PRÉSERVER
SAUVEGARDER
VALORISER

MODE D'EMPLOI DE L'ANALYSEUR D'ERREUR DE DONNÉES HP 1645A

FICHE N° 3948

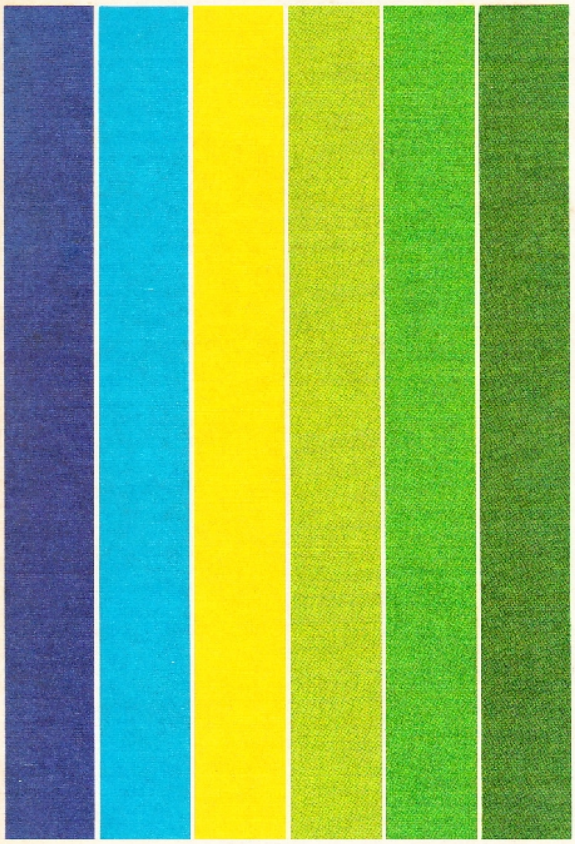
Période de fabrication : 1975-1999
Fabricant : fabricant non renseigné
Domaines : Informatique et Communication, Physique
Sous-domaines : Electronique
Organisme : Université de Rennes
Ville : Rennes
Modèle : HP 1645A
Matériaux : Papier

Description
Cette documentation , en anglais, extraite du catalogue Hewlett-Packard de 1978 décrit en deux pages les principales caractéristiques et descriptions de l'analyseur d'erreur de données HP 1645A (Data Error Analyzer).

Utilisation
Cet appareil d'analyse de données était utilisé à partir de 1978 en travaux pratiques d'électronique par les étudiants de licence et de maîtrise d'électronique et d'automatique de la faculté des sciences de Rennes. Les entrées de données requièrent des niveaux de tension de type TTL (maximum de 5,5 volts).

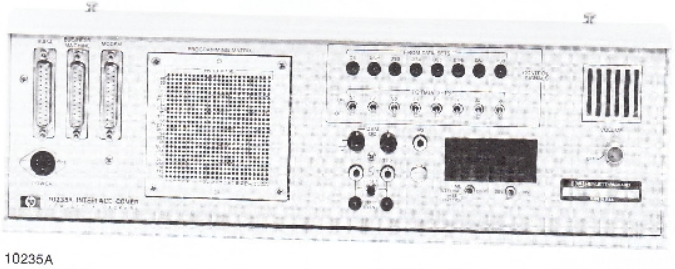
HEWLETT hp PACKARD

MEASUREMENT/COMPUTATION



1978

ELECTRONIC INSTRUMENTS AND SYSTEMS



10235A

1645A Specifications

Bit rate

Internal

Transmitter bits per secod: selectable 75, 150, 200, 300, 600, 1200, 1800, 2400, 3600, 4800, 7200, 9600.
Crystal frequency: 5.75 MHz ±0.03%, <0.01% jitter.
Receiver with bit synchronizer: same as internal transmitter.
External: transmitter and receiver, to 5 MHz.

Data outputs/inputs

Front panel

Input: data input requires TTL levels; max input 5.5 V.
Outputs: receiver sync, transmitter sync, and event at TTL levels; data output is >2 V into 50 ohms; jitter/total peak is 1 V p-p for each 10% of p-p distortion from waveform causing distortion.

Rear panel

Inputs: backward channel data, external transmitter and receiver clock require TTL levels; max input 5.5 V.
Outputs: bits lost at TTL levels; internal transmitter clock is >2 V into 50 ohms.
Multipin connectors: 25 pin female connector for interfacing with standard RS-232C communications systems. 36 pin female printer output at TTL levels in BCD 8421 code.

General

Power: 115 or 230 V ac, 48 to 440 Hz, 150 VA max.
Operating environment: temperature, 0 to +55°C (+32°F to +130°F); humidity, to 95% relative humidity at +40°C (+104°F); altitude, to 4600 m (15 000 ft); vibration, vibrated in three planes for 15 min. each with 0.254 mm (0.010 in.) excursion, 10 to 55 Hz.
Dimensions: 133 H × 425 W × 286 mm D (5¼" × 16¾" × 11¼").
Weight: net, 8.2 kg (18 lb). Shipping, 10.9 kg (24 lb).
Accessories supplied: one 3 m (10 ft) RS-232C interconnecting cable to connect the 1645A to the modem, connects to 10235A when used in the 1645S configuration (HP P/N 01645-61605), one 2.3 m (7.5 ft) 3 wire power cord (HP P/N 8120-1378); one Operating and Service Manual.

1645A Indicators and controls

Indicators

Out of lock; received data inverted; bit error; carrier loss; clock slip; block error; data set ready (DSR); clear to send (CTS); loss of data; test on.

Selector switches

Clock; pattern: data/$\overline{\text{data}}$; exponent range; single/cycle (printer); DTR/RTS/backward channel; start/stop; off/loop; off/xmit errors; off/filter; event, bit error, carrier loss, clock slip, block error, skew, jitter/total peak.

10235A Specifications

Time interval

Range: 999 ms full scale.
Resolution: 1 ms.
Accuracy: ±2% of measured interval ±1 count.
Start-Stop: TP1 & TP2 input, LED indicates event start at TP1 or TP2.
Trigger slope: positive edge.
Trigger amplitude: ±3 V.
Input resistance: approx. 4 kΩ.

DC digital voltmeter

Ranges: 19.99 V, 199.9 V full scale.
Accuracy: ±1% of reading, +1 count.
Digital units: 3½ digits.
Input resistance: 1 MΩ.
Overload protection: to 1000 V.

General

Interface connectors: three 25 pin female connectors for connecting the 10235A to the 1645A, modem, and business machine. Interface conforms to RS-232C standard.
Power requirements: +15 V to 25 V and −15 V to −25 V supplied by the 1645A.
Dimensions: 132 H × 399 W × 48 mm D (5.2" × 15.7" × 1.9").
Weight: net, 1.8 kg (4 lb). Shipping, 3.2 kg (7 lb).
Accessories supplied: one 46 cm (18") RS-232C interconnecting cable connects 10235A to 1645A (HP P/N 10235-61606); one 46 cm (18") power cable connects to 1645A (HP P/N 10235-61602); one accessory pouch, attaches to side of 1645A (HP P/N 1540-0385); one Operating Note.

Indicator and control functions

Indicators: eight light emitting diodes (LED) provide logic HI or LO indications for corresponding patch pins in the programming matrix, +3 V lights LED.
Audio: built-in loudspeaker and volume control.
Control switches: eight switches supply control signals through the program matrix to business machine/modem connectors. On is +5 V, OFF is −5 V.

Interfaces

Model 10387A for Type 303 modems (with cable)
Model 10388A for CCITT V35 (with cable)
Model 10389A Breakout Box (RS-232C) (with cable)
MIL-STD-188C and other interfaces available on special order. Contact HP Field Engineer.

Accessories

Printer interconnecting cable: Model 10233A cable connects the 1645A to HP Model 5055A or 5150A printers; 36 pin male connector on one end and 50 pin male connector on the other
Front panel cover: protects 1645A front panel during transit and provides convenient carrying handle (HP P/N 5060-8767). This cover is not needed when a 10235A Interface Cover is ordered with a 1645A, or with a 1645S Data Transmission Test Set.

Ordering information

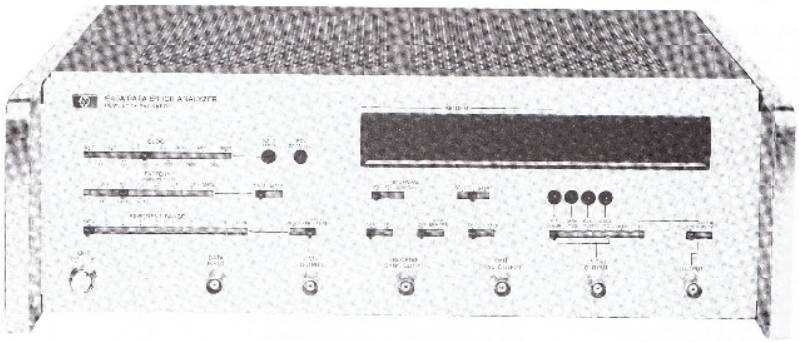
1645A Data Error Analyzer
Opt 908: includes rack mounting kit
Opt 910: additional set of manuals
10235A Interface Cover
1645S Data Communications Test Set*
Opt 910: additional set of manuals

*Includes 10387A, 10388A, 10389A, and interconnecting cables.

TELECOMMUNICATIONS TEST EQUIPMENT

Six simultaneous, automatic data measurements

Models 1645A & 10235A



1645A

Direct reading, autoranged indications are displayed on an LED readout. Handshake signals conforming to CCITT convention are included for operation through any modem system.

1645A Description

Hewlett-Packard's Model 1645A Data Error Analyzer quickly isolates data communications link problems through six simultaneous measurements. During tests, the 1645A can be left totally unattended because it automatically maintains synchronization even in the presence of dropouts. And for added convenience, the 1645A can be equipped with a printer for hard-copy, permanent recordings of long tests.

Bit-error and block-error rate tests are autoranged and displayed directly on an LED readout, there is no need to perform any calculation. Additionally, the 1645A measures jitter or total peak distortion (the sum effect of jitter and bias), counts the number of times carrier loss or dropouts occur, measures data-error skew and counts the number of clock slips resulting from phase hits on the link or modem sync problems.

With all these measurements made during the same test interval, you'll know precisely what is causing your problems in modems, data channels, complete communications systems.

10235A Interface cover

The 10235A Interface Cover is designed for troubleshooting problems on the RS-232C interface bus. The most common problems such as wrong voltages and excessive turnaround times, which most commonly occur during installation, are easily pinpointed with the measurement capability of the interface cover.

Measurements include time interval, voltage measurements, audio monitoring, data set control signal monitoring, and the ability to send control signals to the data sets. This measurement capability can be easily patched through the 25 × 25 pin matrix to every pin of the RS232C interface for complete testing.

The programmable matrix has the 25 pins of the RS-232C interface (modem and business machine) connected to the columns along with most of the RS-232C conductors from the 1645A to the modem. Several important signals, send data, receive data, transmit clock and receive clock, are separated and applied to the matrix rows for manual manipulation by the technician.

The most important row outputs are TP1 and TP2 which are connected to the time interval circuits for measuring the interval between signals occurring on two different leads in the matrix. The interval timer measures the time while a visual indication of which lead changed state first is supplied by LED's connected to TP1 and TP2. This permits accurate timing measurements of important signals such as turnaround time between Request to Send and Clear to Send responses. Test points 1 and 2 may also be monitored with the built-in loudspeaker. For maximum flexibility the voltmeter can be connected through jumper leads to TP1, TP2, or TP3 of the matrix to any of the 25 input leads. The external inputs also allow external voltage measurements such as telephone line signal levels.

Control information can also be exchanged between the 10235A and the data set by using any of the eight data set control switches. In addition control signals from the data set can be monitored through the matrix on the eight control signal indicators.

Interfaces

For versatility in design and troubleshooting, both CCITT V.28 (RS-232C) levels and TTL levels are available in the 1645A. TTL levels are through front panel BNC connectors. Interfacing with standard RS-232C systems is through a rear panel 25 pin connector. The system interface, including connector, is contained on one circuit card which is easily replaced for other interfaces. The Model 10388A interface card and cable is for modems conforming to CCITT V35 (W.E. Type 306) high speed modems. The Model 10387A interface is for type 303 wideband modems. Interfacing with modems conforming to MIL-188C standards is available on special order. A breakout box, Model 10389A for RS-232C systems, is available as a convenient method of opening interconnecting lines. Test points on each side of the switch permits monitoring of signal levels, or with jumper leads offer a convenient method of matching different system installations.

For communications companies that need to test both low and high speed systems the 1645S offers a complete data transmission test set. The test set includes a 1645A Data Error Analyzer with RS-232C interface; 10235A Interface Cover; CCITT V.35 and Type 303 interface with matching cables; Model 10389A RS-232C breakout box with cable; and two accessory pouches. The 1645A in this system incorporates a wider phase lock loop capture range which allows receiver lock-on to PRBS signals of other units that do not have crystal controlled transmitters for end-to-end testing. The 1645S includes two diode and two resistor pins for the 10235A matrix. This complete test system offers eight basic data communication measurements plus audio which is capable of detecting malfunctions ranging from crossed wires to intersymbol interference in a wide range of data communications systems.