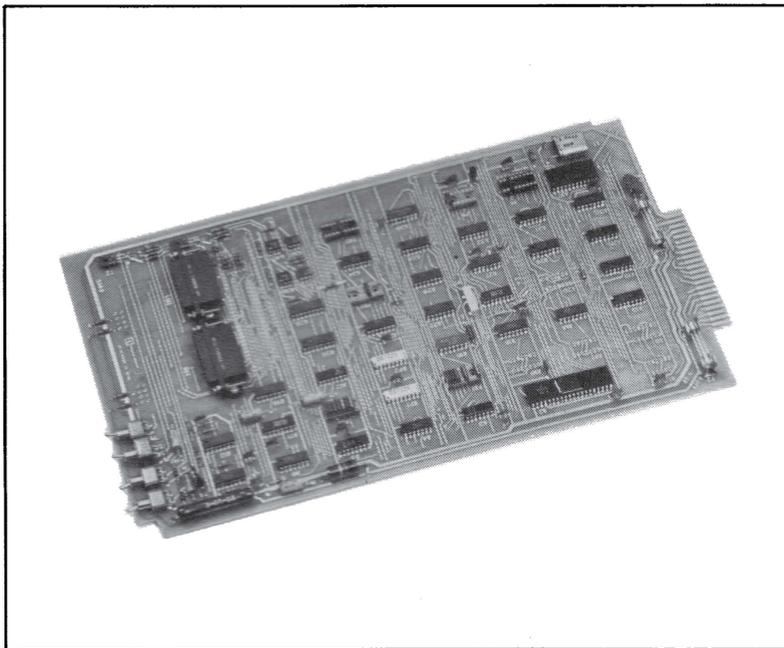


Facit 5148 adapter board

Serial interface for the Facit 4040
tape punch/reader combination



Features

- Makes it possible to convert a KSR-terminal into an ASR-terminal through connection of a Facit 4040 + 5148 tape punch/reader combination.
- The Facit 4040 tape punch/reader combination can be used as a stand alone terminal device through connection of a Facit 5148 interface board.
- Full duplex possibility between an auxiliary terminal and a modem.
- Selectable remote control.
- EIA RS-232-C, CCITT V.24 and 20/60 mA current loop interface.

Physical Description

The serial interface Facit 5148 consists of a single printed circuit board which is located in the lower PCB slot (K2) of the punch. Two DB 25S socket connectors are mounted on the PCB: LINE and AUXILIARY. Connection to the data line (modem, CPU) is made by using the DB 25S socket connector marked Line. The other DB 25S connector, AUXILIARY, is used to connect to an auxiliary terminal if required. *Mating connector shell of type Amp 206478-3 should only be used* in order not to possibly short circuit the interface signals.

General

The Facit 5148 interface board provides a flexible and versatile means of interfacing the Facit 4040 reader/punch combination to communication circuits. The interface conforms to the recommendations set forth in EIA RS-232-C and CCITT V.24. Current loop 20 or 60 mA transmission is also incorporated. The interface allows signals of a serial format to be transmitted or received by the reader or punch or from an auxiliary terminal. This system can be used as a stand alone terminal device or as a peripheral reader/punch to an existing communications terminal.

Applications

The operational modes of the interface are controlled by four (4) switches (Fig. 1) located on the edge of the interface board. Access to them is made by pulling the Facit 4040 forward out of its rack enclosure. The four operating modes are as follows:

AUXILIARY ON/OFF LINE ON/OFF
 LOCAL LOOP BACK ON/OFF PUNCH ON/OFF

AUXILIARY – ON/OFF (SW 1)

This switch enables or disables the auxiliary device.

LOCAL – LOOP BACK (SW 2)

When in the OFF - LINE position, the enabling of this switch ON allows data on Transmitted data from either the auxiliary, if S3 is on, or the tape reader to be presented to the punch or *auxiliary device received data line*.

LINE – ON/OFF (SW 3)

In the ON - LINE position, received data from the communication line is presented to the interface and auxiliary device. Data transmitted from the interface or auxiliary device is presented to the line. In the OFF - LINE position, data from the reader may be presented to the punch and/or if AUX is on, also to the auxiliary device. (In OFF - LINE, baud rate determined by punch rate.) Data received or transmitted from the auxiliary device – if AUX is on – may be presented to the punch and reader.

PUNCH – ON/OFF (SW 4)

This switch enables or disables the punch.

START/STOP (EXT)

Start may be initiated by depressing the start rocker switch on the front panel. To stop the reader, depress the switch towards EXT.

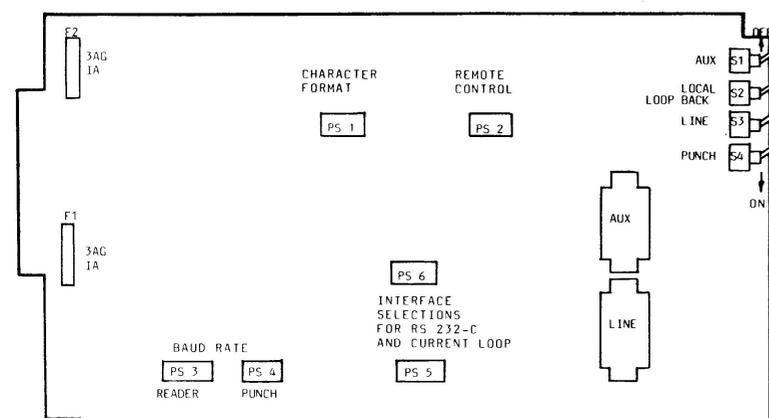


Figure 1. Facit 5148 – Localization of switches

Programming Considerations

The interface board can be programmed for a wide range of communication functions and controls. Programming is accomplished via small jumper plugs inserted into I.C. sockets designated PS 1–6. (See Fig. 1) Each jumper plug socket is marked with a 1 at the first position. 7, 8 or 9 position sockets are used. The following functions are selectable.

Interface data signals, EIA RS-232-C or current loop

Since both standard EIA RS-232-C or current loop signals may be accommodated by the interface, it is necessary to select the mode desired. For RS-232-C, three jumpers are required.

NOTE: Care should be taken that none of the jumpers used for the current loop mode are inserted when the RS-232-C mode is required.

Current loop

The following selections are necessary in order to program for current loop: Current loop program, Line receiver 20 or 60 mA, Auxiliary transmit 20 or 60 mA, Half duplex current loop mode only. For full duplex current loop and EIA RS-232-C jumpers should be removed from PS 6, pos. 1 and 2.

Baud rate

In the ON line mode, the baud rates for punch and reader may be independent. In the OFF line mode, the punch and reader baud rates are controlled by the baud rates selected for the punch (PS 4). Insert program plugs in only one position of PS 3 and PS 4 to select baud rates.

Baud rate programming – PS 3 and 4

Reader PS 3	Punch PS 4
Position 1 - 4800 bps	Position 1 - 600 bps
2 - 2400 bps	2 - 300 bps
3 - 1200 bps	3 - 150 bps
4 - 600 bps	4 - 110 bps
5 - 300 bps	5 - 75 bps
6 - 150 bps	6 - 50 bps
7 - 110 bps	
8 - 75 bps	
9 - 50 bps	

Character format – PS 1

The character format includes Word Length, Parity ON/OFF, Parity Even or Odd and Stop Bits 1 or 2.

Remote control of reader and punch – PS 2

The punch and reader may be controlled remotely by receiving designated ASCII codes DC1 through DC4. These control functions are independent of each other and may be selected in any combination. To implement control functions, the program jumpers of PS 2 are used.

CONTROL CODE	DATA BITS							
	1	2	3	4	5	6	7	8
Reader start DC-1	1	0	0	0	0	1	0	0
Punch start DC-2	0	1	0	0	0	1	0	0
Reader stop DC-3	1	1	0	0	0	1	0	1
Punch stop DC-4	0	0	1	0	0	1	0	0

* If bit 8 is used as parity bit to obtain even parity (DC-3) jumper connection A 30/3.

Reader self stop from tape – PS 2

In addition to the remote control of the reader and punch, the reader may be programmed to self stop when the ASCII carriage return (CR) code or when the ASCII control code DC-3 is read by the reader. The reader may be started again upon receipt of DC-1, i.e. if PS 2 jumper 1 inserted.

Carriage return delay

When the 5148 interface is used in conjunction with printers, a reader interrupt delay is sometimes desirable after carriage return (CR). For this purpose an adjustable delay of from 10 ms to 1 second is available. Potentiometer P 2 is used to adjust the delay time desired. In the OFF - LINE mode the delay is automatically set to zero. To activate or deactivate this delay, a program jumper of PS 2 is chosen.

Miscellaneous program functions

Some applications might require that the 5148 interface to EIA RS-232-C signals be forced to a permanent condition, either ON + voltage or OFF – voltage, either due to test or unique system requirements. The following lines may be programmed as follows: – See pin assignments.

Auxiliary signals RS-232-C

Data terminal ready ON PS 5 - jumper pos. 1
 Request to send ON PS 5 - jumper pos. 2
 Received data "mark" (OFF) PS 1 - remove pos. 8/jumper pos. 6
 Received data "space" (ON) PS 1 - remove pos. 8/jumper pos. 7
 Clear to send "ON" PS 6 - jumper pos. 8

The following RS-232-C control signals may be forced ON + 12V or OFF –12V via solder jumpers which can be entered near the edge of the board.

Pin #	Circuit	Description
8	CF	Received line signal detector
21	CG	Signal quality detector
22	CE	Ring indicator
25	—	Unassigned

Line signals RS 232-C

Clear to send ON PS 5 - jumper pos. 3
 Request to send ON PS 5 - remove pos. 5/jumper pos. 4
 Transmitted data "mark" (OFF) PS 6 - remove pos. 5/jumper pos. 6
 Transmitted data "space" (ON) PS 6 - remove pos. 5/jumper pos. 7

Programming possibilities in tabular form

FUNCTION	PS#	JUMPER POSITION								
		1	2	3	4	5	6	7	8	9
RS-232-C	1								(1)	
	5					(1)				
	6					(1)				
Current loop	6			1	1					
Line receiver 20 mA	5						1			
Line receiver 60 mA	5							1		
Aux. transmit 20 mA	5								1	
Aux. transmit 60 mA	5									1
Half duplex C.L. only	6	1	1							
Full duplex C.L. and RS-232-C	6	0	0							
Baud rate – reader	—	* See designation								
Baud rate – punch	—	PS 3 and 4 on PCB								
Parity on	1	(1)								
Parity off	1	0								
Parity odd	1		(1)							
Parity even	1		0							
Word length 5	1			1	1					
Word length 6	1				1					
Word length 7	1				(1)					
Word length 8	1			0	0					
Stop bit 1	1							(1)		
Stop bit 2	1							0		
Remote control DC-1-Rdr start	2	(1)								
Remote control DC-2-Pnh start	2		(1)							
Remote control DC-3-Rdr stop	2			(1)						
Remote control DC-4-Pnh stop	2				(1)					
Reader stop (tape) CR	2					(1)				
Reader stop (tape) DC-3	2						(1)			
Carr. rtn delay yes	2							(1)		
Carr. rtn delay no	2								1	

1 – Jumper required
 0 – No jumper
 () – STD Factory program

* Standard Reader 1200 bps
 Punch 600 bps

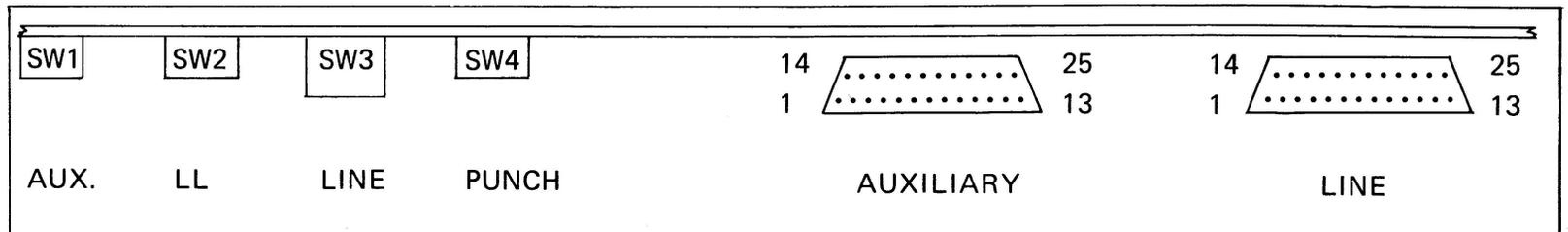
Interface Connection

Pin assignments

RS-232-C Pin #	Circuit name	CCITT equiv.	Description	From DCE*	To DCE
1	AA	101	Protective ground		
2	BA	103	Transmitted data		X
3	BB	104	Received data	X	
4	CA	105	Request to send		X
5	CB	106	Clear to send	X	
6	CC	107	Data set ready	X	
7	AB	102	Signal ground		
8	CF	109	Received line signal detector	X	
10			+Receive current loop		
11			-Receive current loop		
12			+Transmit current loop		
13			-Transmit current loop		
20	CD	108.2	Data terminal ready		X
21	CG	110	Signal quality detector	X	
22	CE	125	Ring indicator	X	

*Data communication equipment

View of SW1-4 and DATA CONNECTORS as seen from rear of punch



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