
Asynchronous Serial Interface

Technical Data

**For HP 1000 A-Series
Computer Systems
Product Number
HP 12005B**

The HP 12005B Asynchronous Serial Interface provides an asynchronous serial communications link between the HP 1000 A-Series Computer and RS-449, RS-422, or RS-232 compatible devices. The connection can be made through a fiber-optic or hardwire cable. Modem control signals through the hardwired cables are also available.

Features

- Fiber-Optic interface and 15-meter cable to minimize electrical interference
- EIA RS-232-C, RS-422, RS-423, and a subset of RS-449 compatibility
- Complies with European standard CCITT V.28
- Sixteen data transfer rates from 50 to 19.2 K baud
- 56 K baud data rate with external clock
- Choice of half-duplex, full-duplex, or echoplex operation
- Built-in DMA capability for optimum I/O efficiency
- Selectable special character recognition capability for termination of indeterminate

- length DMA transfers by an End of Transmission character
- Virtual control panel support
 - Built-in framing error, overrun error, and parity error checking
 - Hardware break detection
 - Voltage level and current loop outputs
 - I/O driver support with RTE-L/XL and RTE-A operating systems

Functional Specifications

Formats, Parity, and Format Control

Data Codes: 7-bit ASCII or 8-bit binary

Serial Data Transfer Format: Each 7-bit or 8-bit data code is preceded by a start bit, accompanied by an odd or even parity bit, and followed by one or two stop bits.

Parity Selection: Odd, even, or no parity

Stop Bit Selection: One or two stop bits

Interface Level

Complies with EIA Standard RS-232-C, RS-422, RS-423, and a subset of RS-449

Complies with CCITT Recommendation V.28

Transfer Rates

Interface Clocked Rates: 50, 75, 110, 134.5, 150, 300, 600, 900, 1200, 1800, 2400, 3600, 4800, 7200, 9600, and 19200 baud

Externally Clocked Rate: Up to 56,000 baud, with external clock signal (requires fabrication of an interface cable)

Character Buffering

Two characters

Teleprinter Interface

A 20 mA current loop interface is provided for interfacing to teleprinters; connection to this interface requires that a cable be fabricated for the device used.

Virtual Control Panel Support

The HP 12005B interface can be set to support a terminal which will function as the Virtual Control Panel of HP 1000 A-Series computers.

Direct Memory Access (DMA) Operation

DMA Accessibility: The HP 12005B can transfer data directly to or from computer memory. DMA control is performed on the card, reducing the overhead of handling DMA operations.

Termination of Indeterminate Length Transfers: Special hardware on the HP 12005B has the capability of monitoring the incoming serial data stream for the occurrence of a specific 7- or 8-bit pattern. This pattern can be used to terminate a DMA block data transfer of indefinite length.

Break Detection

Hardware on the HP 12005B monitors the incoming serial data stream for BREAK characters, which are defined as SPACES occurring over 12 successive bit times. When the line returns to a MARK condition, the computer is informed of receipt of the BREAK.

Configuration Information

Computer and System Compatibility: The HP 12005B Asynchronous

Serial Interface is compatible with all HP 1000 A-Series computers and systems.

Software Support: The HP 12005B interface uses RTE-A interface drivers ID.00 and ID.01. RTE-A device drivers DD.00 (keyboard-display I/O) and DD.20 (minicartridge I/O) which will operate with ID.00 to support Hewlett-Packard terminals.

Modem Capability: The HP 12005B interface with RTE-A driver ID.00 and ID.01 is designed to be compatible with Bell Type 103 and 212 Data Sets and equivalent modems.

Diagnostic Support: A diagnostic test and test connector for the HP 12005B interface can be obtained by purchasing the HP 24612A A/L Systems Diagnostic Package.

Electrical Specifications

Direct Current

Requirements: 1.6 A (+5 V); 0.145 A (+12 V); 0.11 A (-12 V)

Switch-Selectable Options:

- Operation as a virtual control panel
- Baud rate selection select code setting
- Stop bit selection (1 or 2)
- Parity sense (even or odd)

Physical Characteristics

Dimensions: 28.9 cm (11.4 in) long by 17.2 cm (6.8 in) wide by 0.16 cm (0.06 in) board thickness, with 1.0 cm (0.4 in) top-of-board parts clearance and 0.5 cm (0.2 in) beneath-board clearance.

Weight: 795 grams (28 oz)

Ordering Information

The HP 12005B includes:

12005-60012 Asynchronous Serial Interface
12005-90002 Installation and Reference Manual
5061-5798 15-meter Fiber-Optic Cable

HP 12005B Options:

- 001** Substitutes a 5-meter 5061-6604 filtered cable for 5061-5798 for interfacing to HP terminals using a 50-pin connector.
- 002** Substitutes a 5-meter 5061-6634 filtered cable for 5061-5798 for interfacing to terminals which require a 25-pin DB25P male RS-232-C DTE connector.
- 003** Substitutes a 5-meter 12005-60004 RS-232-C cable for 5061-5798 for interfacing to modems which require a 25-pin male connector.

004 Substitutes a 5-meter 12005-60005 cable for 5061-5798 for interfacing to HP terminals requiring a hooded connector.

005 Adds a fiber-optic interface, 5061-5800, for interfacing via fiber-optic cable to HP terminals having 50-pin connectors.

006 Substitutes a 48-pin edge connector kit (5061-3426) for 5061-5798.

Note: If the intended terminal does not include a built-in fiber-optic interface, **one** of options 1 through 6 **must** be ordered.

HP 12005B Signals Table 1

(PCA) J1	Signal Name	Signal Definition	RS-232-C	RS-449	Signal Source
A	GND				
1	GND				
B	IC(A)*	Incoming Call (A)	CE	IC	Device
2	RS(B)	Request to Send (B)	CA	RS	Interface
C	RIC	Used by Diagnostics Only			
3	RS(A)*	Request to Send (A)	CA	RS	Interface
D	TTYI	Teletypewriter Input			
4	TTYI	Teletypewriter Input			
E	RS(U)**	Request to Send (U)	CA	**	Interface
5	DRST	Reset Line Used by Diagnostics Only			
F	IC(B)*	Incoming Call (B)	CE	IC	Device
6	RDM	Used in Diagnostics Only			
H	RCS	Used in Diagnostics Only			
7	XTCLK	Clock from External Device (if any)(16X)			
J	+5 V	+5 to Terminal			
8	ECHOM	Used by Diagnostics Only			
K	SPC2	Used by Diagnostics Only			
9	SD(B)	Send Data (B)	BA	SD	Interface
L	RRR	Used by Diagnostics Only			
10	SD(A)*	Send Data (A)	BA	SD	Interface
M	TR	Terminal Ready	CD	TR	Interface
11	SBS	Stop Bit Select			
N	TTY + 12	+ 12 to Teletypewriter			
12	TTY + 12	+ 12 to Teletypewriter			
P	RDRCNTL	Reader Control (GND)			
13	RDRCNTL	Reader Control (GND)			
R	TTY - 12	- 12 to Teletypewriter			
14	TTY - 12	- 12 to Teletypewriter			
S	RD(B)*	Receive Data (B)	BB	RD	Device
15	SRD(A)*	Secondary Receive Data (B)	SBB	SRD	Device
T	TTYO	Output to Teletypewriter			
16	TTYO	Output to Teletypewriter			
U	RD(A)*	Receive Data (A)	BB	RD	Device
17	SRD(B)*	Secondary Receive Data (B)	SBB	SRD	Device
V	RR(A)*	Receiver Ready (A)	CF	RR	Device
18	RR(B)	Receiver Ready (A)	CF	RR	Device
W	SD(U)**	Send Data (U)	BA	#	Interface
19	MSB-	Most Significant Bit of Baud Rate Select			
X	CS(A)*	Clear to Send (A)	CB	CS	Device
20	NMSB-	Next to Most Significant Bit of Baud Rate Select			
Y	CS(B)*	Clear to Send (B)	CB	CS	Device
21	NLSB+	Next to Least Significant Bit of Baud Rate Select			
Z	DM(A)*	Data Mode (A)	CC	DM	Device
22	LSB+	Least Significant Bit of Baud Rate Select			
AA	DM(B)*	Data Mode (B)	CC	DM	Device
23	SSD	Secondary Send Data	SBA	SSD	Interface
BB	O/E	Optical/Electrical Select			
24	GND				

Notes: * Indicates Differential Driver or Receiver used on this signal.
 ** Indicates Single-ended Driver used on this signal.
 # RS-449 recommends the use of Differential Drivers.

Technical information in this document is subject to change without notice.

Copyright© Hewlett-Packard Company 1993. All rights reserved.

Printed in the U.S.A.