					
Maximum Block Length	256 bytes 1024 bytes 4096 bytes Unlimited		D D U U	D U D U			
SYN-stuffing in POLLS	SYN-stuffing in POLLS disabled SYN-stuffing in POLLS enabled				D U		
Parity (ASCII code)	Parity of received and DCX generated characters { ODD EVEN					D U	
Data Type	Synchronous Asynchronous						D U

ICL BSC Protocol Specific Options

FUNCTION	DESCRIPTION	SWITCHBANK 2					
		3	4	5	6	7	8
Spare	--- ---	D U					
Maximum Block Length	256 bytes 1024 bytes 4096 bytes Unlimited		D D U U	D U D U			
Spare	--- ---				D U		
Parity	Parity of received and DCX generated characters { ODD EVEN					D U	
Data Type	Synchronous Asynchronous						D U

Function Thumbwheel

Position	Application	Action (with INITIATE)
0	SYSTEM (0) CHANNEL	Resets the local 817. Resets the selected channel.*
1	CHANNEL	Sets/resets local channel loopback.
2	CHANNEL	Sets/resets remote channel loopback.
3	CHANNEL	Sets/resets validate.
4	SYSTEM (0) or CHANNEL	Displays/clears error codes on LL, RL, VAL lights.
5	SYSTEM (0) CHANNEL	Clears buffer overflow (OVF) light. Display V24 inputs (see table below).
6	SYSTEM (0) CHANNEL	Clears ERR light. Displays V24 outputs (see table below)
7	SYSTEM (0) CHANNEL	Sets/resets composite loopback. Displays V24 clock and data status for synchronous channels (see table below).

* If Channel 3 or 4 is selected see next page

FUNCTION	DEFINITION	INDICATOR LEDS			
		D	C	B	A
5	V24 Controls - input (from DTE)	DRS** Pin 23	BO Pin 25	RTS Pin 4	DTR Pin 20
6	V24 Controls - output (to DTE)	CTS Pin 5	RI Pin 22	CD Pin 8	DSR Pin 6
7	V24 Clock and Data STATUS ***	$\overline{\text{TXC}}$	$\overline{\text{TXD}}$	$\overline{\text{RXC}}$	$\overline{\text{RXD}}$

** Asynchronous Channels only

*** Synchronous Channels only

Synchronous Channel Test Box Functions

Function	Select	Action (with INITIATE)
0	3	Engage/disengage local test box channel 1.
	4	Engage/disengage local test box channel 2.
1	3	Engage/disengage remote test box channel 1.
	4	Engage/disengage remote test box channel 2.
2	3	Inject error into data stream channel 1.
	4	Inject error into data stream channel 2.
3	3	Reset error and block counts for test box channel 1.
	4	Reset error and block counts for test box channel 2.

Test Box Status Indicators

(Select = 3 or 4)

Function	Status	LEDs On	Meaning
0,1	No Test Box engaged	None	No Test Box engaged.
	Either local or remote Test Box engaged	VAL LL RL	Blinks if Test Box engaged from local 817. Blinks if Test Box engaged. Blinks if Remote Test Box engaged.
2	No Test Box engaged	None	No Test Box engaged.
	Either Test Box engaged	LL, RL VAL	Error count. Each block received in error will cause error count to be incremented by one. Count is binary (modulo 8) with LLB = LSB
3	No Test Box engaged	None	No Test Box engaged.
	Either Test Box engaged	LL, RL VAL	Block count. Each block received (valid or invalid) will increment the block count by one. Count is binary (modulo 8) with LLB = LSB

System Errors on Power Up

(Displayed on UT indicator)

0	(flashing)	DIL switches mis-set on asynchronous channel
1	(flashing)	Uart error on asynchronous channel
2	(flashing)	9-bit RAM error
3	(flashing)	DIL switches mis-set on synchronous channel
4	(flashing)	16-bit RAM error
6	(flashing)	Uart error on synchronous channel

System Errors During Running

Function = 4 , Select = 0

Blinking Indicators

Meaning

RL, VAL

Re-initialisation occurred

LL, VAL

Composite link has been down
(UT shows c)

Channel Errors During Running

Function = 4 , Select = 1, 2, 5-8

Blinking Indicators	Error Indicated	Likely Area of Fault
LL, RL	Incompatible speed/code received (speed on remote LSC isn't the same as this one)	Local and remote channel card speed/code mismatch.
LL, VAL, RL	Low speed interrupt failure	Channel not present.
LL, VAL	Overflow of buffer in LSC channel	Inappropriate speed setting. Flow-Control requirements not met.
VAL, RL	Port reset occurred	–
LL	Framing Error (Data received from DTE does not match the characteristics expected)	DTE wrongly set, 817 wrongly set, 817 fault.

Synchronous Channel Errors During Running

Function = 4 , Select = 1 or 2

Blinking Indicators	Error Indicated	Likely Area of Fault
LL, RL	The channel speeds at both ends of the link have been configured differently, or Down-line load has been selected, but channel speed not yet set	Check channel speed option switch settings. Channel speed needs to be down-line loaded. Error indication is cleared automatically when this appears.
LL, VAL	Buffer overflow affecting the selected channel has occurred in the system	Check compatibility of channel speeds.
VAL, RL	Port reset occurred	–
VAL	An asynchronous validate confirm has been received in response to the validate procedure	Check the channel mapping. Synchronous channel can only be mapped to another synchronous channel.
LL	An input block has been prematurely terminated and subsequent characters in the block ignored	Check the maximum block length switch setting. There may be a DTE/DCE to LSC5 interface problem.
RL	During transmission of a block data has not been received from the remote DCX device for a period of 12 seconds	Check the presence of a remote DCX device using validate procedure. Also check synchronous channel interface at remote end.

Notes

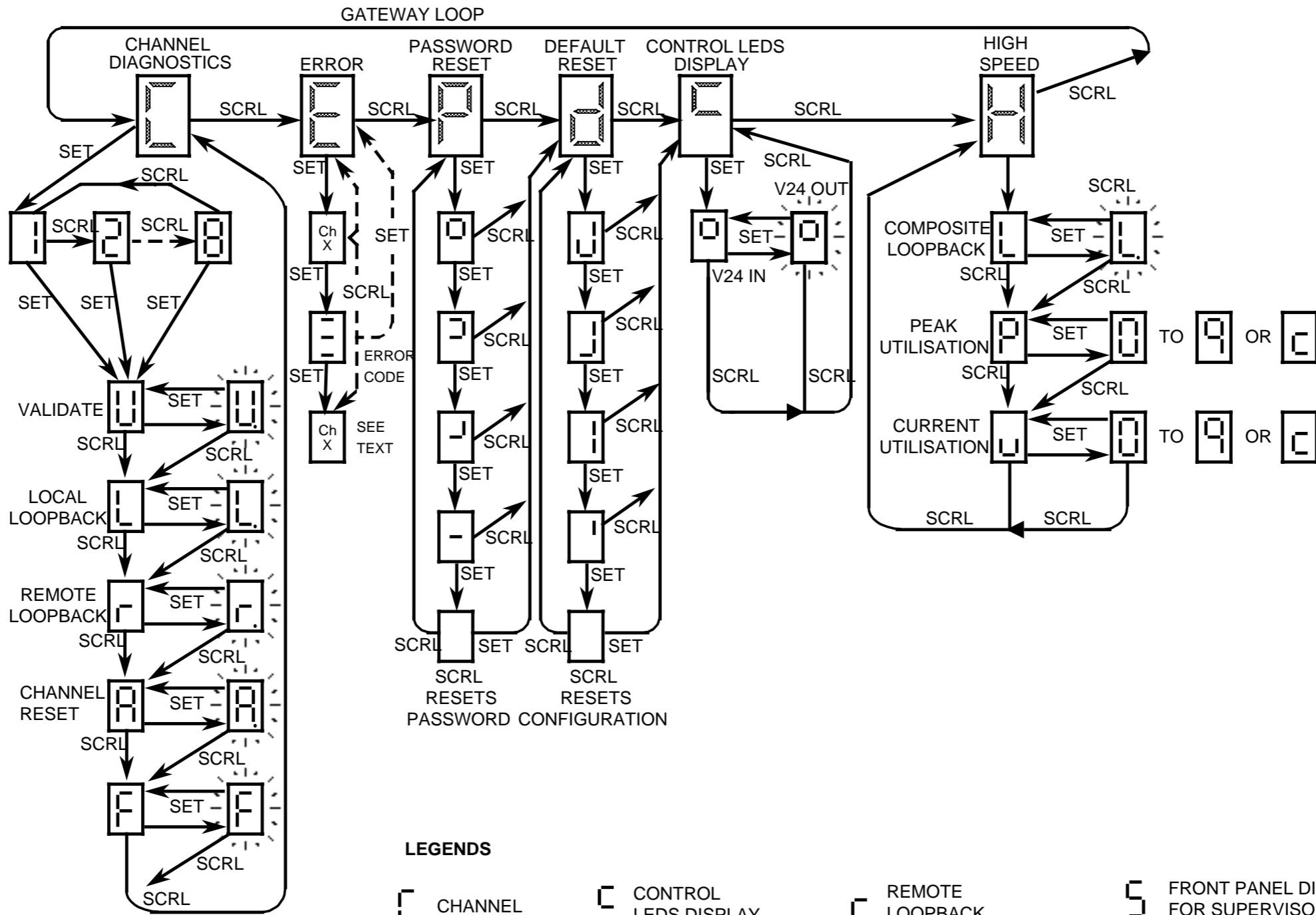
Default user escape character is ^A (Control A).

Default password is **LOGON** (upper or lower case).

Default channel configuration: ABR up to 9600 bps

8+1

DC1/DC3



LEGENDS

[CHANNEL

[ERROR

[PASSWORD RESET

[DEFAULT RESET

[CONTROL LEDS DISPLAY

[HIGH SPEED SECTION

[VALIDATE CHANNEL

[LOOPBACK

[REMOTE LOOPBACK

[ACTIVATE CHAN RESET

[PEAK UTILISATION

[FLASHING - TEST IN PROGRESS

[FRONT PANEL DISABLED FOR SUPERVISOR

[LOOPBACK OR ERROR EXISTS ON CARD

[TEST MESSAGE, OR WITH ALTERNATING ERROR CODE, POWER UP TEST FAILURE

[CURRENT UTILISATION

ERROR CODES

[-] PARITY ERROR

[-] CHANNEL RESET

[-] FRAMING OR OVERRUN ERROR

[-] LSC BUFFER OVERFLOW

[-] DATA LOST

System Options

OPTIONS	SWITCHES							
	1	2	3	4	5	6	7	8
LINK SPEEDS (BPS) 4800 7200 9600 14400 16000 19200	D	U	D					
TX CLOCK SOURCE INT EXT				D				
CH1 DSR SOURCE REMOTE LOCAL					D			
CH2 DSR SOURCE REMOTE LOCAL						D		
CH3 DSR SOURCE REMOTE LOCAL							D	
CH4 DSR SOURCE REMOTE LOCAL								D

Channel Options

CHANNEL OPTIONS	SWITCHES							
	1	2	3	4	5	6	7	8
CHANNEL SPEEDS (BPS) 1200 2400 4800 7200 9600 IDLE*	D	D	D					
PRIORITY * 1 BANDSPLIT 2 CONNECTION				D				
RTS/CTS DELAY* 0-20 35-45 60-70 85-95					D	D		
TX CLOCK SOURCE* EXT INT							D	
CTS GENERATION* UNCONDITIONAL CONDITIONAL								D

* Not used on channel 1.

Error Meanings

NOTE: With the following errors **CUS** will also blink.

Blinking Indicators

Problem	Problem
ACT	Incorrect channel speed.
RL	Incorrect system speed.
RL, ACT	Three Bandsplit channels, sum of all tributary speeds exceeds composite.
LL	Two Bandsplit channels, sum of all tributary speeds exceeds composite.
LL, ACT	Two Contention channels. The attempt to allocate a tributary between the channels failed; either the channel speeds are not equal, or the sum of all tributary speeds exceeds composite.
LL, RL, ACT	Three Contention channels. The attempt to allocate first two then one tributary both failed, as the sum of all tributary speeds exceeds composite.

Thumbwheel Settings

Position	Application	Function
0 (or 8)	SYSTEM	Resets (with Initiate).
1 (or 9)	CHANNELS 2-4	Local Loopback (with Initiate).
2	CHANNELS 2-4	Remote Loopback (with Initiate).
3	–	Unused.
4	SYSTEM	Reset Errors (when Select = 0)
5	CHANNELS	Display V24 inputs.
6	CHANNELS	Display V24 outputs.
7	SYSTEM	Composite loopback (with Initiate).

Notes

CLP Switches

CHANNEL OPTIONS	SWITCHES							
	1	2	3	4	5	6	7	8
825 CLOCK TO MODEM (PIN 24, SWITCHES 4-7 SELECT SPEED) YES NO		U D						
825 TRANSMIT CLOCK SOURCE EXTERNAL (From pin 15) INTERNAL (Switches 4-7 select speed)			D U					
825 INTERNAL CLOCK SPEED 1200 2400 3600 4800 7200 9600 19200				U D U D U D U	U U U D D U U	U D D U U U U	D U U U U U U	

System Errors on Power Up (Displayed on UT indicator)

- 4 (flashing) RAM error.
- 6 (flashing) No connection to any channel processor.

To perform a unit restart on the 825 press RE and RS together.

OLP Composite Switches

CHANNEL OPTIONS	SWITCHES							
	1	2	3	4	5	6	7	8
OLP CLOCK TO MODEM (PIN 24, SWITCHES 4-7 SELECT SPEED) YES NO		U D						
OLP TRANSMIT CLOCK SOURCE EXTERNAL (From pin 15) INTERNAL (Switches 4-7 select speed)			D U					
OLP INTERNAL CLOCK SPEED 1200 2400 3600 4800 7200 9600				U D U D U D	U U U D D U	U D D U U U	D U U U U U	

OLP Errors on Power Up

(Displayed on UT Indicator)

- 2 (flashing) 9-bit RAM error.
- 4 (flashing) 16-bit RAM error.
- 5 (flashing) No communication with composite link processor.

Channel Processor

All switch settings and thumbwheel positions (except 7 which isn't used) are the same as for the 815.

The red **ERR** light will be lit for terminal flow control X-Off with:
Select = **0** for any channel, Select = **1-8** for selected channel.

The red **CLB** light will blink when any channel is in local or remote loopback.

Channel Processor Errors on Power Up

(Displayed on UT indicator)

- 0** (flashing) DIL switch mis-set.
 - 1** (flashing) Uart error.
 - 2** (flashing) 9-bit RAM error.
 - 4** (flashing) 16-bit RAM error.
 - 5** (flashing) No communication with composite link processor.
- ▣ Loopback mode set.

Channel Processor Errors During Running

Function = 4, Select = 1-8

Blinking Indicators	Error Indicated	Likely Area of Fault
LL, RL	Incompatible speed/code received (speed on remote LSC isn't the same as this one)	Local and remote channel card speed/code mismatch.
LL, VAL, RL	Low speed interrupt failure	Channel not present.
LL, VAL	Overflow of buffer in LSC channel	Inappropriate speed setting. Flow-Control requirements not met.
VAL, RL	Port reset occurred	–
LL	Framing error (data received from DTE does not match the characteristics expected)	DTE wrongly set, CP wrongly set, CP fault.
UT Indicator	Error Indicated	
⏏	Communication with composite link processor has failed	

STP Switches

All switch settings are the same as for the 817.

STP System Errors on Power Up

(Displayed on UT indicator)

- 0 (flashing) DIL switches mis-set on asynchronous channel.
- 1 (flashing) UART error on asynchronous channel.
- 2 (flashing) 9-bit RAM error.
- 3 (flashing) DIL switches mis-set on synchronous channel.
- 4 (flashing) 16-bit RAM error.
- 5 (flashing) No communication with composite link processor.
- 6 (flashing) UART error on synchronous channel.

STP Channel Errors Indicators During Running

Function = 4, Select = 1, 2, 5-8

Blinking Indicators	Error Indicated	Likely Area of Fault
LL, RL	Incompatible speed/code received (speed on remote LSC isn't the same as this one)	Local and remote channel card speed/code mismatch.
LL, VAL, RL	Low speed interrupt failure	Channel not present.
LL, VAL	Overflow of buffer in LSC channel	Inappropriate speed setting. Flow-Control requirements not met.
VAL, RL	Port reset occurred	–
LL	Framing error (data received from DTE does not match the characteristics expected)	DTE wrongly set, STP wrongly set, STP fault.

STP Synchronous Channel Errors During Running

Function = 4 , Select = 1 or 2

Blinking Indicators	Error Indicated	Likely Area of Fault
LL, RL	The channel speeds at both ends of the link have been configured differently, or Down-line load has been selected, but channel speed not yet set	Check channel speed option switch settings. Channel speed needs to be down-line loaded. Error indication is cleared automatically when this appears.
LL, VAL	Buffer overflow affecting the selected channel has occurred in the system	Check compatibility of channel speeds.
VAL, RL	Port reset occurred	–
VAL	An asynchronous validate confirm has been received in response to the validate procedure	Check the channel mapping. Synchronous channel can only be mapped to another synchronous channel.
LL	An input block has been prematurely terminated and subsequent characters in the block ignored	Check the maximum block length switch setting. There may be a DTE/DCE to STP interface problem.
RL	During transmission of a block data has not been received from the remote DCX device for a period of 12 seconds	Check the presence of a remote DCX device using validate procedure. Also check synchronous channel interface at remote end.

Front Panel Indicators

LED	On	Flashing
GREEN	All active links up	One or more active links down
YELLOW	Loopback present	System error (over-rides loop indicator)
RED	Failed power-up self-test (with GREEN and YELLOW flashing alternately, no IOM fitted)	One or more links or maps has default configuration

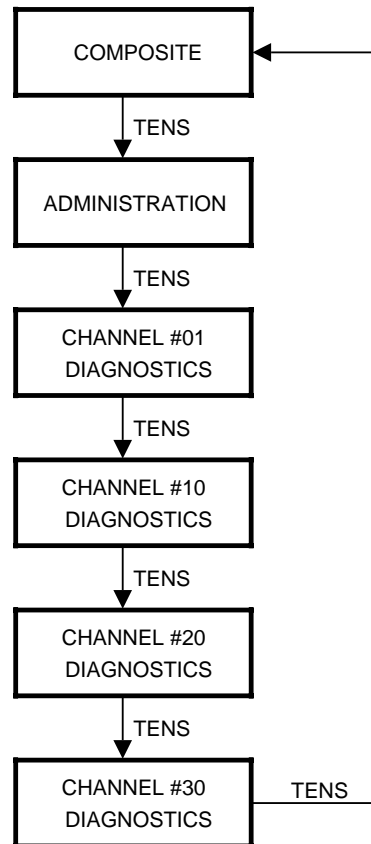
Supervisor Access

Local via supervisor port: (ABR up to 9600 bps) **<CR>GO**
(upper case)

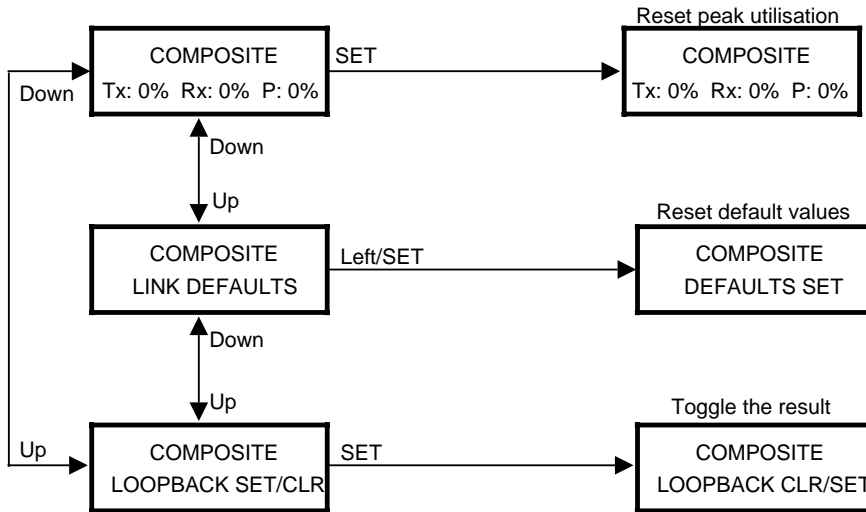
Remote via last channel: **LOGON<SP>844**
(upper case)

Notes

Rotation of Global Loop

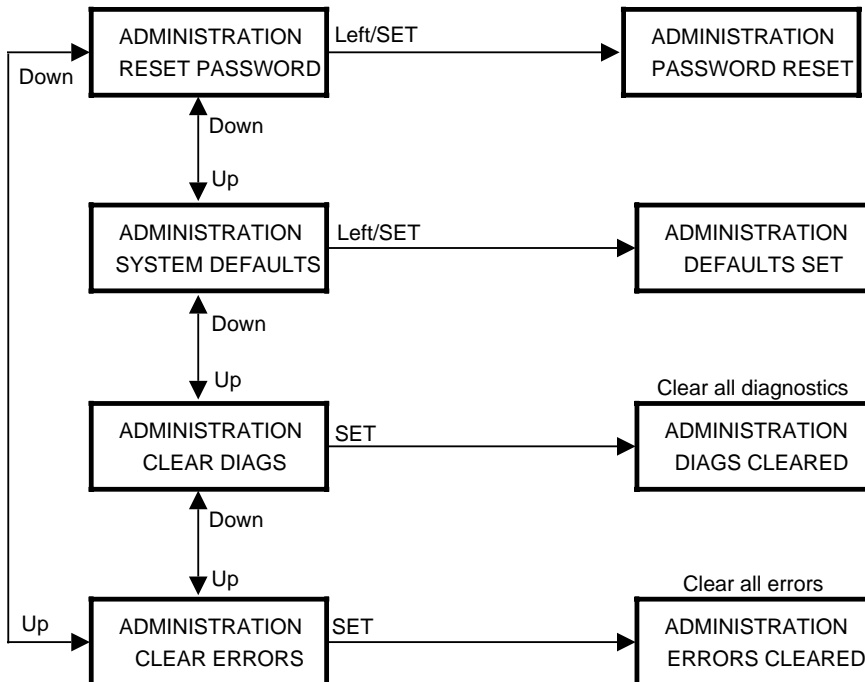


Rotation of Composite Loop



Use Left arrow to reduce characters of 'DEFAULTS SET'. When all characters are gone press SET. Press TENS button at any point and display will jump to next global state.

Rotation of Administration Loop

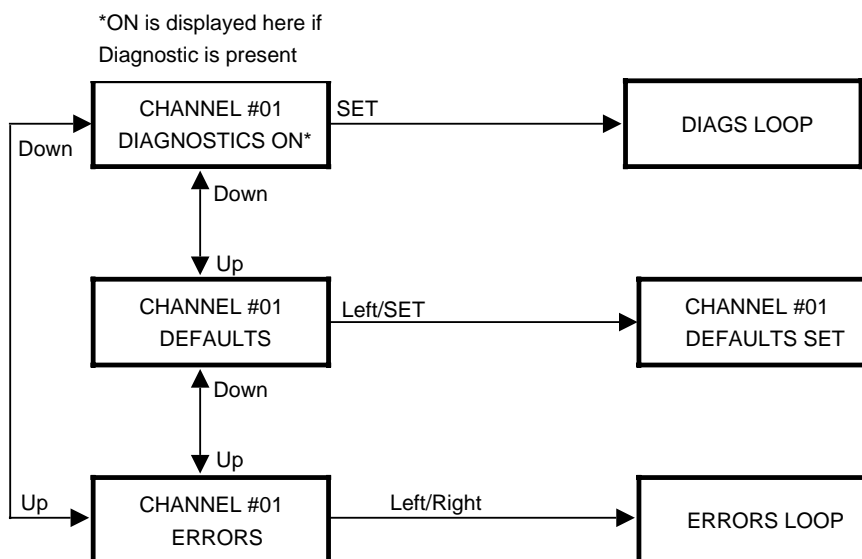


CLEAR DIAGNOSTICS and CLEAR ERRORS are only displayed if they exist on a channel.

Use Left arrow to reduce characters of 'RESET PASSWORD' and 'SYSTEM DEFAULTS'. When all characters are gone press SET.

Press the tens button at any point and the display will jump to the next global state.

Rotation of Channel Loop

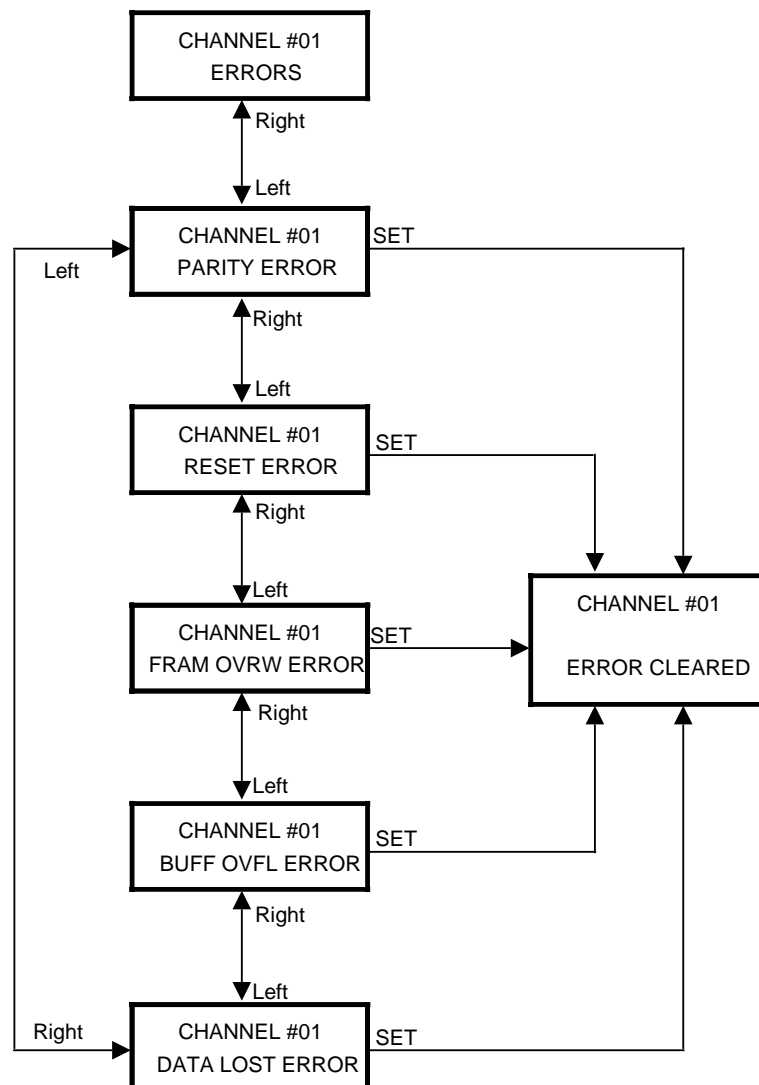


DIAGNOSTICS ON and CHANNEL ERRORS are only displayed if they exist on the selected channel.

Press the ONES button and the display will jump to the next channel in the same state.

Press TENS button and the display will jump to channels 10, 20 or 30 in the same state. When the display reaches the top channel range, pressing the TENS button will access the next global state.

Rotation of Errors Loop

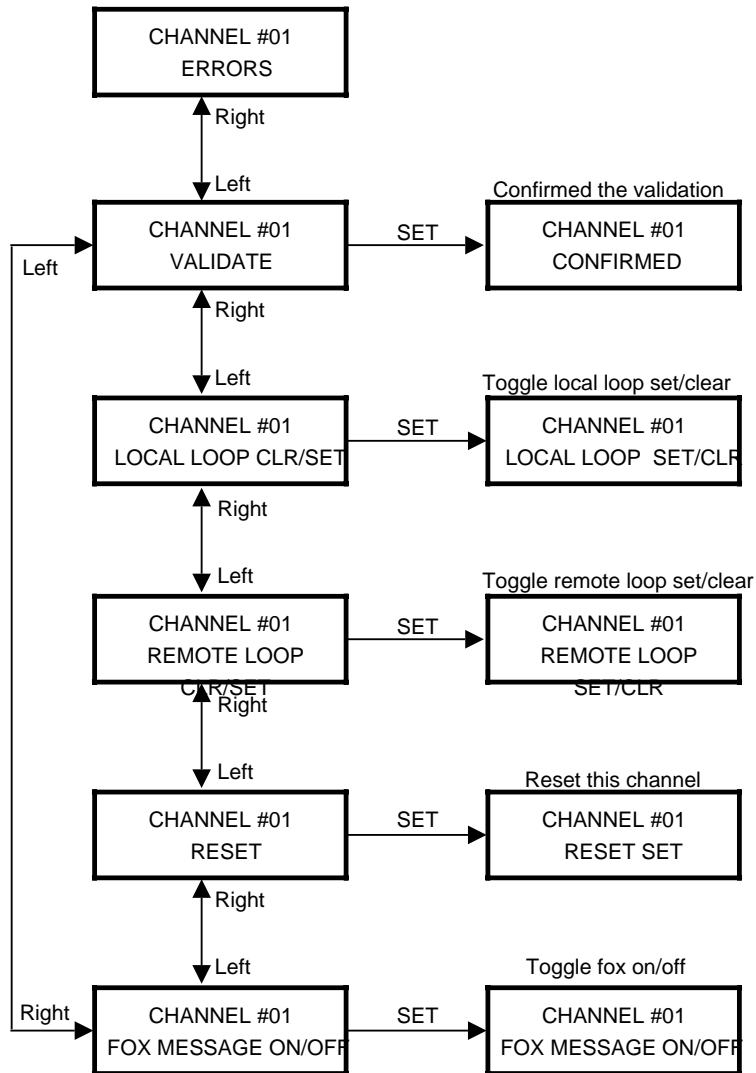


Press ONES button at any point and the display will jump to the next channel in the same state.

Press TENS button at any point and the display will jump to channels 10, 20 or 30 in the same state. When the display reaches the top channel range, pressing the TENS button will access the next global state.

Press the Up/Down arrow at any point to access the next function in the Channel Loop for the selected channel.

Rotation of Diagnostics Loop



Press ONES button at any point and the display will jump to the next channel in the same state.

Press TENS button at any point and the display will jump to channels 10, 20 or 30 in the same state. When the display reaches the top channel range, pressing the TENS button will access the next global state.

Press the Up/Down arrow at any point to access the next function in the Channel Loop for the selected channel.

Notes

Default user escape character is ^A (Control A).

Default password is **LOGON** (upper or lower case).

Default channel configuration: ABR up to 9600 bps
8+1
DC1/DC3

LSC1, 2, 3, 3A, 4, 4A, 6, SC1 & 2

Thumbwheel Switch

POSITION	FRONT DISPLAYS INFO FOR CHANNEL	FUNCTION SELECTED WHEN R/S BUTTON IS PUSHED
0	1	Validates remote channel
1	1	Local loopback
2	1	Remote loopback
3	1	Port reset/error clear
4	2	Validates remote channel
5	2	Local loopback
6	2	Remote loopback
7	2	Port reset/error clear
8	3	Validates remote channel
9	3	Local loopback
10	3	Remote loopback
11	3	Port reset/error clear
12	4	Validates remote channel
13	4	Local loopback
14	4	Remote loopback
15	4	Port reset/error clear

LSC1, 2, 3, 3A, 4, 4A & 6

Initialisation Error Indicators (On Power Up)

Thumbwheel in any position.

FLASHING INDICATORS	MEANING	RECOMMENDED ACTION
LLB, VAL, RLB	Illegal switch setting	Check switches on LSC for valid speed/feature settings
LLB, VAL	The UART for one (or more) channels is not functioning correctly	Reset card. If fault persists then card is faulty and needs replacing
LLB, RLB	9-bit buffer RAM failure	”
VAL, RLB	16-bit RAM failure	”

Error Indicators (During Running)

Thumbwheel Positions 3, 7, 11 and 15.

FLASHING INDICATORS	ERROR INDICATED	LIKELY AREA OF FAULT
LLB, RLB	Incompatible speed/code received (speed on remote LSC isn't the same as this one)	Local and remote channel card speed/code mismatch
LLB, VAL, RLB	Low speed interrupt failure	LSC card
LLB, VAL	Overflow of buffer in LSC channel	Inappropriate speed setting. Flow-control requirements not met
VAL, RLB	Port reset occurred	
LLB	Framing error (data received from DTE does not match the characteristics expected). Parity error (LSC3A, 4A with 9-level code)	DTE wrongly set LSC wrongly set LSC fault
LB (Flashing) (LSC4(A) only)	LSC4(A) buffer in overload state	

Channel Options

SPEED (bps)	DATA BITS	STOP BITS	SWITCHES			
			1	2	3	4
50	5	1.5	C	o	o	o
75	5	1.5	o	C	o	o
75	8	1	C	C	o	o
100	5	1.5	o	o	C	o
100	8	1	C	o	C	o
110	8	2	o	C	C	o
134.5	7	1	C	C	C	o
150	8	1	o	o	o	C
200	5	1.5	C	o	o	C
200	8	2	o	C	o	C
300	8	1	C	C	o	C
600	8	1	o	o	C	C
1200	8	1	C	o	C	C
DOWN LINE LOAD			o	o	o	o
Split Baud Rate Input: 75 bps (Output down line load)	8	1	o	C	C	C
Split Baud Rate Input: 1200 bps (Output down line load)	8	1	C	C	C	C

System Options

	OPTIONS	SWITCHES			
		1	2	3	4
Buffer Overflow Protection	X-OFF CTS OFF (Pin 5)	o	C		
	X-ON CTS ON (Pin 5) Option disabled	C	C		
Terminal Flow Control	X-OFF DTR OFF (Pin 20)			o	C
	X-ON DTR ON (Pin 20) Option disabled			C	C

LSC2

Channel Options

SPEED UP TO 2000 BPS		SWITCHES							
		1	2	3	4	5	6	7	8
50		C	C	C	C				
75		o	C	C	C				
110		o	o	C	C				
134.5		C	C	o	C				
150		o	C	o	C				
300		o	o	o	C				
600		C	C	C	o				
1200		o	C	C	o				
1800		C	o	C	o				
2000		o	o	C	o				
Code	5+1.5					C	C	C	
Data bits	7+1					o	C	C	
Stop Bits	7+2					C	o	C	
	8+1					o	o	C	
	8+2					o	o	o	

Composite Options

SPEED FROM 2400 – 9600 BPS		SWITCHES							
		1	2	3	4	5	6	7	8
2400		C	C	o	o	C			
3600		C	C	o	o	o			
4800		o	C	o	o	C			
7200		o	C	o	o	o			
9600		C	o	o	o	C			
Code	8+1					C	C		
Data bits	8+2					C	o		
Stop Bits									
ABR (up to 2400)		o	o	o	o	o	C	C	C

Channel Options

OPTIONS	SWITCHES							
	1	2	3	4	5	6	7	8
SPEEDS UP TO 2000 BPS 50* 75 100 110 134.5 150 200 300 600 1200 1800 2000	C o C o C o C o C C o C C o o	C C o o C C o o C C C C o o o	C C C C o o o o C C C C o o C	C C C C C C C C C C o o o o o				
Code Level (Data bits including parity and stop bits) 5+1.5 7+1 7+2 8+1 8+2					C o C o o o	C C o o o o	C C C C o o	
Speeds from 2400 – 9600 2400 3600 4800 7200 9600	C C o o C	C C C C o	o o o o o	o o o o C				
Code Level (Data bits including parity and stop bits) 8+1 8+2							C C C o	
Split Baud Rate Enabled Disabled								o C
Down Line Load		o	o	o	o	o	o	o
ABR (up to 2400)*		o	o	o	o	o	C	C

*not available on LSC4

LSC3 & 4

System Options

OPTION	SWITCHES							
	1	2	3	4	5	6	7	8
Buffer Overflow Protection X-OFF DC2* (CNT R) X-ON DC1* (CNT Q) X-OFF DC3* (CNT S) X-ON DC1* (CNT Q) X-OFF CTS OFF (Pin 5) X-ON CTS ON (Pin 5) Option disabled		o o						
		C o						
		o C						
		C C						
Warning Messages (Link Up, Link Down, Data Lost) Enabled* Disabled			o C					
Terminal Flow Control (Parity must be set at remote end) X-OFF DC2* (CNT R) X-ON DC1* (CNT Q) X-OFF DC3* (CNT S) X-ON DC1* (CNT Q) X-OFF DTR OFF (Pin 20) X-ON DTR ON (Pin 20) Option disabled				o o				
				C o				
				o C				
				C C				
Parity of Options Marked* Even Odd Mark (1) Space (0)						C C o C C o o o		
Flyback Buffering (Must be set at both ends) Enabled Disabled								o C

LSC3A

System Options

OPTION	SWITCHES							
	1	2	3	4	5	6	7	8
Buffer Overflow Protection X-OFF DC2* (CNT R) X-ON DC1* (CNT Q) X-OFF DC3* (CNT S) X-ON DC1* (CNT Q) X-OFF CTS OFF (Pin 5) X-ON CTS ON (Pin 5) Option disabled								
Warning Messages (Link Up, Link Down, Data Lost) Enabled* Disabled								
Terminal Flow Control (Parity must be set at remote end) X-OFF DC2* (CNT R) X-ON DC1* (CNT Q) X-OFF DC3* (CNT S) X-ON DC1* (CNT Q) X-OFF DTR OFF (Pin 20) X-ON DTR ON (Pin 20) Option disabled								
Parity of Options Marked* 7/8 Level 9 Level Even Even Odd Even Mark (1) Odd Space (0) Odd								
Flyback Buffering (Must be set at both ends) Enabled Disabled								

Channel Options (per 2 channels)

SPEED/CODE SELECTION	SWITCHBANK J5				
	CHANNELS 1 & 2	1	2	3	4
	CHANNELS 3 & 4	5	6	7	8
75 SBR (input speed = 75) 8+1		C	C	C	C
1200 SBR (input speed = 1200) 8+1		C	C	C	o
110 8+2		C	C	o	C
300 8+1		C	C	o	o
600 8+1		C	o	C	C
1200 8+1		C	o	C	o
2400 8+1		C	o	o	C
4800 8+1		C	o	o	o
9600 8+1		o	C	C	C
300 9+1		o	C	C	o
600 9+1		o	C	o	C
1200 9+1*		o	C	o	o
2400 9+1*		o	o	C	C
4800 9+1*		o	o	C	o
9600 9+1*		o	o	o	C
Down Line Load		o	o	o	o

*Parity must be set on system options

LSC4A

System Options (per 2 channels)

OPTION	SWITCHBANK G2 & J2							
	1	2	3	4	5	6	7	8
Buffer Overflow Protection Disabled X-OFF CTS OFF (Pin 5) X-ON CTS ON (Pin 5) X-OFF DC3* (CNT S) X-ON DC1* (CNT Q) X-OFF DC2* (CNT R) X-ON DC1* (CNT Q)	C	C						
Terminal Flow Control (Parity must be set at remote end) Disabled X-OFF DTR OFF (Pin 20) X-ON DTR ON (Pin 20) X-OFF DC3* (CNT S) X-ON DC1* (CNT Q) X-OFF DC2* (CNT R) X-ON DC1* (CNT Q)			C	C				
Protocol Assistance Disabled HP 3000 (must be set at both ends) Tandem Wang 2200					C	C		
Flow Control Translation Disabled Enabled							C	
Local Echo Disabled Enabled								C

* See next page

USO Connect/Disconnect Characters

OPTION		SWITCHBANK H2 & K2			
		5	6	7	8
USO CONNECT/DISCONNECT CHARACTER CODE					
DLE	CONTROL P	C	C	C	C
DC1	CONTROL Q	C	C	C	o
DC2	CONTROL R	C	C	o	C
DC3	CONTROL S	C	C	o	o
DC4	CONTROL T	C	o	C	C
NAK	CONTROL U	C	o	C	o
SYN	CONTROL V	C	o	o	C
ETB	CONTROL W	C	o	o	o
CAN	CONTROL X	o	C	C	C
EOM	CONTROL Y	o	C	C	o
SUB	CONTROL Z	o	C	o	C
ESC	CONTROL [	o	C	o	o
FS	CONTROL \	o	o	C	C
GS	CONTROL]	o	o	C	o
RS	CONTROL	o	o	o	C

Note: If any of the above are used, a Connection/Disconnection event of 5 must be used in the USO port configuration.

Thumbwheel Selector Switch Settings

THUMBWHEEL SETTING	SELECTED CHANNEL	SELECTED FUNCTION
0	1	Validate remote channel
1	1	Local loopback
2	1	Remote loopback
3	1	Error monitor/reset . Port reset
4	1	Local test box
5	1	Remote test box
6	1	Inject error. Display error count
7	1	Reset test status. Display block count
8	2	Validate remote channel
9	2	Local loopback
10	2	Remote loopback
11	2	Error monitor/reset . Port reset
12	2	Local test box
13	2	Remote test box
14	2	Inject error. Display error count
15	2	Reset test status. Display block count

Initialisation Error Codes (on power up)

Thumbwheel in any position.

FLASHING INDICATORS	MEANING	RECOMMENDED ACTION
LL	DIL switch setting found to be incorrect for one or both channels	Check DIL switch settings, particularly channel speeds
RL	The USART for one or both channels is not functioning correctly	Reset card. If fault persists then card is faulty and needs replacing
LL, RL	9-bit RAM failure	”
VAL, RL	16-bit RAM failure	”

Error Indicators (during running)

Thumbwheel Positions 3 and 11

FLASHING INDICATORS	MEANING	RECOMMENDED ACTION
LL, RL	The channel speeds at both ends of the link have been configured differently, or down line load has been selected, but channel speed not yet set	Check channel speed option switch settings Channel speed needs to be down line loaded. Error indication is automatically cleared when this appears
LL, VAL	Buffer overflow affecting the selected channel has occurred in the system	Check compatibility of channel speeds
VAL, RL	Port reset occurred	
VAL	An asynchronous validate confirm has been received in response to the validate procedure	Check the channel mapping. A synchronous channel can only be mapped to another synchronous channel
LL	Input block has been prematurely terminated and subsequent characters in the block ignored	Check the maximum block length switch setting. There may be a DTE/DCE to LSC5 interface problem
RL	During transmission of a block data has not been received from the remote DCX device for a period of 12 seconds	Check the presence of a remote DCX device using validate procedure. Also check synchronous channel interface at remote end

Diagnostic Indicators

THUMBWHEEL POSITIONS	STATUS	LEDS ON	MEANING
4, 15, 12, 13	No test box engaged	None	No test box engaged
	Either local or remote test box engaged	VAL	Blinks if text box engaged from local LSC5
		LLB	Blinks if local text box engaged
		RLB	Blinks if remote text box engaged
6, 14	No test box engaged	None	No test box engaged
	Either test box engaged	LLB, RLB, VAL	Error count. Each block received in error will cause error count to be incremented by one. Count is binary (modulo 8) with LLB=least significant bit (LSB)
7, 15	No test box engaged	None	No test box engaged
	Either test box engaged	LLB, RLB, VAL	Block count. Each block received (valid or invalid) will increment the block count by one. Count is binary (modulo 8) with LLB=LSB

LSC5

Straps

LINK	FACTORY FITTING	COMMENT	
1	64K <div style="display: flex; justify-content: space-around; width: 100px;"> • • </div>	32K •	All links are shown with the LSC5 orientation given
2	<div style="display: flex; justify-content: space-around; width: 100px;"> • • </div>	•	
3	16K •	4K <div style="display: flex; justify-content: space-around; width: 100px;"> • • </div>	
4	•	<div style="display: flex; justify-content: space-around; width: 100px;"> • • </div>	
6	16K •	4K <div style="display: flex; justify-content: space-around; width: 100px;"> • • </div>	

BUFFER	CASE PART NO	LINK 5 POSITION
BUF1 LEVEL 11 BUF1 LEVEL 12 BUF2 LEVEL 11	X840-601211 X840-601212 X840-602711	BUF1 <div style="display: flex; justify-content: space-around; width: 100px;"> • • </div>
BUF2 LEVEL 12 BUF3	X840-602712 X840-602722	BUF1 •
		BUF3 <div style="display: flex; justify-content: space-around; width: 100px;"> • • </div>

Channel Speed Selection

CHANNEL SPEED (bps)	SWITCHBANK K3 & K5		
	1	2	3
1200	C	C	C
2400	C	C	o
3600	C	o	C
4800	C	o	o
7200	o	C	C
9600	o	C	o
Invalid	o	o	C
Down Line Load	o	o	o

Switch Settings

V24 Control Characters

FUNCTION	OPTIONS	SWITCHBANK K3 & K5				
		4	5	6	7	8
Force RTS	RTS source=V24 interface (pin 4) RTS assumed ON always	C				
Force DTR	DTR source=V24 interface (pin 20) DTR assumed ON always		C			
DSR Source	DSR source=remote DTR DSR source=local condition DTR			C		
RTS-CTS delay	0-10ms delay CTS type control disabled				C	C
	0-10 ms delay) CTS type				C	o
	20-30 ms delay) control				o	C
	160-170 ms delay) enabled				o	o

Clock Source

DEFINITION (with respect to DCE)	SWITCHBANK K4 & K6	
	1	2
Internal TX clock External TX clock	C	o
Internal RX clock External RX clock	C	o

LSC5

IBM BSC Protocol-Specific Options

Software Issues 1 - 5

FUNCTION	OPTIONS	SWITCHBANK K4 & K6					
		3	4	5	6	7	8
Character Code	ASCII EBCDIC	C					
Maximum Block Length	256 bytes		C	C			
	1024 bytes		C	o			
	4096 bytes		o	C			
	Unlimited		o	o			
SYN-stuffing in POLLS	SYN-stuffing in POLLS disabled				C		
	SYN-stuffing in POLLS enabled				o		
Parity (ASCII code)	Parity of received and DCX generated characters					C	
	ODD EVEN					o	
Spare	----- -----						C o

Software Issue 6 and above

FUNCTION	OPTIONS	SWITCHBANK K4 & K6					
		3	4	5	6	7	8
Character Code	ASCII EBCDIC	C					
Maximum Block Length	4096 bytes		C				
	Unlimited		o				
Half Duplex Assistance	Disabled			C			
	Enabled			o			
SYN-stuffing in POLLS	SYN-stuffing in POLLS disabled				C		
	SYN-stuffing in POLLS enabled				o		
Parity (ASCII code)	Parity of received and DCX generated characters					C	
	ODD EVEN					o	
Connection Type	Non-modem connection						C
	Modem connection						o

CDC UT200 BSC Protocol-Specific Options

FUNCTION	OPTIONS	SWITCHBANK K4 & K6								
		3	4	5	6	7	8			
Spare	----- -----	C								
		o								
Maximum Block Length	256 bytes		C	C						
	1024 bytes		C	o						
	4096 bytes		o	C						
	Unlimited		o	o						
Half Duplex Assistance	Disabled					C				
	Enabled					o				
Parity	Parity of received and DCX generated characters	ODD						C		
		EVEN						o		
Connection Type	Non-modem connection								C	
	Modem connection								o	

ICL BSC Protocol-Specific Options

FUNCTION	OPTIONS	SWITCHBANK K4 & K6								
		3	4	5	6	7	8			
Spare	----- -----	C								
		o								
Maximum Block Length	256 bytes		C	C						
	1024 bytes		C	o						
	4096 bytes		o	C						
	Unlimited		o	o						
*Half Duplex Assistance	Disabled					C				
	Enabled					o				
Parity	Parity of received and DCX generated characters	ODD						C		
		EVEN						o		
Connection Type	Non-modem connection								C	
	Modem connection								o	

*Only available on ICL software issue 7 and above

Notes

Channel Options

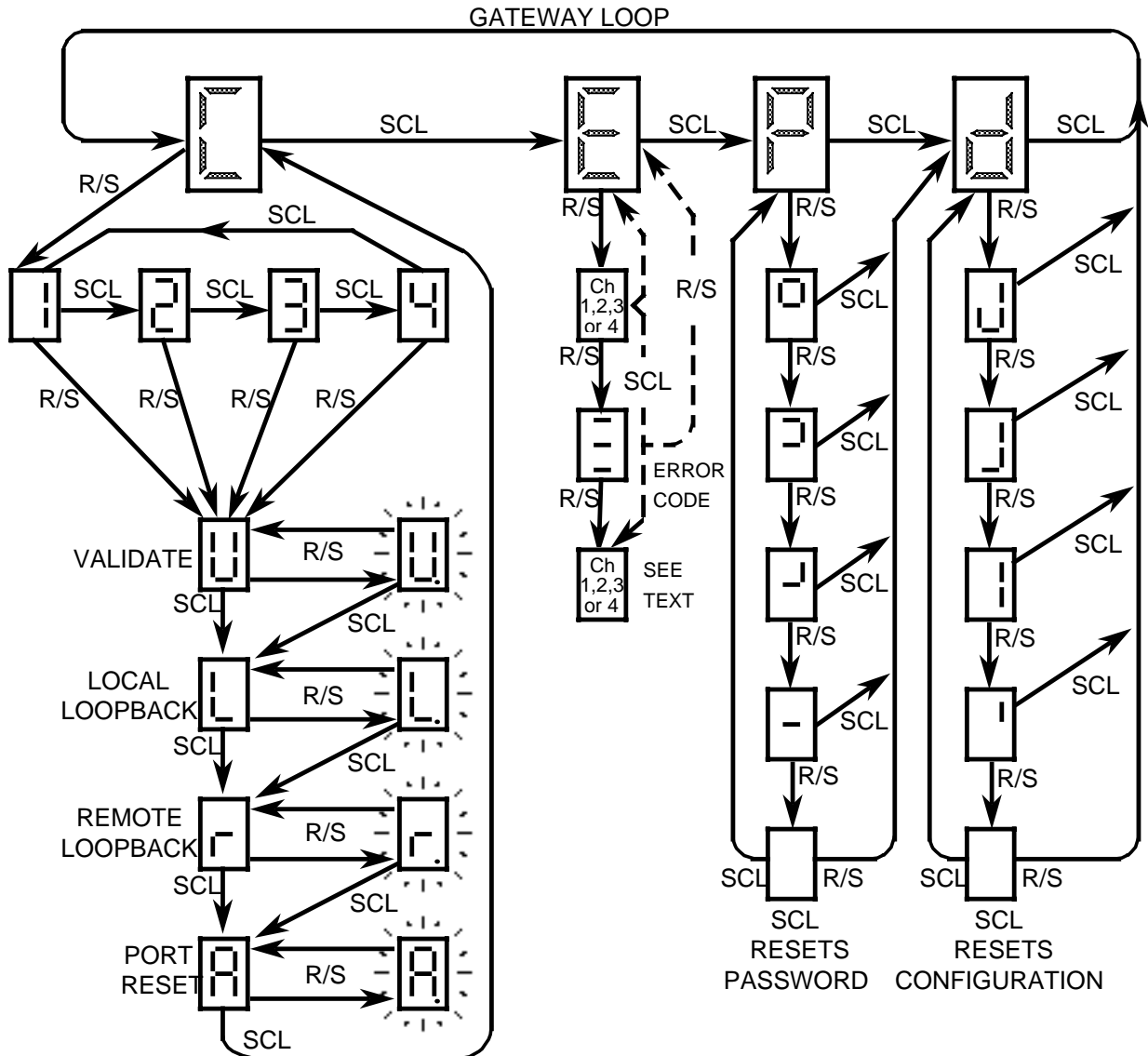
FEATURE	OPTIONS		SWITCHES								
			1	2	3	4	5	6	7	8	
SPEED	50		C	C	C						
	50 (Quarter)		C	C	o						
	50 (Half)		C	o	C						
	75		C	o	o						
	100		o	C	C						
	110		o	C	o						
	200		o	o	C						
	300		o	o	o						
MODE	Half-Duplex					C					
	Full-Duplex					o					
3-WIRE CIRCUIT	Translation Disable						C				
	Translation Enable						o				
USO DISCONNECT ON DATA CHARACTER	Sequence		Disable					C			
	<FIGS><FIGS>		Enable					o			
	Sequence		Disable						C		
	NNNN		Enable						o		
	Line		Disable							C	
	Activity		Enable							o	

LSC6

System Options

FEATURE	OPTIONS	SWITCHES							
		1	2	3	4	5	6	7	8
ASCII/BAUDOT TRANSLATION	Disable Enable	C o							
VARIATION	UK INTERNATIONAL	C o							
CTS BOP	Disable Enable		C o						
WARNING MESSAGES	Disable Enable			C o					
DTR T.F.C.	Disable Enable				C o				
FLYBACK BUFFERING	Disable Enable					C o			
SPARE								o o	

Front Panel Operation



LEGENDS

	CHANNEL		VALIDATE CHANNEL		FLASHING - TEST IN PROGRESS (CHANNEL TESTS ONLY)
	ERROR		LOCAL LOOPBACK		FRONT PANEL DISABLED FOR SUPERVISOR
	PASSWORD RESET		REMOTE LOOPBACK		LOOPBACK OR ERROR EXISTS ON CARD
	DEFAULT RESET		ACTIVATE PORT RESET		FAULT CONDITION EXISTS

ERROR CODES

	PARITY ERROR
	PORT RESET
	FRAMING OR OVERRUN ERROR
	LSC BUFFER OVERFLOW
	REMOTE DATA LOSS

SC1, 2

Diagnostic Fault Codes

If the SC module fails its power-up diagnostics, the letter F is displayed, alternating with a fault code on the front panel seven-segment display. The table below explains each fault code, and any possible remedial action.

Note that in all cases the SC module should be reset to run the power-up diagnostics again.

FAULT CODE	CAUSE	ACTION
1	EPROM Checksum incorrect	Replace the EPROMs A38 and A39
2	NOVRAM fault	Fatal error, reset and try again
3	RAM fault	Fatal error, reset and try again
4	AMD bus fault	SC module will automatically reset and retry. If SC module is in an expansion frame, check the BEM/BTM or QEM/RES connection.
5	DUART loopback fault	Fatal error, reset and try again
6	DUART 1 timer fault	Fatal error, reset and try again
7	DUART 2 timer fault	Fatal error, reset and try again

Notes

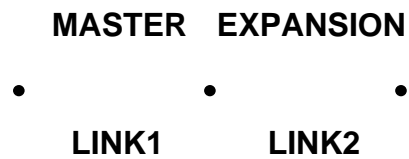
Default user escape character is ^A (Control A).

Default password is LOGON (upper or lower case).

Default channel configuration: ABR up to 9600 bps
 8+1
 DC1/DC3

Links

The link at the top right-hand corner of the board selects whether the buffer is to be fitted in a master frame or an expansion frame.



BAT, QEM

BAT Switches

SC2 POLLING RATE			
	NORMAL	DOUBLE	QUAD*
SW3.1	closed	closed	open
SW3.1	closed	open	don't care

* Quad polling is reserved for future use.

QEM Switches

	DISTRIBUTION 0 (full frame)	DISTRIBUTION 0 (half frame)	DISTRIBUTION 0 (quarter frame)
SW3.1	closed	open	don't care
SW3.1	closed	closed	open

Error Codes, Operator-Type Errors

To clear, press Clear button twice.

Code	Error
10	Illegal key at System level.
12	Illegal key at System level.
13	Illegal key at Device level.
14	Illegal key at Device level.
15	Illegal key at Device level.
16	Illegal key at Device print.
17	Illegal key at Channel print.
19	Invalid attempt to modify log-in sequence.
20	Illegal key at Channel level.
22	Illegal key at Channel level.
23	Illegal key at Channel level.
41	Illegal Base or Size for current system.
42	Attempt to overlap when entering Base or Size.
43	Action forbidden on Active map.
44	Action forbidden on Non-Active map.
45	Channel in Selected Field doesn't exist.
46	Channel in Data Field doesn't exist.
47	Speed not available on this channel.
48	Invalid speed code.
82	USO has reserved this channel, function not available.
83	USO reserving channels, try again.
85	Not available when USO running.
99	Entered number too large.

Error Codes, Internal-Type Errors

To clear, press **Clear** button twice.
In some cases = **Enable** may also be needed.

Code	Error
50	Unable to read or verify Active or Edit values.
51	At System level: hardware not set to required Active, or map not turned on by software. At other levels: edit map number lost.
52	Unable to verify Base/Size values (overlap or out of range).
53	Base/Size values which were entered did not get into the memory (a possible channel map corruption).
54	Asymmetrical map of a channel. *(A running USO will suppress this error on its reserved channels.)
55	Number in map is not a channel.
60	Device reported as missing or non-operational.
61	Device alarm.
71	Text box already in use.
81	USO did not obey Run/Halt command.
84	Check again (USO and STC clashed when accessing map).
98	Check-sum error in Load (faulty tape or communications) or Dump.

Links

The link at the top right-hand corner of the board selects the number of BUFs and BEMs in the master frame.

Number of BUFs and BEMs	LINK2	LINK3
1	AC	AB
2	AB	AC
3	AB	AB
4	AC	AC

The link to the right of the battery enables or disables battery back-up:

- **Enabled**
- **Disabled**
-

NOTE: STC port works at 300 bps, 8 data, 1 stop, even parity (test pattern is space parity).

Notes

Indicators

ERR	Composite link error rate monitor. Illuminated when the errors exceed approximately 1 in 100,000 (10^5). Reset by RE button.
DL1	Diagnostic use only (ARQ4).
DL2	Diagnostic use only (ARQ4).
$\overline{\text{CTS}}$	Clear To Send. When lit indicates modem not ready to accept data from the DCX (ARQ1).
$\overline{\text{DSR}}$	Data Set Ready. When lit indicates modem disconnected or switched off (ARQ1).
$\overline{\text{LSD}}$	Line Signal Detector. When lit indicates loss of carrier from modem (ARQ1).
EW	Extended Window. Lit when 64-frame window selected (ARQ1 and 4).
DL3	Diagnostic use only (ARQ4).
DL4	Diagnostic use only (ARQ4).
CLB	Composite Loopback indicator. Lit while in composite loopback.
$\overline{\text{RXC}}$	Receive Clock. When lit indicates loss of modem receive clock.
$\overline{\text{RXD}}$	Receive Data. When lit indicates loss of modem receive data.
$\overline{\text{TXC}}$	Transmit Clock. When lit indicates loss of modem transmit clock or internal clock.
$\overline{\text{TXD}}$	Transmit Data. When lit indicates loss of DCX transmit data. (ARQ fault).
EF	Diagnostic use only (ARQ4).
X	Link failure.
OK (OKY)	Lit under normal operating conditions.

Buttons

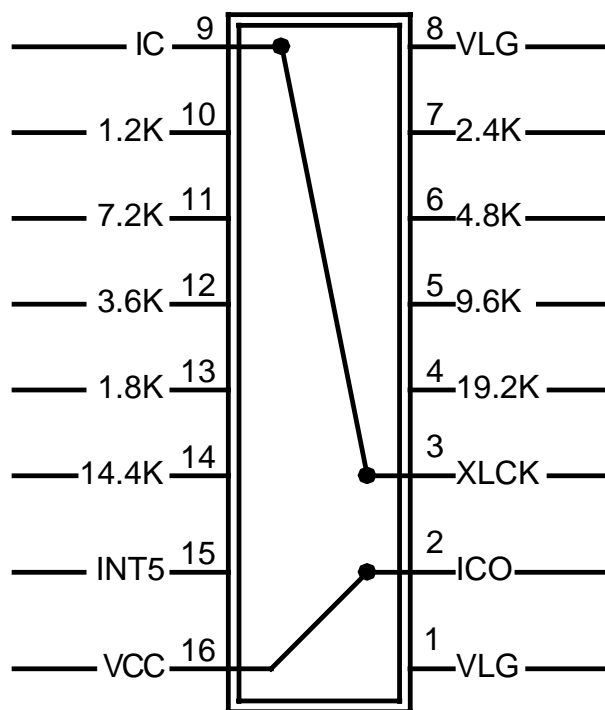
CL	Pushbutton (latching). Composite Loopback: OUT – normal IN – loopback
RE	Pushbutton (momentary). Resets ERR indicator.
UT	Pushbutton (latching). Utilisation Indicator: OUT – peak IN – current

Error Indications

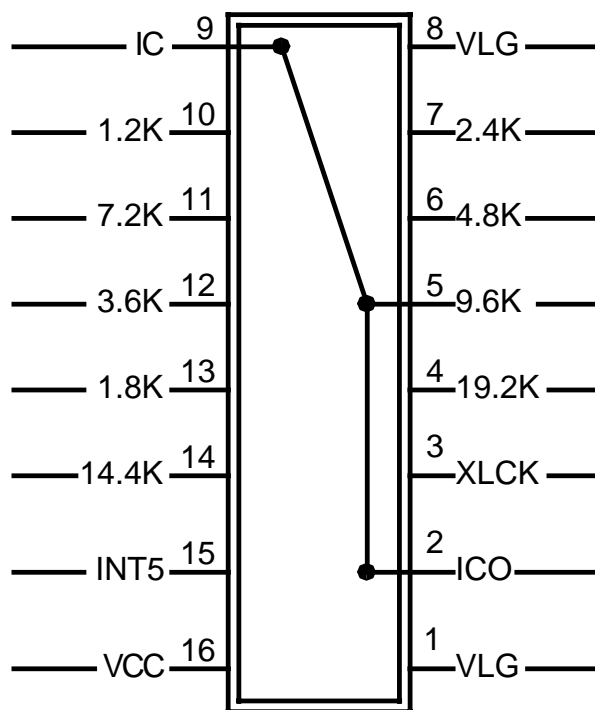
UT indicator blank (other lights on)	Suspect ARQ card.
UT indicator shows t or u except during power-up	Suspect ARQ card.
UT indicator shows □	Check base and size of active map.
ERR light on	Check modems/clocking.
OK light off, X and one or more of <u>RXC</u> , <u>TXC</u> , <u>RXD</u> , <u>LSD</u> on, plus UT indicator shows □	Link down. Note: CLB will not work if <u>TXC</u> is lit.
UT indicator cycles through 0–t	Put Select Page strap in position 1/N (ARQ4).

To clear ERR indicator after fault has been rectified, press RE button.

ARQ1 Option Straps



Standard Strapping for External Clock



Standard Strapping for Internal Clock
(Example for 9600)

ARQ2 Option Switches

(Software Issue 3 and above only)

FEATURE	SWITCH SETTING							
	1	2	3	4	5	6	7	8
DATA BYTE LIMIT PER CHANNEL:8							U	U
DATA BYTE LIMIT PER CHANNEL:16							U	D
DATA BYTE LIMIT PER CHANNEL:32							D	U
DATA BYTE LIMIT PER CHANNEL:128							D	D

ARQ4 Option Straps

NAME	OPTION	POSITION
RESTART	Automatic restart	A
	Park - no action	P
	Reset	R
CLOCK DIVIDER	External clock	X
	79200 / 76800 / 57600	1
	39600 / 38400 / 28800	2
	19800 / 19200 / 14400	4
	9900 / 9600 / 7200	8
	4950 / 4800 / 3600	16
	2475 / 2400 / 1800	32
	1237 / 1200 / -----	64
BAUD	79200 master clock rate	79.2
	76800 master clock rate	76.8
	57600 master clock rate	57.6
CLOCK OUT	TX clock to modem	ON
	No TX clock to modem	OFF
SELECT PAGE	Factory test only	0
	Factory test only	A
	Normal operation	1/N
INTERFACE SELECT	V35 interface selected	V35
	V36 interface selected	V36
	V24 interface selected	V24
	X21 interface selected	X21

ARQ4 Switch Settings

FEATURE	OPTION	SETTING ON SW1							
		1	2	3	4	5	6	7	8
WINDOW MODE	EXTENDED	D							
	NORMAL	U							
LOW CHANNEL PRIORITY	ENABLED	D							
	DISABLED	U							
LINK DOWN TIMEOUT	40 (90) SECS							D	D
	30 (80) SECS							D	U
	20 (70) SECS							U	D
	10 (60) SECS							U	U

FEATURE	OPTION	SETTING ON SW1							
		1	2	3	4	5	6	7	8
DATA BYTE LIMIT PER CHANNEL	8	D	D						
	16	D	U						
	32	U	D						
	128	U	U						
NCAM MONITORING	ENABLED*							D	
	DISABLED							U	

* NCAM Monitoring allows the ARQ to force map the STC under NCAM control. If no NCAM is installed in the network this should be disabled.

ARQ2 and 4 Pinouts

PIN	SELECTED INTERFACE				SIGNAL DESCRIPTION
	V24	V35	V36*	X21	
1		TXCA			Transmitter Clock
2		RXCA			Receiver Clock
3		RXDA			Received Data
4	CLKOUT			CLKA	Clock Out (A)
5				CA	Control (A)
6			TDA	TA	Transmit (A)
7	GND	GND	GND	GND	Signal Ground
8	TXD				Transmitted Data
9		TXDA			Transmitted Data (A)
10	RXC				Receiver Clock
11	TXC		TCA	SA	Transmitter Clock (A)/Signal Element Timing
12	RXD		RDA	RA	Received Data (A)
13			RCB	IA	Receiver Clock (B) /Indicator (A)
14		TXCB			Transmitter Clock (B)
15		RXCB			Receiver Clock (B)
16		RXDB			Received Data (B)
17				CLKB	Clock Out (B)
18				CB	Control (B)
19			TDB	TB	Transmitted Data (B)
20	RTS	RTS			Request To Send
21	DTR	DTR			Data Terminal Ready
22		TXDB			Transmitted Data (B)
23			RCA	IB	Receiver Clock (A)/Indicator (B)
24			TCB	SB	Transmitter Clock (B)
25			RDB	RB	Received Data (B)

* = Not available on ARQ2.

USO Commands

Command	Update Mode
ACS ^{4, 5}	Enable or disable ACS security (SUPER mode).
ADDRESS	Display one or more short-form/group address(es) and invite redefinition.
ANNOUNCE	Display, then add or delete short-form/group addresses which will receive the recorded announcement text.
BLACKLIST ^{4, 5}	Display, then add or delete User IDs from the User Validation blacklist (SUPER mode).
CHANNEL	Display a list of free unallocated channels.
CHARACTER COUNTING ⁵	Enable or disable Character Counting (SUPER mode).
CLOSE	Close the node, a specified link, a port, a range of ports or all ports.
COLD ^{4, 5}	Cold start the USO.
CUPDATE ^{2, 3}	Display current setting of Control Update and invite redefinition.
DELAY	Display the busy-out delay and invite redefinition.
DUMP	Output the USO configuration data.
EVENT	Display the Event Log Station port and invite redefinition.
HELP ^{4, 5}	Display help on USO commands.
IDENTIFIER ⁵	Display node and link names and invite redefinition.
ITEXT ^{2, 3}	Enable or Inhibit presentation of the welcome page, or modify the text.

USO

USO Commands cont.

Command	Update Mode
LINK	Display a list of the characteristics of all composite links and other high speed devices.
LOAD	Restore a USO configuration. (Node must be closed, and UV and ACS inhibited).
LOGOFF	Disconnect the Supervisor Station.
LPNODE ¹	Display one or more logical to physical node relationships and invite redefinition, or change the node's operating mode.
LSTAT	Display one or more link statistics, then optionally reset them.
MODE	Display information about the node, supervisor and queueing.
MONITOR	Switch Supervisor Station to Monitor mode.
NAME	Display one or more alphanumeric names and invite redefinition.
NODE	Set the nodes identity.
NPORT ³	Enable or Inhibit node and port number output.
OPEN	Open the node, a specified link, a port, a range of ports or all ports.
PASSWORD	Change the node's Update or Super Mode password.
PIPE	Display one or more pipes and invite redefinition.
PSEUDO NODE ⁵	Display Pseudo Node number and invite redefinition.
PORT	Display a list of ports or characteristics of a specified port then invite redefinition.

USO Commands cont.

QUEUE	Enable or inhibit queueing, or list ports and/or short-form group/addresses for which users are queueing.
ROUTE	Display one or more routes and invite redefinition.
SEED ^{1, 3}	Enable the supervisor to change Slave and Master seed values (SUPER mode).
Command	Update Mode
SCLEAR ^{1, 2}	Enable or inhibit automatic output of link stats, or display stats reset time and invite redefinition.
STATS	Display and optionally reset, USO system statistics.
SUPER ^{3, 4, 5}	Switch supervisor to super mode.
TEXT	Display one or more Connection text messages and invite redefinition.
TIME	Display the system time and invite redefinition.
UPDATE	Switch supervisor to update mode.
UV ^{3, 4, 5}	Enable or inhibit user validation (SUPER mode).
VALIDATE ^{3, 4, 5}	Validate user ID to reveal account number (SUPER mode).
WARMSTART ^{4, 5}	Warm start the USO (SUPER mode).

¹ available on USO3

² available on USO20

³ available on USO25

⁴ available on USO30

⁵ available on USO35

Port Configuration USO 2, 3 & 20

DEV	Device number port is on.	
CHAN	Channel number port is on.	
PAR	Parity of port.	0 Odd E Even M Mark(1) Z Zero (0)
TYP	Type of port.	I IMP A AMP U UMP
SPD	Requesting port's speed must match this port's speed.	D No F Yes
SYS	Systems messages to be output (e.g. DISC. CNX FAILURE PLEASE REQUEST RECONNECTION , not COM, MOM, DER, OCC etc).	E Yes I No
ECH	Characters to be echoed back.	E Yes N No
CNX	Connection Event.	0 DTR (Pin 20) on 1 RTS (Pin 4) on 2 Break 3 No CNX by this port 4 RI followed by DCD on 5 CTRL-T (in-band TFC may have to be set on LSC)

Port Configuration USO 2, 3 & 20 cont.

DCNX	Disconnection event	0 DTR (Pin 20) off 1 RTS (Pin 4) off 2 Break 3 No DCNX by user 4 Break followed by DCD off 5 CTRL-T (in-band TFC may have to be set on LSC)
LVL	0 Access permitted on all groups and ports. 1 0-9 10-19 100-109 110-119 200-209 210-219 2 0-9 20-29 100-109 120-129 200-209 220-229 3 0-9 30-39 100-109 130-139 200-209 230-239 4 0-9 40-49 100-109 140-149 200-209 240-249 5 0-9 50-59 100-109 150-159 200-209 250-255 6 0-9 60-69 100-109 160-169 200-209 7 Access allowed to groups only (USER MUST ASK FOR A GROUP NOT A PORT).	

NOTE: On USO2 only group numbers 0-99 are applicable.

NEU	DSR to be output on this port when it is open and not connected.	1 Yes 0 No
TST	DTR to be tested before CNX can be made to this port.	1 Yes 0 No
I/A DST	IMP or AMPs Destination. IMP Node. Port Number. AMP Group number. e.g. 0:5 ZUDEE 2/2/0/1/1 <CR> 0:5 ZADEN 2/2/0/1/1 39 <CR> 0:5 ZIDIN .3.21 <CR>	UMP AMP IMP

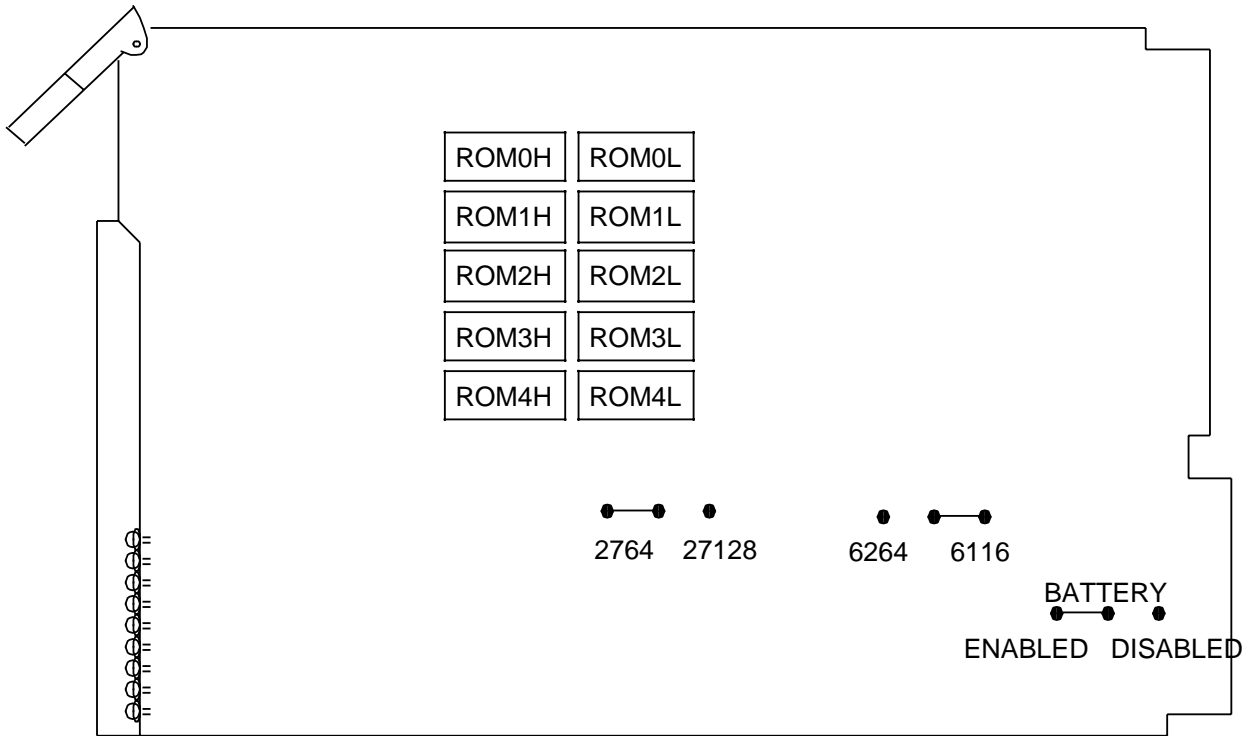
Port Configuration USO 25/30/35

DEV	Device number port is on.	
CHAN	Channel number port is on.	
PAR	Parity of port.	0 Odd E Even M Mark(1) Z Zero (0)
TYP	Type number of port.	I IMP A AMP U UMP
SPD	Requesting port's speed must match this port's speed.	D No F Yes
SYS	Systems messages to be output (e.g. DISC. CNX FAILURE PLEASE REQUEST RECONNECTION , not COM, MOM, DER, OCC etc).	E Yes I No
ECH	Characters to be echoed back.	E Yes N No
SEC	Security status (USO 30/35 only)	E Enable I Inhibit . Not applicable (IMPs)
CNX	Connection Event.	0 DTR (Pin 20) on 1 RTS (Pin 4) on 2 Break 3 No CNX by this port 4 RI followed by DCD 5 CTRL-T (in-band TFC may have to be set on LSC)

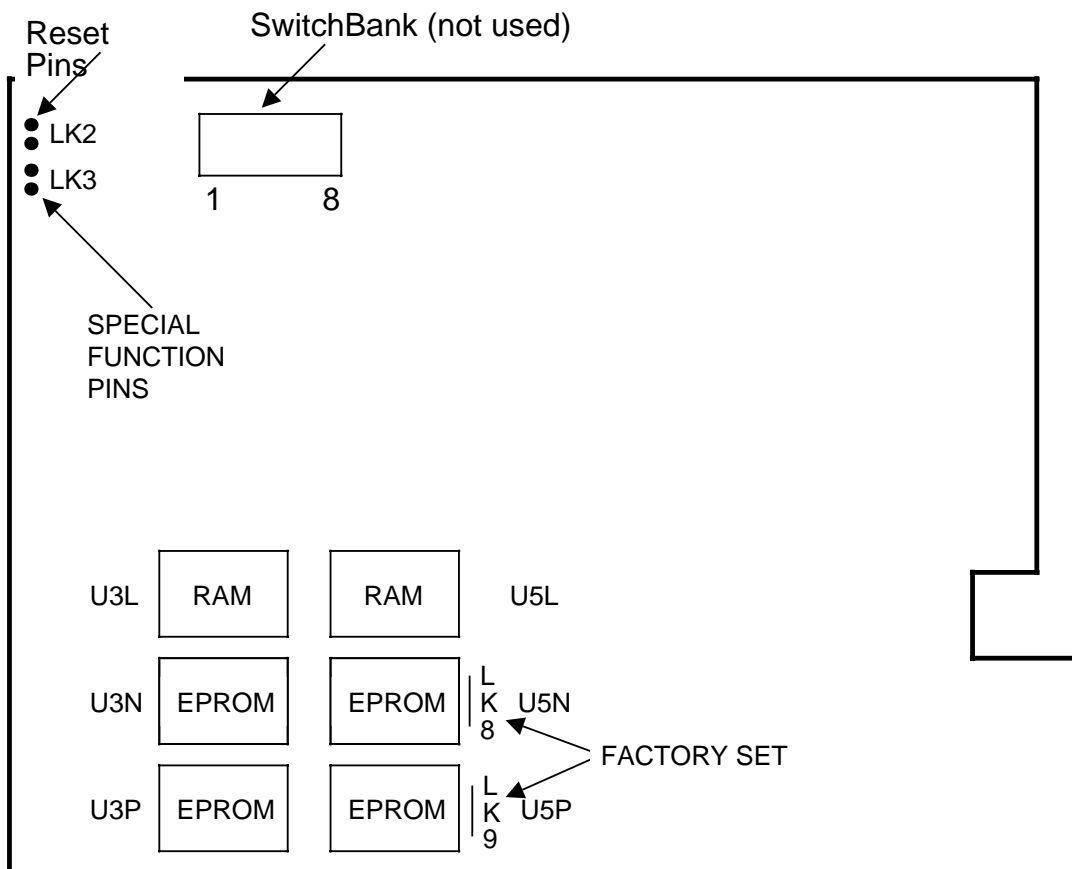
Port Configuration USO 25/30/35 cont.

DCNX	Disconnection event	0 DTR (Pin 20) off 1 RTS (Pin 4) off 2 Break 3 No DCNX by user 4 Break followed by DCD off 5 CTRL-T (in-band TFC may have to be set on LSC) 6 CTRL-T followed by DCD off
LVL	0 Access permitted on all groups and ports. 1 0-9 10-19 100-109 110-119 200-209 210-219 2 0-9 20-29 100-109 120-129 200-209 220-229 3 0-9 30-39 100-109 130-139 200-209 230-239 4 0-9 40-49 100-109 140-149 200-209 240-249 5 0-9 50-59 100-109 150-159 200-209 250-255 6 Access allowed to all groups and DIR command 7 Access allowed to all groups, but no access to DIR command.	
NEU	DSR to be output on this port when it is open and not connected.	1 Yes 0 No
TST	DTR to be tested before CNX can be made to this port.	1 Yes 0 No
ICR	(CR) Connection event terminator	0 Not required 1 Required
I/A DST	IMP or AMPs Destination. IMP Node. Port Number. AMP Group number. e.g. 0:5 ZUDEE 2/2/0/1/1/0 <CR> 0:5 ZADEN 2/2/0/1/1/1 39 <CR> 0:5 ZIDIN . 3.21 <CR>	UMP AMP IMP

USO 3, 20, 25 Straps



USO 30/35 Straps

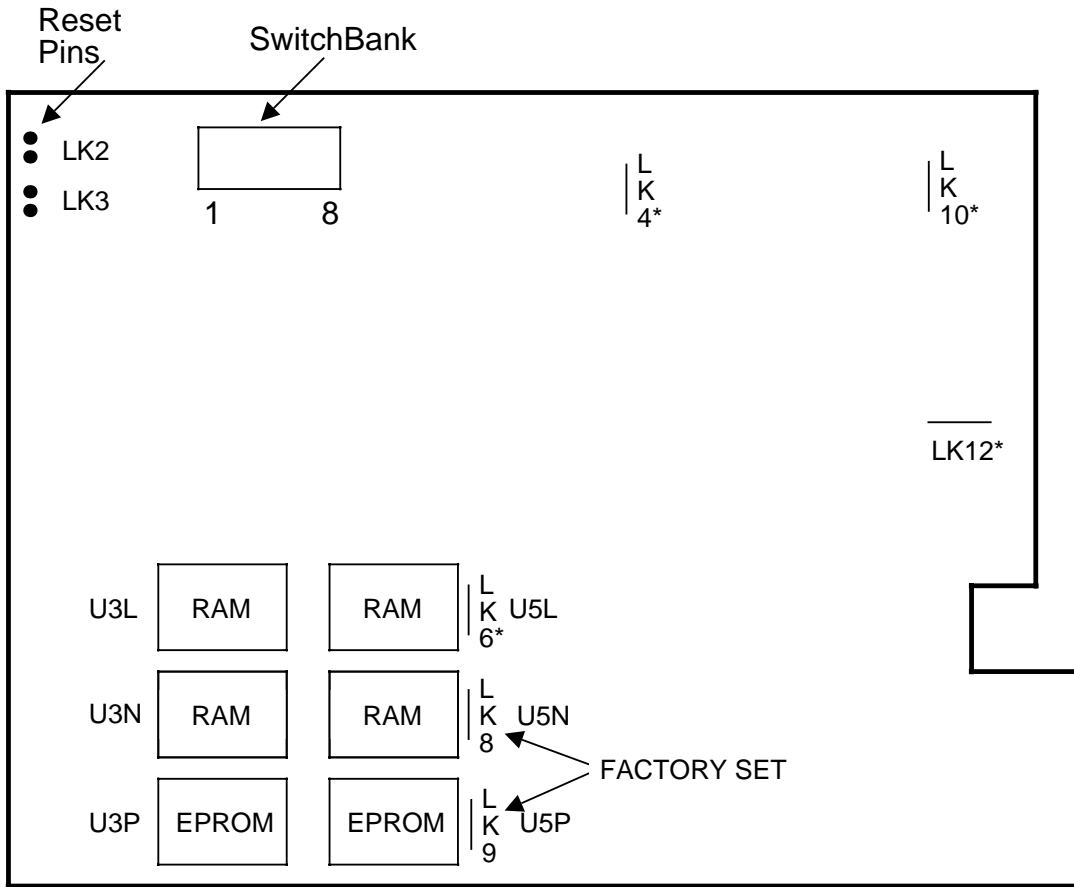


LINK	FUNCTION	SETTING
LK2	RESET	NONE
LK3	SPECIAL FUNCTIONS	NONE
LK8 LK9	} FACTORY SET	

USO

Notes

MON 30/SM-MON



LINK	FUNCTION	SETTING
LK2 LK3	RESET N/A	NONE NONE
LK10* LK12*	N/A N/A	NONE NONE
LK4* LK6*	N/A ROM TYPE	NONE PINS 2-3
LK8 LK9	RAM SELECTION RAM SELECTION	PINS 1-2 PINS 1-2

* SM-MON only

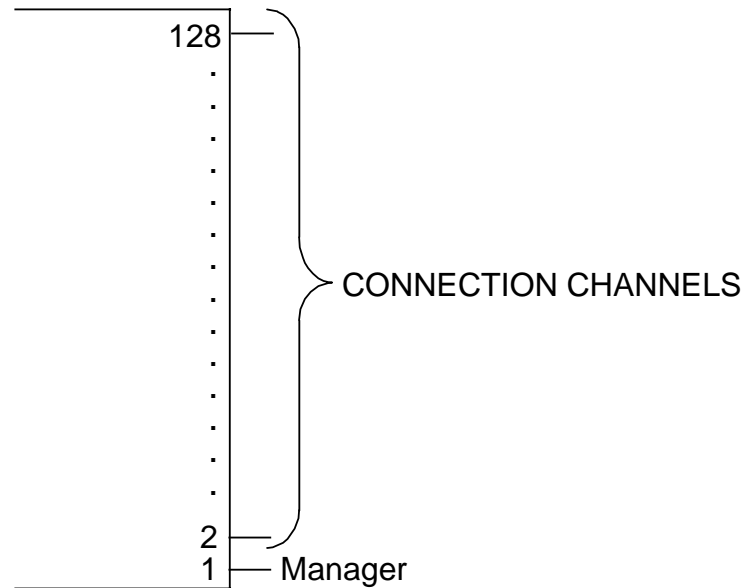
MON 30/SM-MON

Switches

OPTION	SW3	SW5	SW6
DEVICE NUMBER SELECTION: ALWAYS RESPOND AS DEVICE 14 RESPOND ACCORDING TO PHYSICAL SLOT POSITION (AS ARQ)	OPEN CLOSED		
PARITY SETTING: ZERO MARK EVEN ODD		CLOSED CLOSED OPEN OPEN	CLOSED OPEN CLOSED OPEN

Notes

Channel Connections



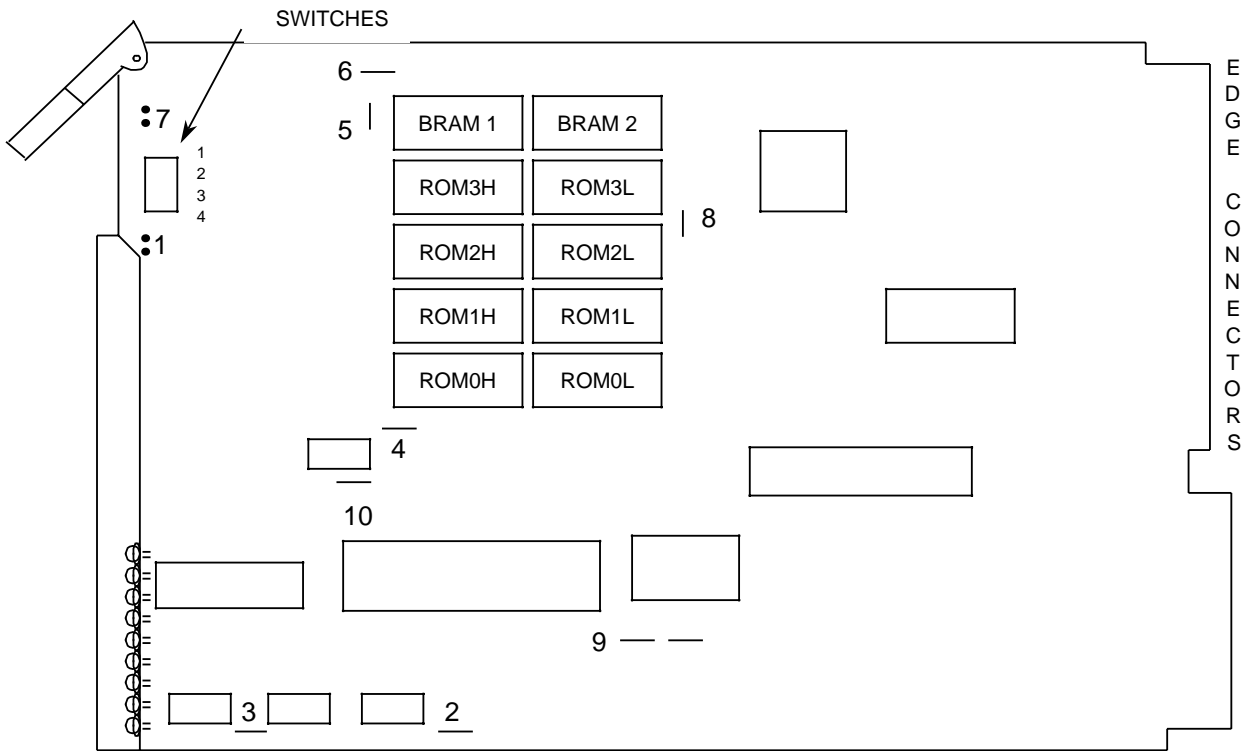
Size = 128

Switches

Switches 1, 2 and 3 are only read during a warm or cold start.

Switch 1	open	Don't read switches 2 and 3.
	closed	Read switches 2 and 3 (if this facility has not been disabled in the XBridge manager).
Switch 2	open	Operate as a logical DTE.
	closed	Operate as a logical DCE.
Switch 3	open	External clocking.
	closed	Internal clocking at 19200 bps.
Switch 4	open	Indicators show diagnostic code, not status.
	closed	Indicators show status, not diagnostic code. It is recommended that this switch is kept open.

Switches and Straps (X840-603913)

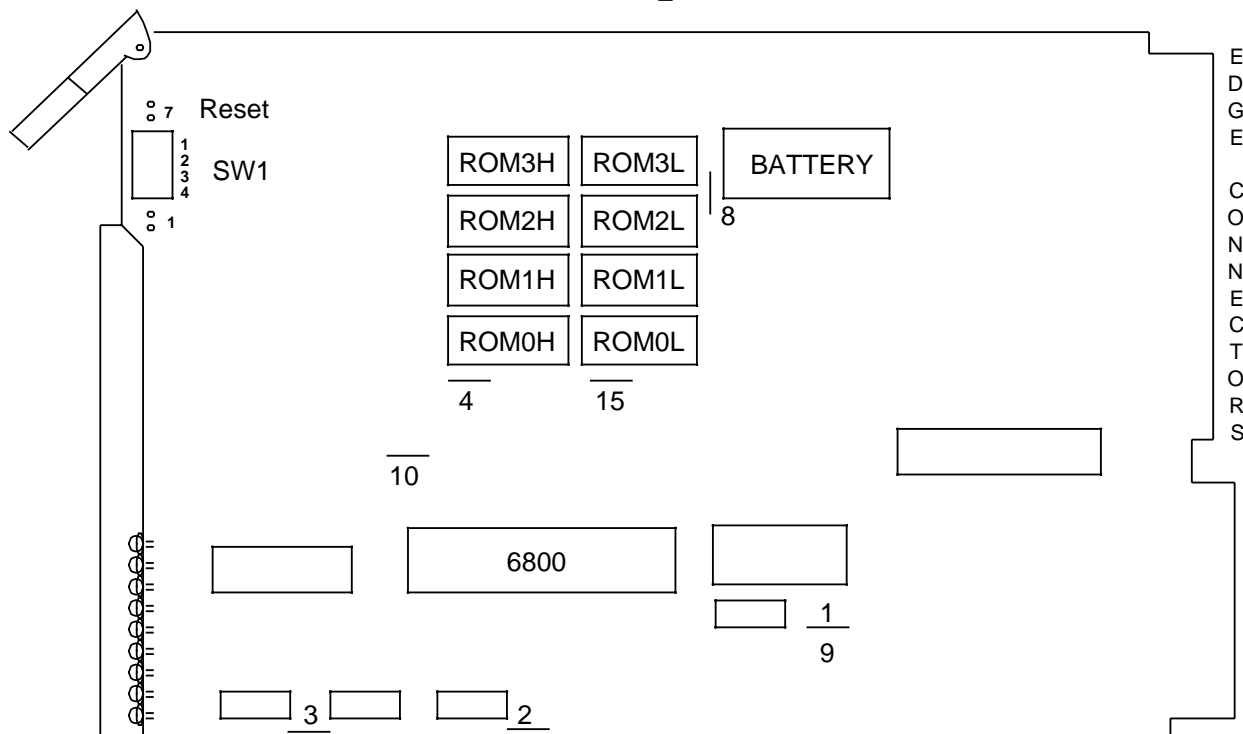


Straps (X840-603913)

Strap Number	Strap Name	Normal Operational Setting
1	SFINT	NO STRAP
2	128K/256K	STRAP RIGHT
3	WDOG	STRAP ON
4	BERR	STRAP ON
5	6264/6116	STRAP LEFT
6	6116/6264	STRAP UP
7	RESET	NO STRAP
8	(Battery supply)	STRAP UP
9	RAM/256K/128K	STRAP UP
10	BDS/BAS	STRAP RIGHT

Note that strap names in brackets are not marked on the card.

Switches and Straps (X840-603915)



Straps (X840-603915)

STRAP NUMBER	STRAP NAME	NORMAL OPERATIONAL SETTING	
		CHOICE	STRAP POSITION
1	SFINT	ENABLED	NO STRAP
2	(PROM Size)	OTHER	STRAP RIGHT
3	WDOG	ENABLED	STRAP ON
4	BERR	ENABLED	STRAP ON
7	RESET	ENABLED	NO STRAP
8	(BATTERY SUPPLY)	CONNECTED	STRAP UP
9	RAM/128K/OTHER	OTHER	STRAPUP
10	BDS/BAS	BAS	STRAP RIGHT
15	512K/OTHER	OTHER	STRAP RIGHT

Note that strap names shown in brackets are not marked on the card

Switches

Switches 1, 2, 3 and 5 are only read during a warm or cold start. Switches 6 and 7 are not used.

Switch 1	open	Don't read switches 2, 3 and 5.
	closed	Read switches 2, 3 and 5 (if this facility has not been disabled in the HSXBridge manager).
Switch 2	open	Operate as a logical DTE.
	closed	Operate as a logical DCE.
Switch 3	open	External clocking.
	closed	Internal clocking at 19200 bps, if switch 5 is closed. Internal clocking at 64000 bps if switch 5 is open.
Switch 4	open	Indicators show diagnostic code, not status.
	closed	Indicators show status, not diagnostic code. It is recommended that this switch is kept open.
Switch 5	open	X.21 interface port used for the X.25 link.
	closed	V.24 interface port used for the X.25 link (note that this prevents use of the X.25 diagnostic trace facility).
Switch 8	open	The normal position. Momentarily closing the switch causes a card reset.
	closed	May be placed in this position for removing the card whilst the DCX is still powered up.

Switches

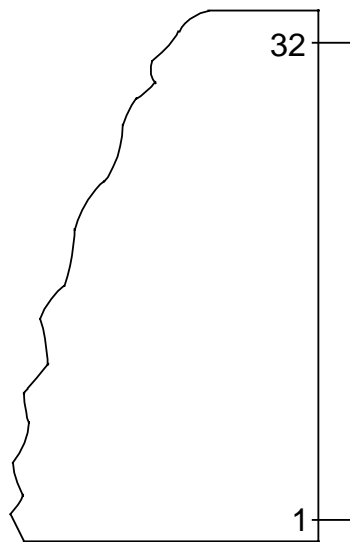
Switches 1, 2, 3 and 5 are only read during a warm or cold start. Switches 6 and 7 are not used.

Switch 1	open	Don't read switches 2, 3 and 5.
	closed	Read switches 2, 3 and 5 (if this facility has not been disabled in the FBridge manager).
Switch 2	open	Operate as a logical DTE.
	closed	Operate as a logical DCE.
Switch 3	open	External clocking.
	closed	Internal clocking at 19200 bps, if switch 5 is closed. Internal clocking at 64000 bps if switch 5 is open.
Switch 4	open	Indicators show diagnostic code, not status.
	closed	Indicators show status, not diagnostic code. It is recommended that this switch is kept open.
Switch 5	open	X.21 interface port used for the frame relay link.
	closed	V.24 interface port used for the frame relay link (note that this prevents use of the diagnostic trace facility).
Switch 8	open	The normal position. Momentarily closing the switch causes a card reset.
	closed	May be placed in this position for removing the card whilst the DCX is still powered up.

Bridges

Notes

Channel Connections



Notes

Supports up to 32 channels. To gain access to manager, map a terminal to any channel: after selecting terminal type, type **M <CR>**.

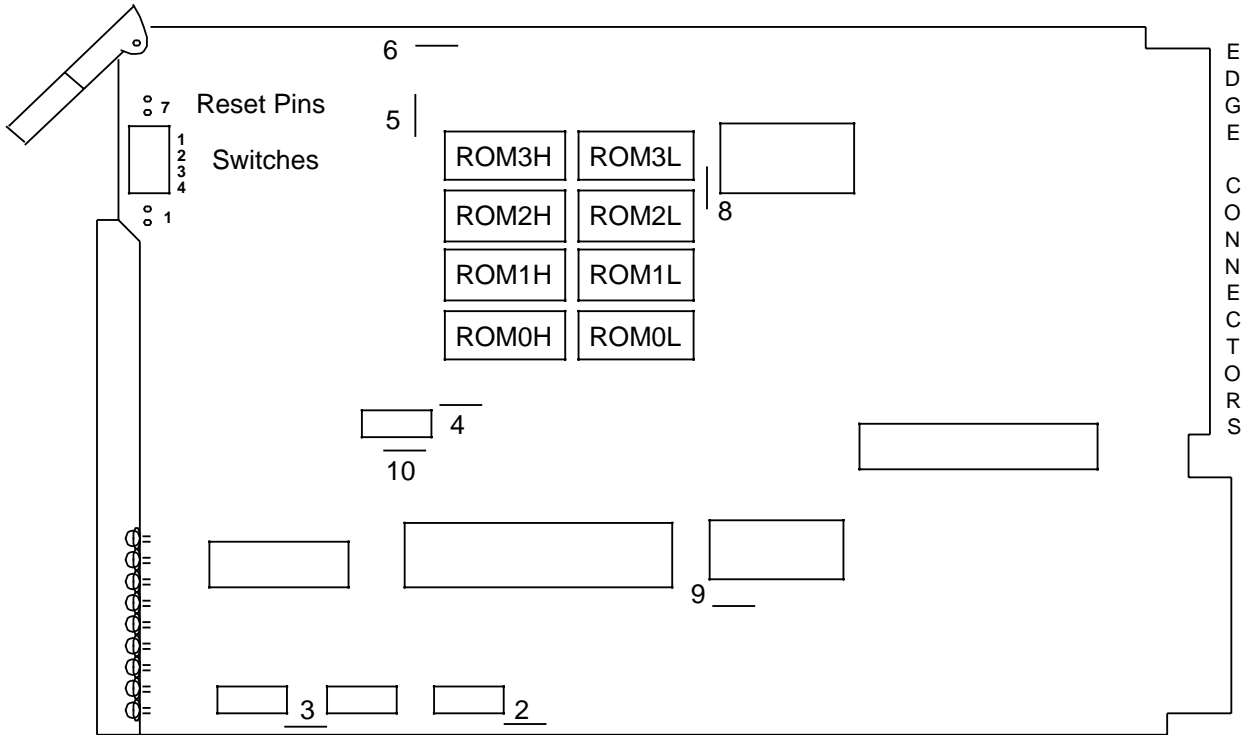
On version 2.1 the first 2 channels are reserved and therefore channels 33 and 34 are used.

Switches

- SWITCH 1 Should be CLOSED.
- SWITCH 2 Should be CLOSED.
- SWITCH 3 CLOSED: Warm start on next reset.
OPEN: Cold start on next reset.
- SWITCH 4 CLOSED: LED display disabled.
OPEN: LED display enabled.

Bluegate

Switches and Straps (X840-603913)



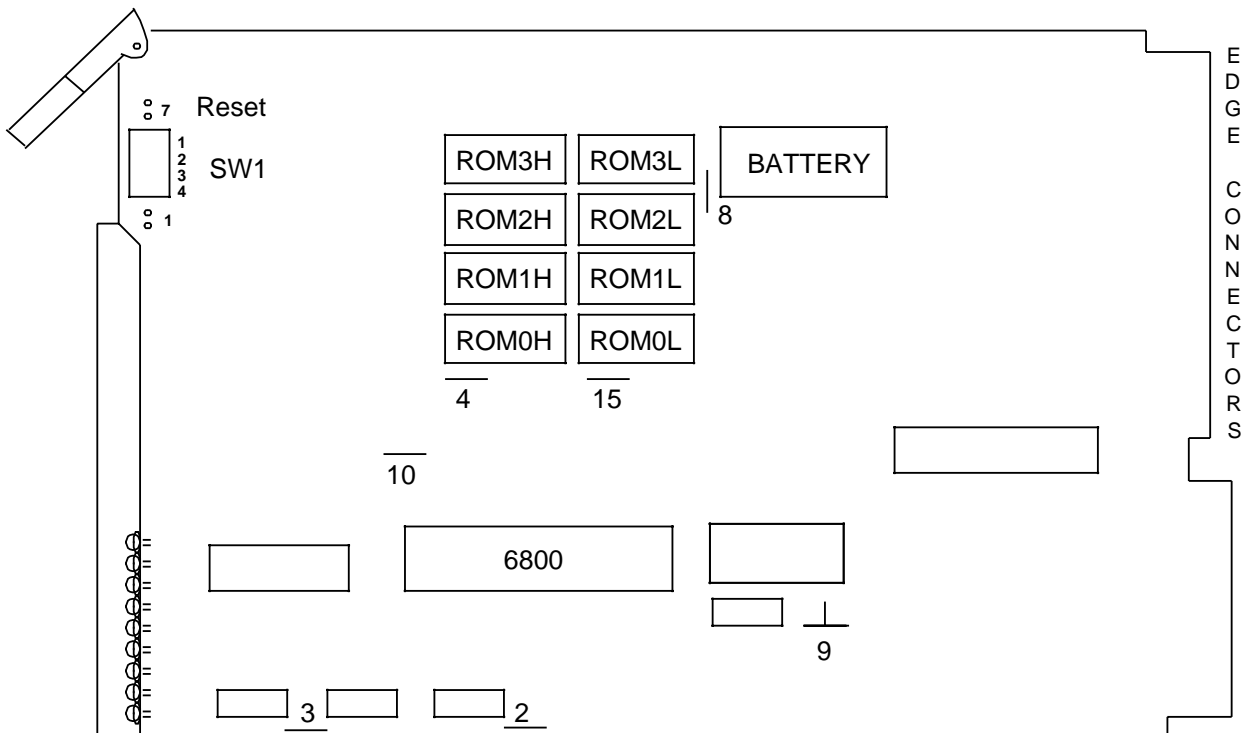
Straps (X840-603913)

STRAP NUMBER	STRAP NAME	NORMAL OPERATIONAL SETTING	
		CHOICE	STRAP POSITION
1	SFINT	ENABLED	NO STRAP
2	(PROM Size)	27128	STRAP LEFT
3	WDOG	ENABLED	STRAP ON
4	BERR	ENABLED	STRAP ON
5	6264/6116	6264	STRAP LEFT
6	6116/6264	6264	STRAP UP
7	RESET	ENABLED	NO STRAP
8	(BATTERY SUPPLY)	CONNECTED	STRAP UP
9	RAM/128K/256K	128K	STRAP RIGHT
10	BDS/BAS	BAS	STRAP RIGHT

Note that strap names shown in brackets are not marked on the card

Bluegate

Switches and Straps (X840-603915)



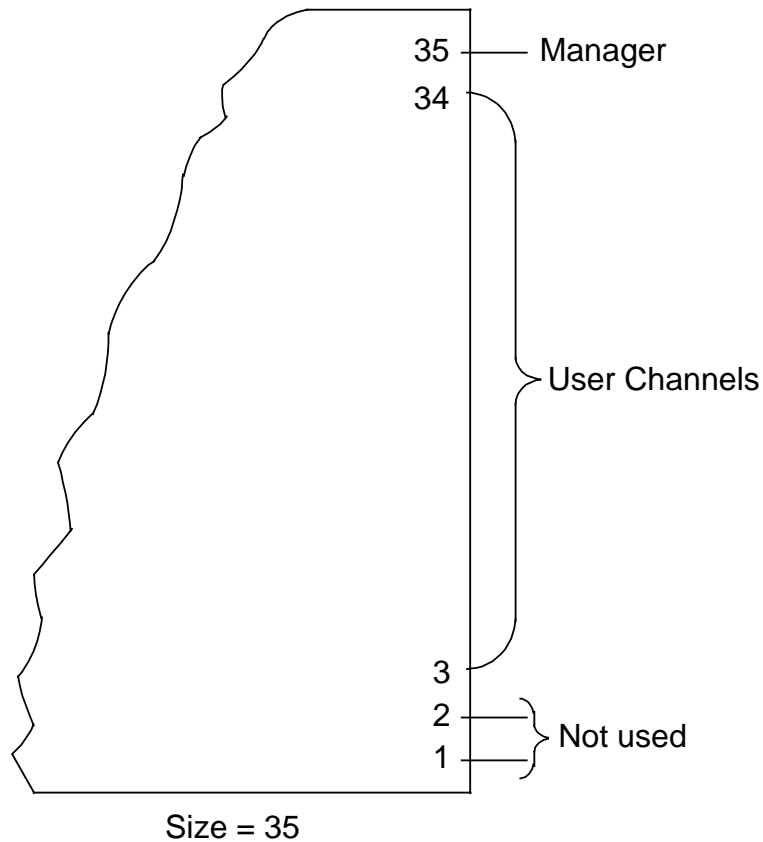
Straps (X840-603915)

STRAP NUMBER	STRAP NAME	NORMAL OPERATIONAL SETTING	
		CHOICE	STRAP POSITION
1	SFINT	ENABLED	NO STRAP
2	(PROM Size)	OTHER	STRAP RIGHT
3	WDOG	ENABLED	STRAP ON
4	BERR	ENABLED	STRAP ON
7	RESET	ENABLED	NO STRAP
8	(BATTERY SUPPLY)	CONNECTED	STRAP UP
9	RAM/128K/OTHER	OTHER	STRAPUP
10	BDS/BAS	BAS	STRAP RIGHT
15	512K/OTHER	OTHER	STRAP RIGHT

Note that strap names shown in brackets are not marked on the card

S-Gate

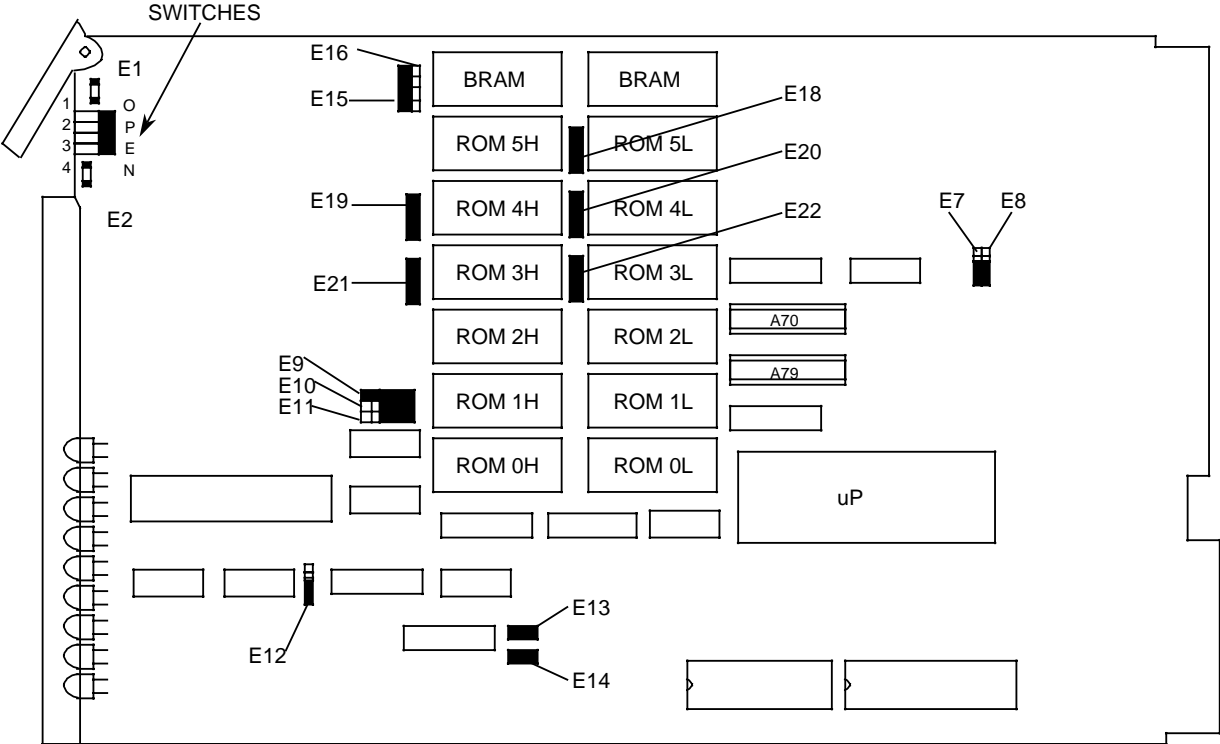
Channel Connections



Switches

- SWITCH 1 Should be CLOSED.
- SWITCH 2 Should be CLOSED.
- SWITCH 3 CLOSED: Warm start on next reset.
OPEN: Cold start on next reset.
- SWITCH 4 Should be CLOSED.

Switches and Straps

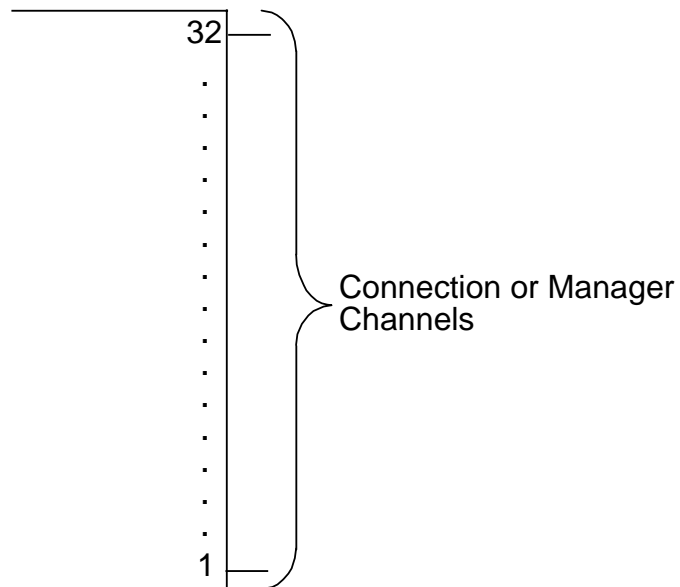


Strap States

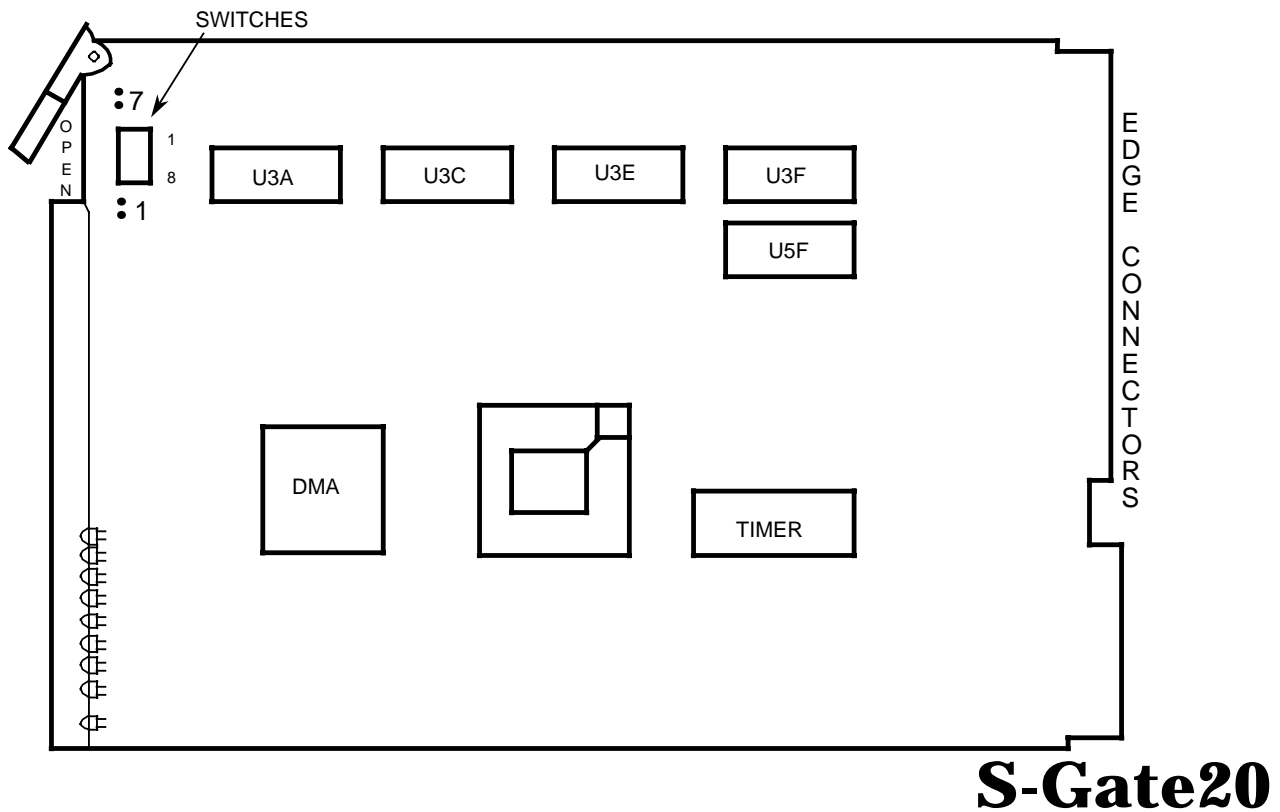
STRAP NUMBER	STRAP FUNCTION	NORMAL OPERATIONAL SETTING
E2	UNUSED	OUT
E7	EPROM 27256	DOWN
E8	EPROM 27256	DOWN
E9	BRAM 16/64K	LEFT
E10	EPROM 27256	RIGHT
E11	EPROM 27256	RIGHT
E12	DTACK (Data	DOWN
E13	Transfer Ack)	STRAP
E14	WATCHDOG TIMER	STRAP
E16	BUS ERRORS	OUT
E15, E18-E22	FACTORY TEST FACTORY TEST	STRAP

S-Gate20

Channel Connections



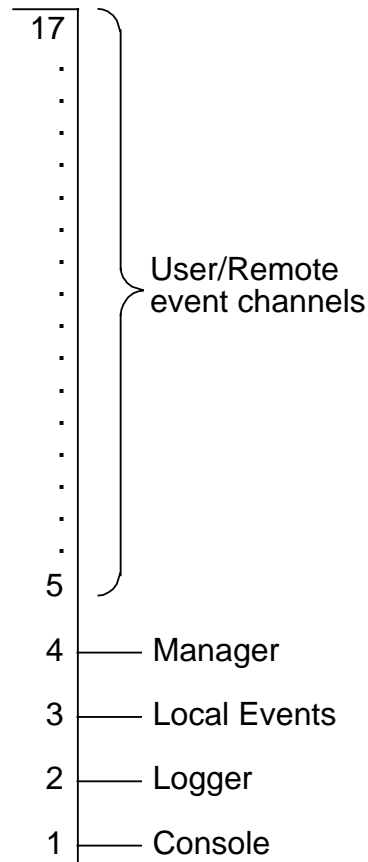
Size = 32



Switches

Switch 1	OPEN – Perform a warm start on next reset. CLOSED – Perform a cold start on next reset.
Switch 2	No Function
Switch 3	No Function
Switch 4	No Function
Switch 5	No Function
Switch 6	No Function
Switch 7	No Function
Switch 8	OPEN – Normal operation. CLOSED – Hold card in reset condition.

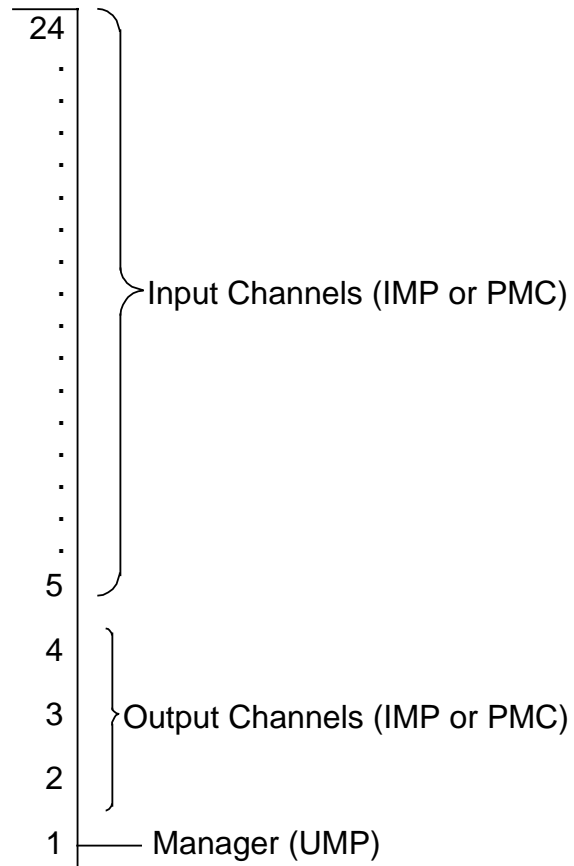
Channel Connections



Size Min = 5
Max = 17

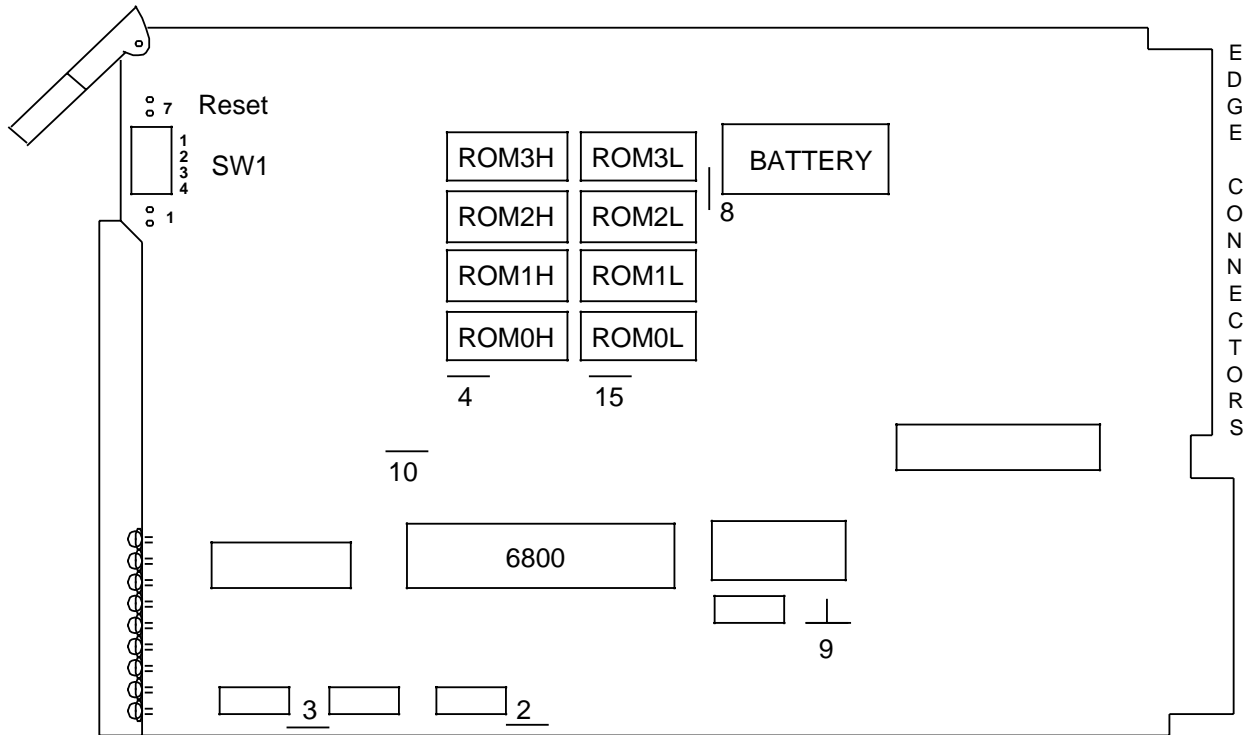
Manager terminal can be any dumb async device.

Channel Connections



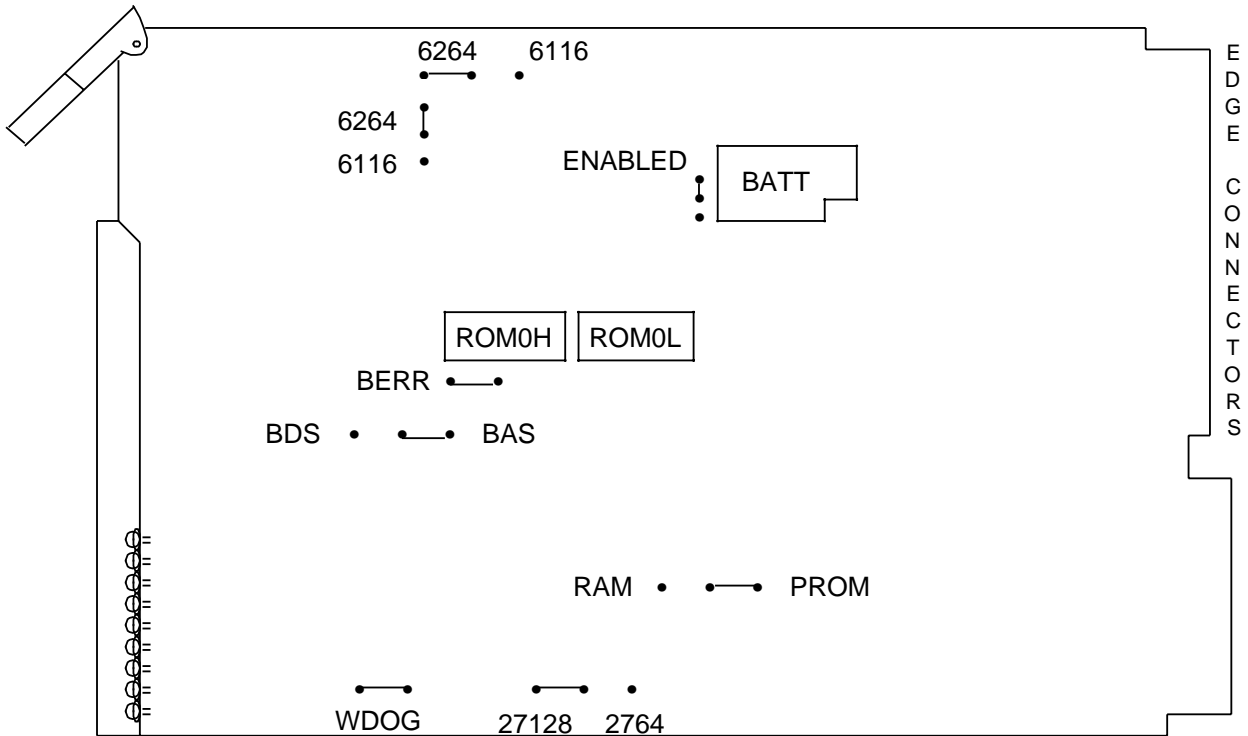
Size Min = 5
Max = 24

Straps



STRAP NUMBER	STRAP NAME	NORMAL OPERATIONAL SETTING	
		CHOICE	STRAP POSITION
1	SFINT	ENABLED	NO STRAP
2	(PROM Size)	OTHER	STRAP RIGHT
3	WDOG	ENABLED	STRAP ON
4	BERR	ENABLED	STRAP ON
7	RESET	ENABLED	NO STRAP
8	(Battery Supply)	CONNECTED	STRAP UP
9	RAM/128K/Other	OTHER	STRAP UP
10	BDS/BAS	BAS	STRAP RIGHT
15	512K/Other	OTHER	STRAP RIGHT

Straps

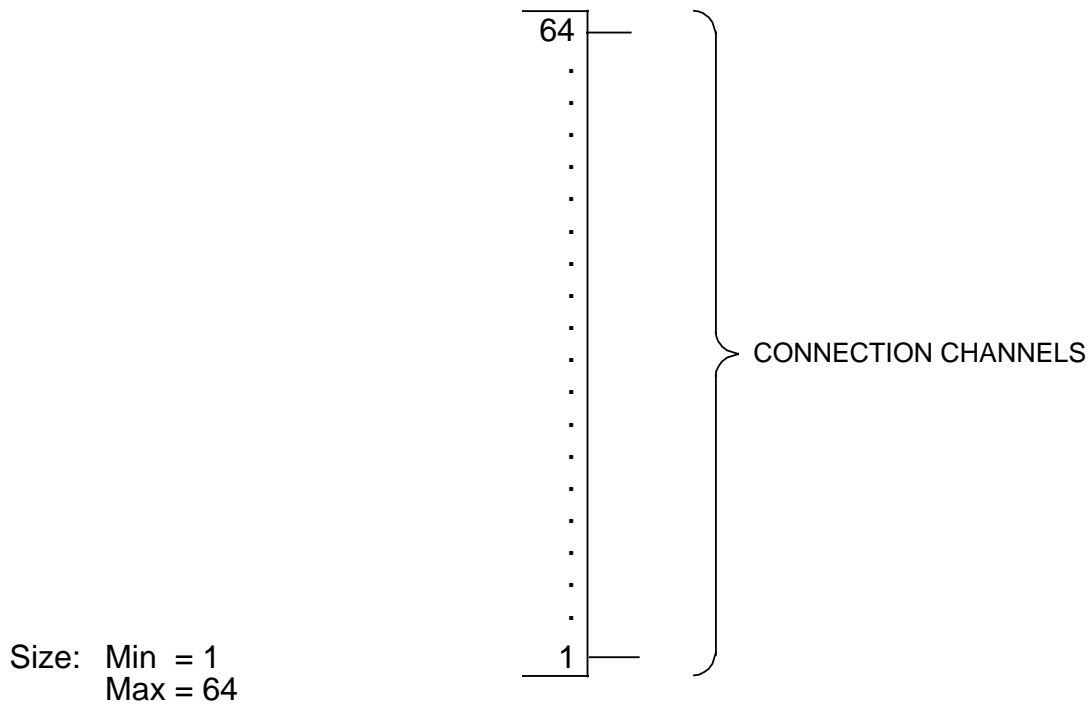


STRAP NUMBER	STRAP NAME	NORMAL OPERATIONAL SETTING	
		CHOICE	STRAP POSITION
1	SFINT	ENABLED	NO STRAP
2	(PROM Size)	27128	STRAP LEFT
3	WDOG	ENABLED	STRAP ON
4	BERR	ENABLED	STRAP ON
5	6264/6116	6264	STRAP LEFT
6	6116/6264	6264	STRAP UP
7	RESET	ENABLED	NO STRAP
8	(Battery supply)	CONNECTED	STRAP UP
9	RAM/128K/256K	128K	STRAP RIGHT
10	BDS/BAS	BAS	STRAP RIGHT

Note that strap names shown in brackets are not marked on the card

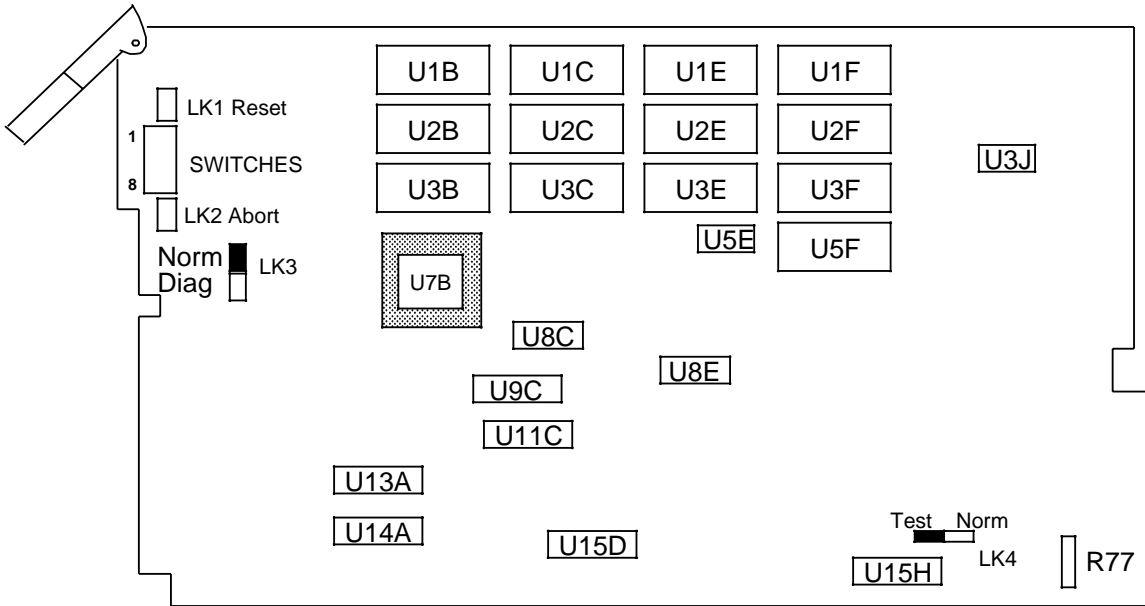
Ethergate

Channel Connections



Map any channel to a terminal to manage Ethergate: in a USO network set up a route to the Ethergate node and then request is by node.port number. To do a cold start ensure that Switch 1 is open and all other switches closed. Short out the reset links. When the green **ENB** light flashes move Switch 1 to the closed position.

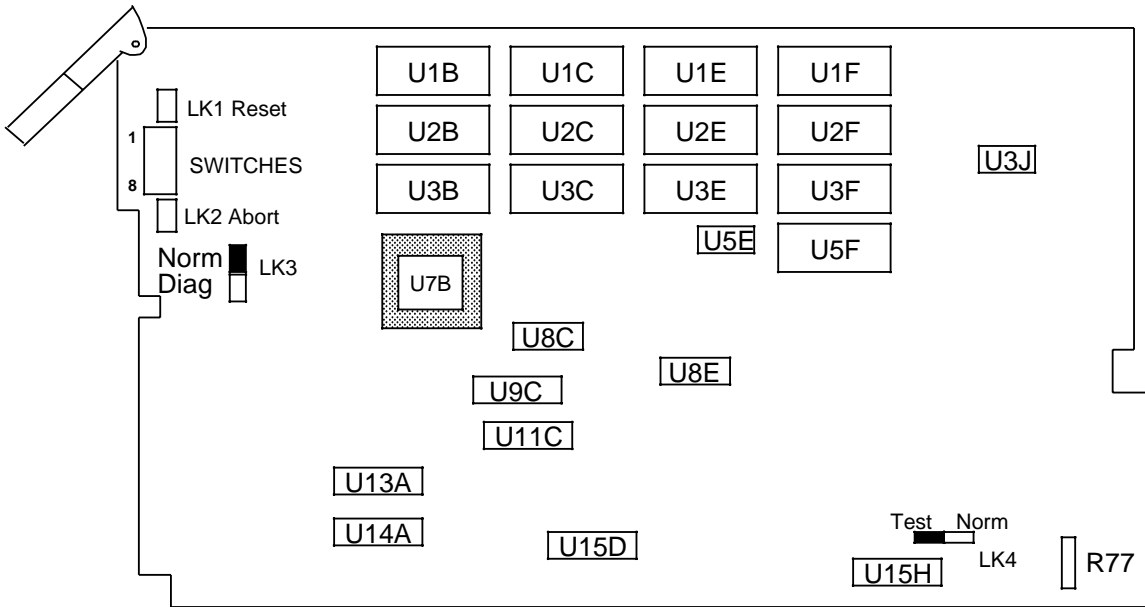
Straps



LINK	FUNCTION	SETTING
LK1	Reset	None
LK2	Software Abort	None
LK3	Diag/Norm	Norm 2-3 (top)
LK4	*Test Norm	Norm 2-3 (left)
R77	802.3/other	802.3 present (See Appendix C)

*Not on all cards

Straps

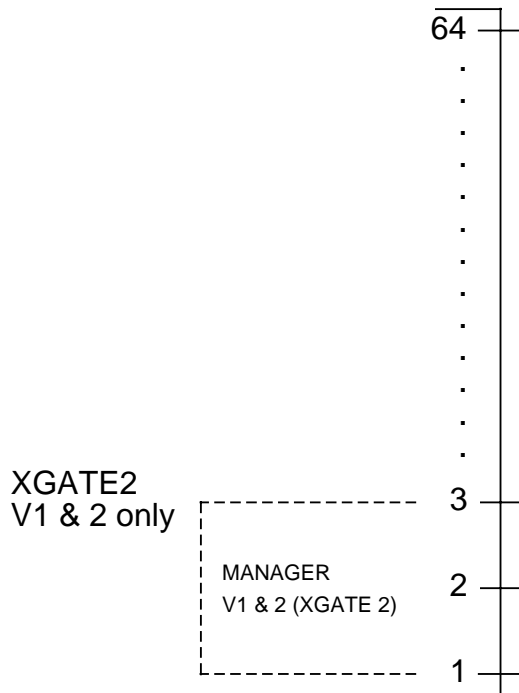


LINK	FUNCTION	SETTING
LK1	Reset	None
LK2	Software Abort	None
LK3	Diag/Norm	Norm 2-3 (top)
LK4	*Test Norm	Norm 2-3 (left)
R77	802.3/other	802.3 present (See Appendix C)

*Not on all cards

X-GATE2, X-GATE3 & XPAD

Channel Connections

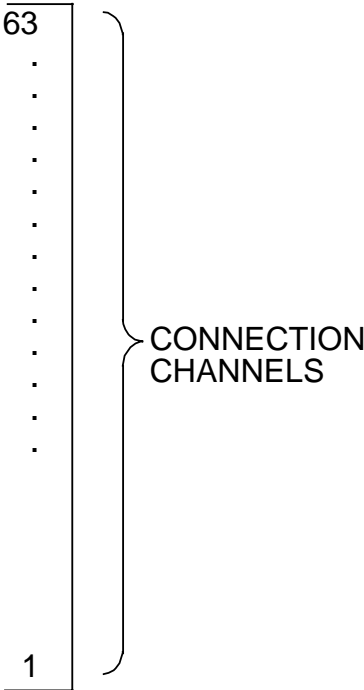


Maximum size of 64, minimum size of 1. On X-GATE3 and XPAD Channel 1 is by default a PMC. Channels 2-64 are UMPs. Manager access is from any channel. When using X-GATE2 manager access is on channel 2 only, and channels 1 & 3 must be mapped as shown.

Switches

XPAD & X-GATE2	Switch 4	OPEN	No status indicators displayed.
		CLOSED	Status indicators displayed.
X-GATE3	Switch 4	OPEN	No status indicators displayed.
		CLOSED	Status indicators displayed.
	Switch 8	OPEN	Normal.
		CLOSED	Causes card reset.

Channel Connections

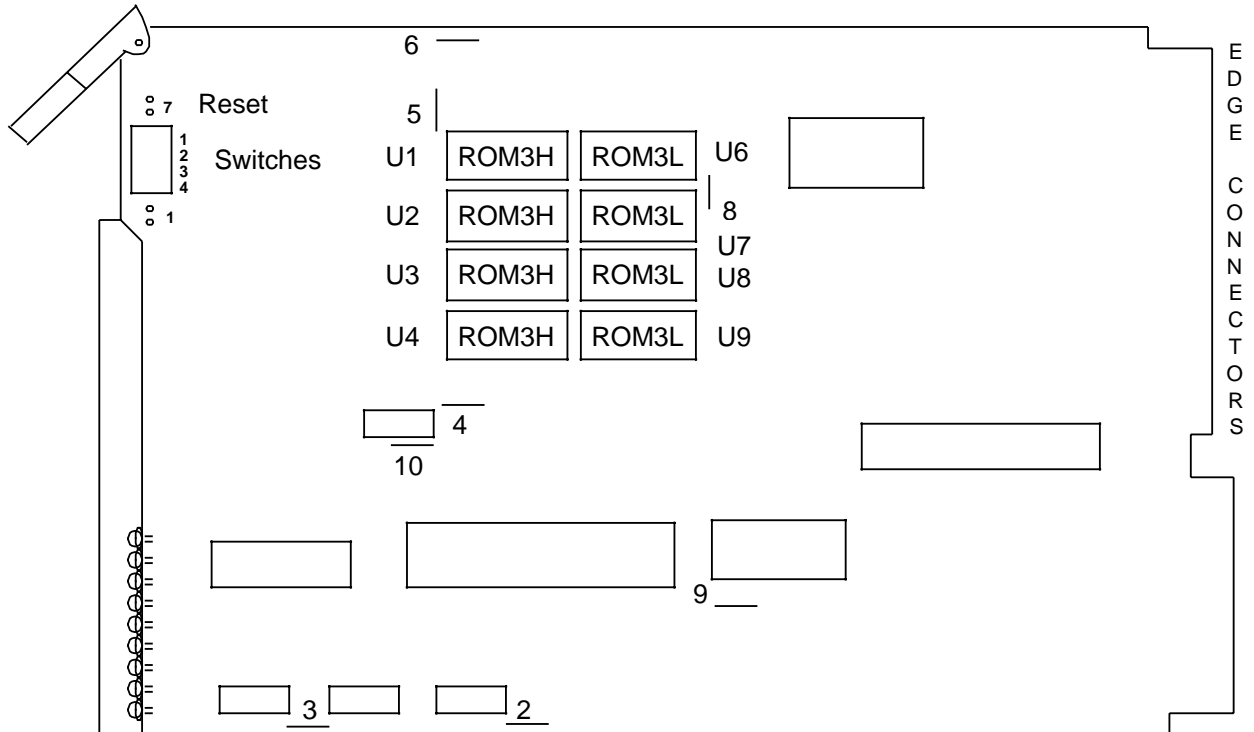


Minimum size = 1, maximum size of 63. No dedicated manager channel looks like USO node in the network. Connection to manager by node. Port number once route to Opengate configured. Highest channel number should be reserved for events.

Switches

Switch 1	Unused (open)	
Switch 2	Unused (open)	
Switch 3	Unused (open)	
Switch 4	OPEN	Status indicators ACT and MAN are disabled.
	CLOSED	Status indicators ACT and MAN are enabled.

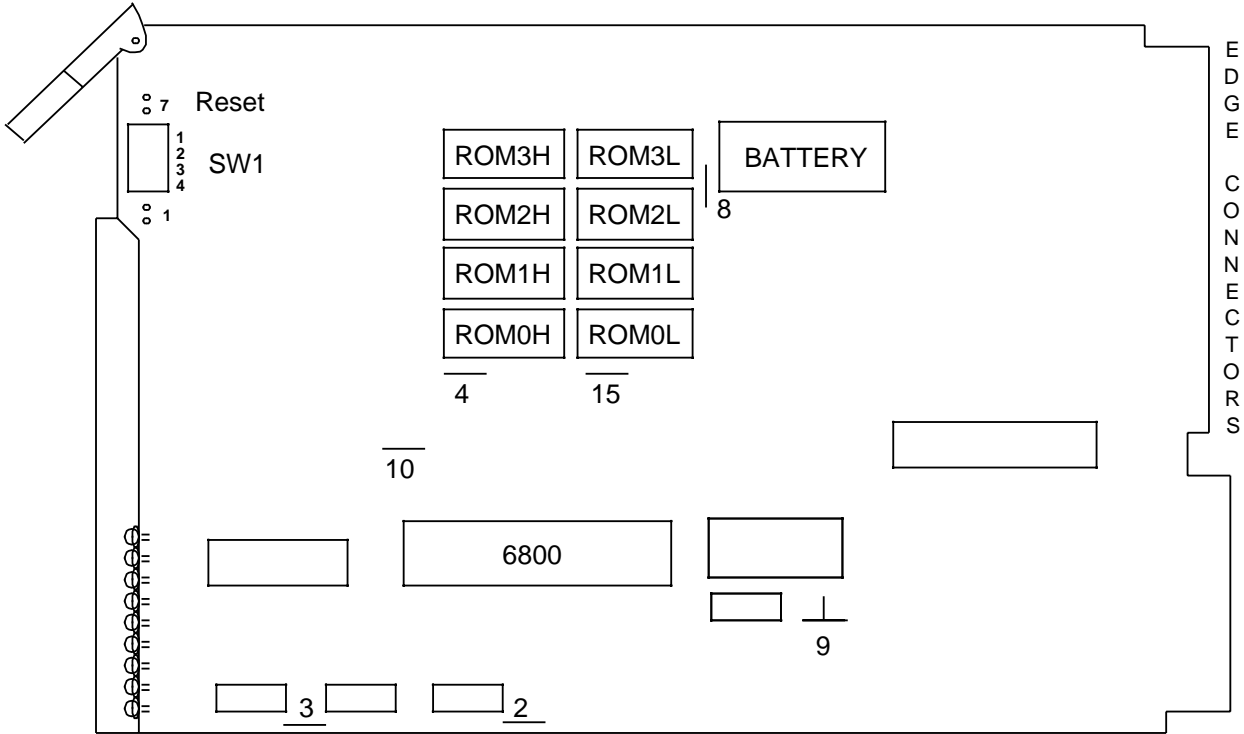
Switches and Straps (X840-603913)



STRAP NUMBER	STRAP NAME	NORMAL OPERATIONAL SETTING
1	SFINT	NO STRAP
2	128K/256K	STRAP LEFT
3	WDOG	STRAP ON
4	BERR	STRAP ON
5	6116/6264	STRAP UP
6	6264/6116	STRAP LEFT
7	RESET	NO STRAP
8	(Battery Supply)	STRAP UP (ON)
9	RAM/256K/128K	STRAP RIGHT
10	BDS/BAS	STRAP RIGHT

Strap 8 should be down if card is to have power off for more than one week

Switches and Straps (X840-603915)



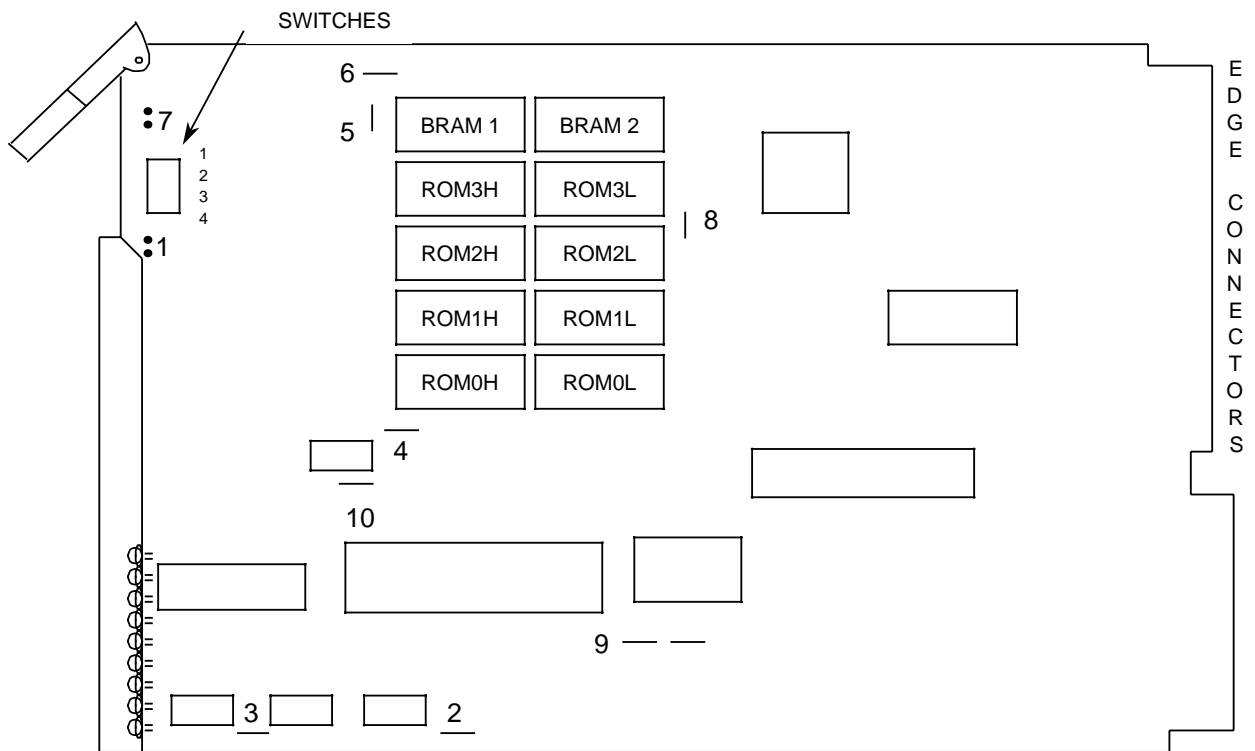
Straps (X840-603915)

STRAP NUMBER	STRAP NAME	NORMAL OPERATIONAL SETTING	
		CHOICE	STRAP POSITION
1	SFINT	ENABLED	NO STRAP
2	(PROM Size)	OTHER	STRAP RIGHT
3	WDOG	ENABLED	STRAP ON
4	BERR	ENABLED	STRAP ON
7	RESET	ENABLED	NO STRAP
8	(Battery Supply)	CONNECTED	STRAP UP
9	RAM/128K/Other	OTHER	STRAP UP
10	BDS/BAS	BAS	STRAP RIGHT
15	512K/Other	OTHER	STRAP RIGHT

Note that strap names shown in brackets are not marked on the card

XGATE2 & XPAD

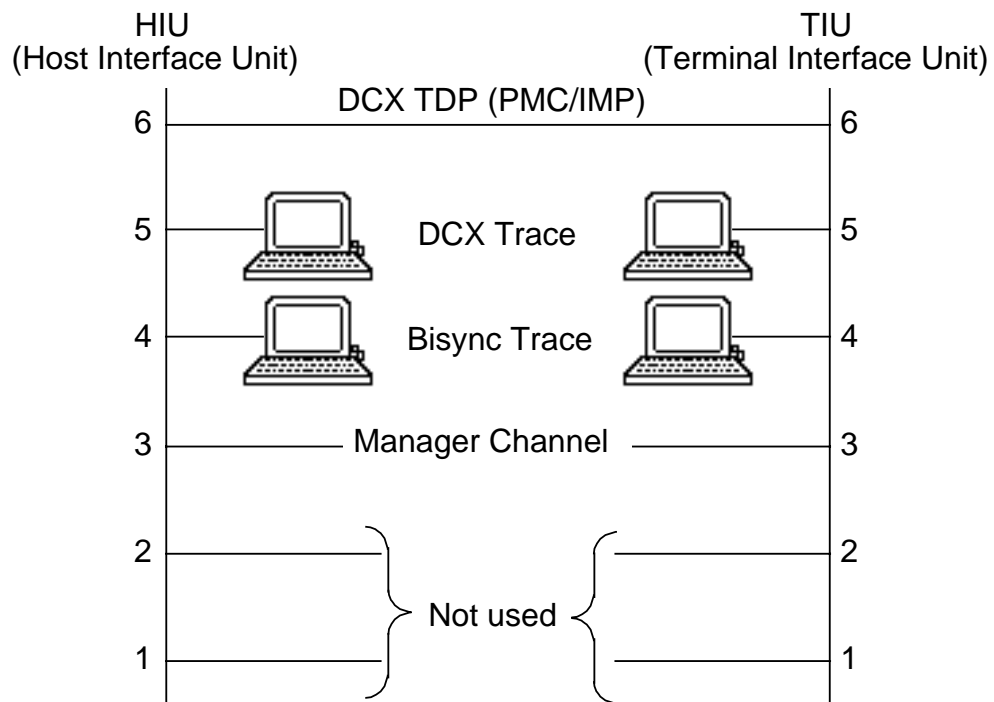
Straps



Strap Number	Strap Name	Normal Operational Setting
1	SFINT	NO STRAP
2	128K/256K	STRAP RIGHT
3	WDOG	STRAP ON
4	BERR	STRAP ON
5	6264/6116	STRAP LEFT
6	6116/6264	STRAP UP
7	RESET	NO STRAP
8	(Battery supply)	STRAP UP
9	RAM/256K/128K	STRAP UP
10	BDS/BAS	STRAP RIGHT

(NO STRAPS ARE USED ON GATE3)

Channel Connections



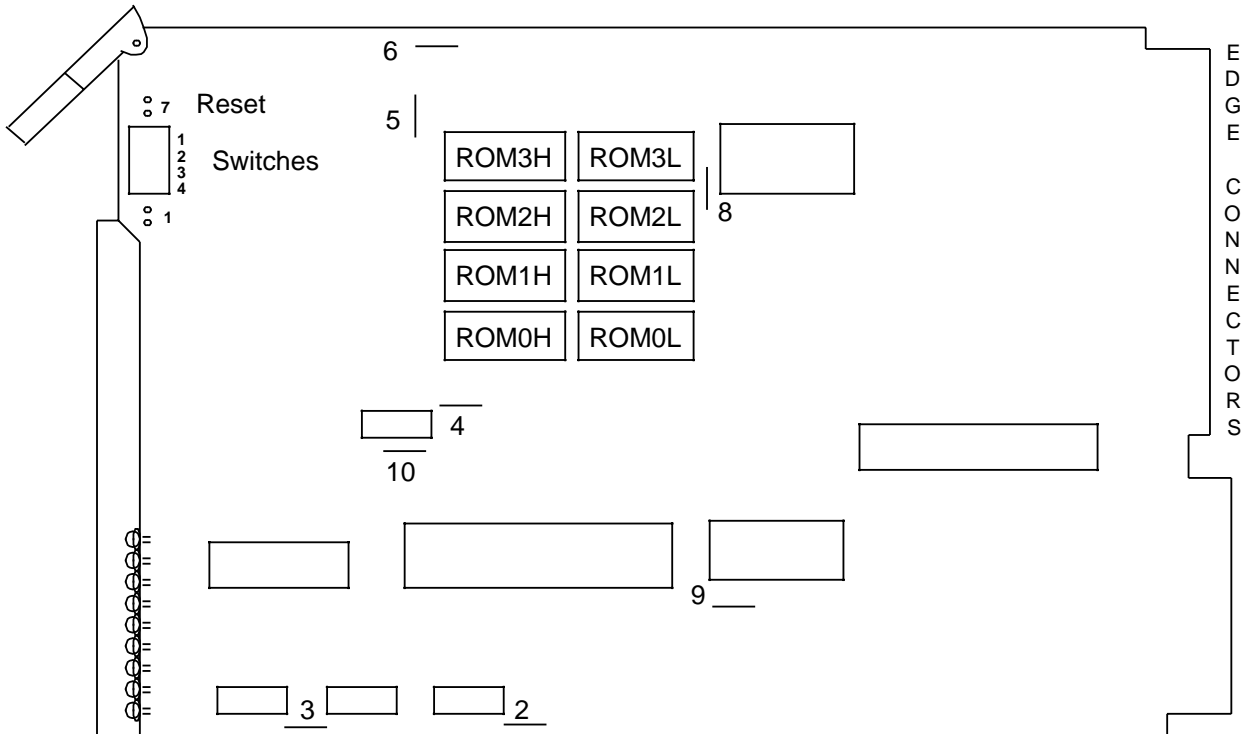
Notes:

Manager terminals must be VT100, ADM3A, CIFER 2605, IBM 3101 or ATT4425 and must provide DTR.

Switches

- Switch 1 Unused (closed).
- Switch 2 Unused (closed).
- Switch 3 CLOSED: Warm start on next reset.
OPEN: Cold start on next reset.
- Switch 4 CLOSED: LED display as selected by supervisor.
OPEN: LED display ON.

HIU/TIU Switches and Straps, (X840-603913)

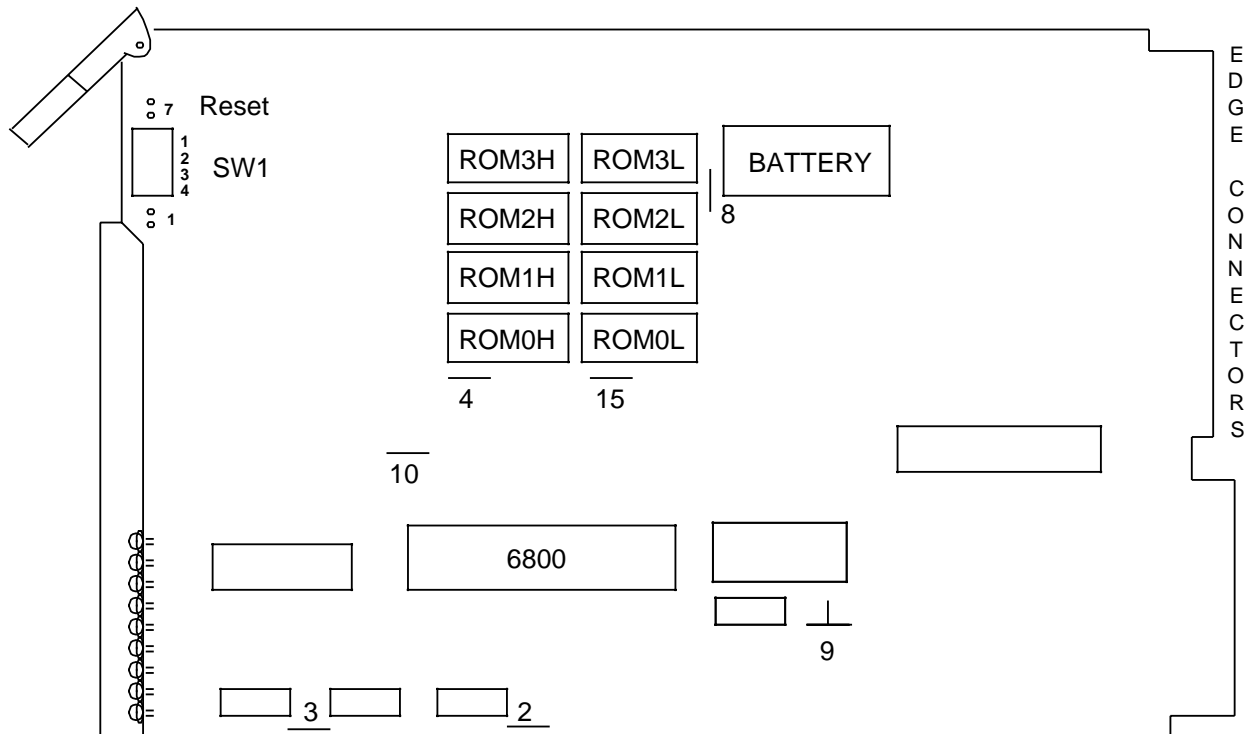


HIU/TIU Straps, X840-603913

STRAP NUMBER	STRAP NAME	NORMAL OPERATIONAL SETTING	
		CHOICE	STRAP POSITION
1	SFINT	ENABLED	NO STRAP
2	(PROM Size)	27128	STRAP LEFT
3	WDOG	ENABLED	STRAP ON
4	BERR	ENABLED	STRAP ON
5	6264/6116	6264	STRAP LEFT
6	6116/6264	6264	STRAP UP
7	RESET	ENABLED	NO STRAP
8	(Battery supply)	CONNECTED	STRAP UP
9	RAM/128K/256K	128K	STRAP RIGHT
10	BDS/BAS	BAS	STRAP RIGHT

Note that strap names shown in brackets are not marked on the card

HIU/TIU Switches and Straps, (X840-603915)



HIU/TIU Straps, X840-603915

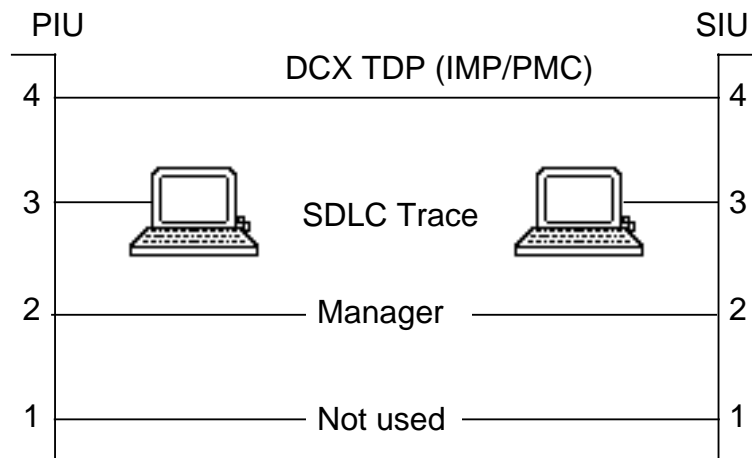
STRAP NUMBER	STRAP NAME	NORMAL OPERATIONAL SETTING	
		CHOICE	STRAP POSITION
1	SFINT	ENABLED	NO STRAP
2	(PROM Size)	OTHER	STRAP RIGHT
3	WDOG	ENABLED	STRAP ON
4	BERR	ENABLED	STRAP ON
7	RESET	ENABLED	NO STRAP
8	(BATTERY SUPPLY)	CONNECTED	STRAP UP
9	RAM/128K/OTHER	OTHER	STRAPUP
10	BDS/BAS	BAS	STRAP RIGHT
15	512K/OTHER	OTHER	STRAP RIGHT

Note that strap names shown in brackets are not marked on the card

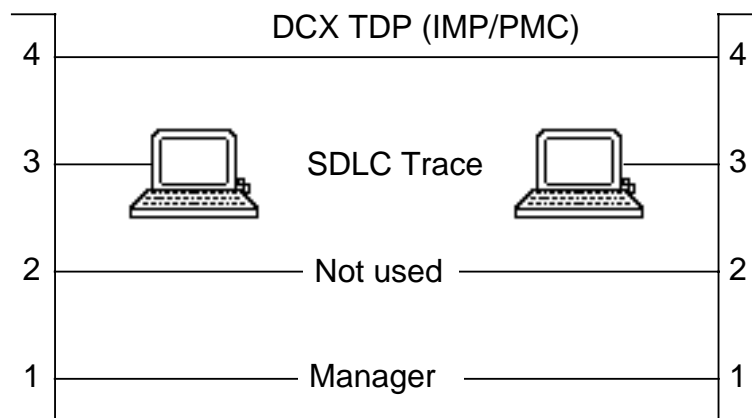
S-Link

Channel Connections

S-Link 0 (Point-to-Point only)



S-Link 1, 2 and 20 (Point-to-Point or Multipoint)



Switches

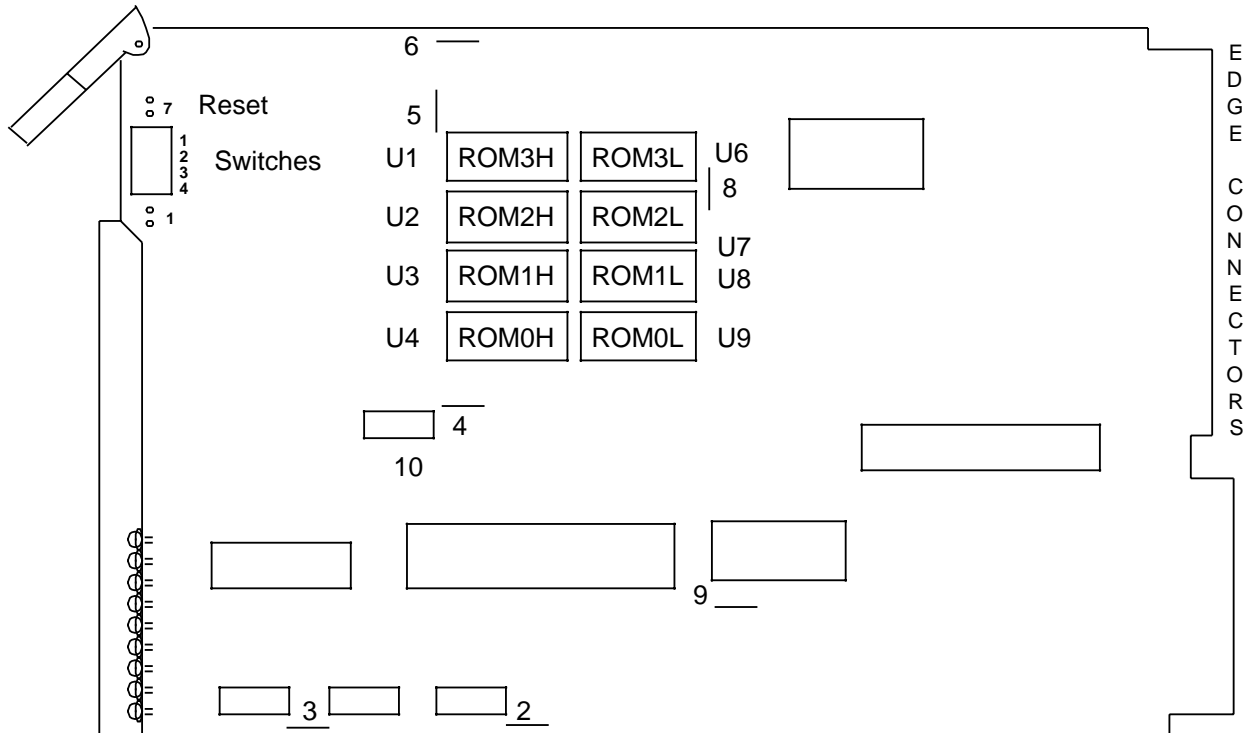
Switch 1 Unused.

Switch 2 Unused.

Switch 3 OPEN: System cold starts on reset.
CLOSED: System warm starts on reset.

Switch 4 OPEN: TXD and RXD indicators are enabled.
CLOSED: TXD and RXD indicators are disabled.

Switches and Straps, X840-603913

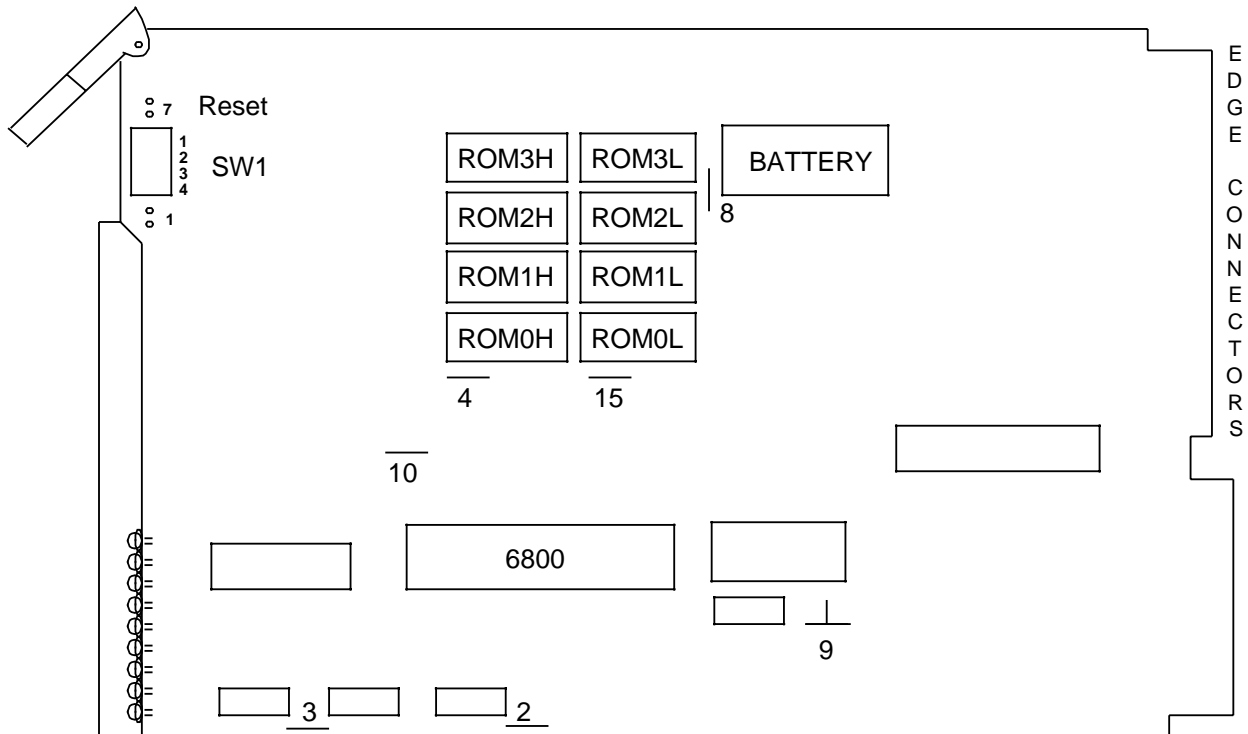


Straps, X840-603913

STRAP NUMBER	STRAP NAME	NORMAL OPERATIONAL SETTING	
		CHOICE	STRAP POSITION
1	SFINT	ENABLED	NO STRAP
2	(PROM Size)	27128	STRAP LEFT
3	WDOG	ENABLED	STRAP ON
4	BERR	ENABLED	STRAP ON
5	6264/6116	6264	STRAP LEFT
6	6116/6264	6264	STRAP UP
7	RESET	ENABLED	NO STRAP
8	(Battery supply)	CONNECTED	STRAP UP
9	RAM/128K/256K	128K	STRAP RIGHT
10	BDS/BAS	BAS	STRAP RIGHT

Note that strap names shown in brackets are not marked on the card.

Switches and Straps, X840-603915

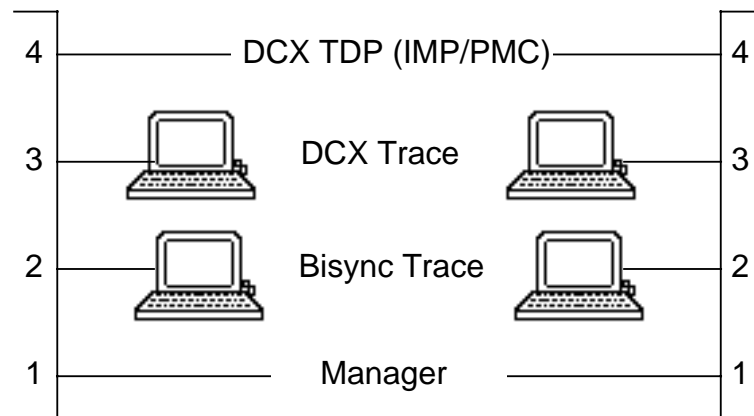


Straps, X840-603915

STRAP NUMBER	STRAP NAME	NORMAL OPERATIONAL SETTING	
		CHOICE	STRAP POSITION
1	SFINT	ENABLED	NO STRAP
2	(PROM Size)	OTHER	STRAP RIGHT
3	WDOG	ENABLED	STRAP ON
4	BERR	ENABLED	STRAP ON
7	RESET	ENABLED	NO STRAP
8	(Battery Supply)	CONNECTED	STRAP UP
9	RAM/128K/Other	OTHER	STRAP UP
10	BDS/BAS	BAS	STRAP RIGHT
15	512K/Other	OTHER	STRAP RIGHT

Note that strap names shown in brackets are not marked on the card

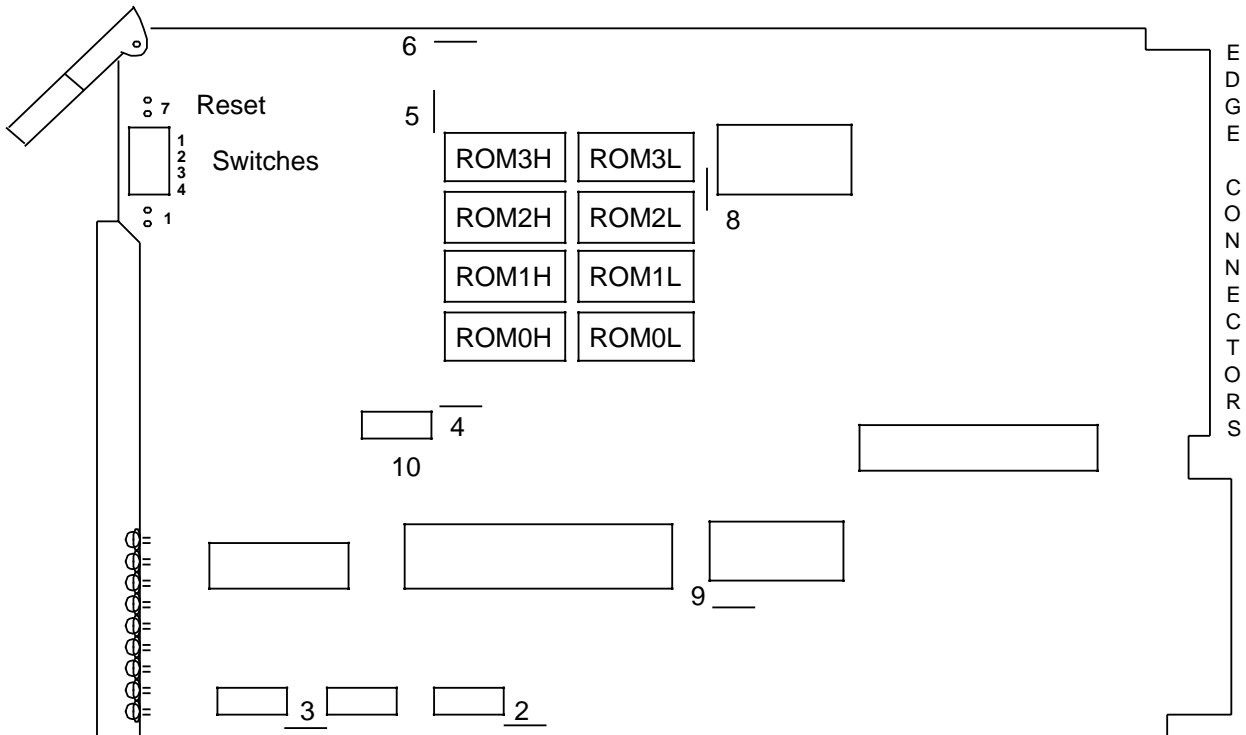
Channel Connections



Switches

- Switch 1** **CLOSED:** At start-up, Bisync Trace and MUX Trace will be routed to separate terminals.
 OPEN: At start-up, Bisync Trace and MUX Trace will be combined and routed to the Bisync Trace terminal.
- Switch 2** Should be **CLOSED**.
- Switch 3** **CLOSED:** Warm start on next reset.
 OPEN: Cold start on next reset.
- Switch 4** **CLOSED:** LED display as selected by supervisor.
 OPEN: LED display ON.

HIU/TIU Switches and Straps, X840-603913



HIU/TIU Straps, X840-603913

STRAP NUMBER	STRAP NAME	NORMAL OPERATIONAL SETTING
		STRAP POSITION
1	SFINT	NO STRAP
2	(PROM Size)	STRAP LEFT
3	WDOG	STRAP ON
4	BERR	STRAP ON
5	6264/6116	STRAP LEFT
6	6116/6264	STRAP UP
7	RESET	NO STRAP
8	(Battery supply)	STRAP UP
9	(PROM/RAM)	STRAP RIGHT
10	BDS/BAS	STRAP RIGHT

Note that strap names shown in brackets are not marked on the card.

HIU/TIU Switches and Straps, X840-603915

