OPERATING AND SERVICE MANUAL

18135A
RS-232C/V.24 INTERFACE POD
AND
18139A
MIL-188C INTERFACE POD

SERIAL NUMBERS

This manual applies directly to instruments with serial numbers prefixed **2331A** (HP 18135A RS-232C-V.24) and **2401A** (HP 18139A MIL-188C).

For additional important information about serial numbers see INSTRUMENTS COVERED BY MANUAL in Section I.

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WARNING

SAFETY

If this instrument is to be energized via an autotransformer for voltage reduction, make sure the common terminal is connected to the earthed pole of the power source.

BEFORE SWITCHING ON THIS INSTRUMENT, the protective earth terminals of this instrument must be connected to the protective conductor of the (mains) power cord. The mains plug shall only be inserted in a socket outlet provided with a protective earth contact. The protective action must not be negated by use of an extension cord (power cable) without a protective conductor (grounding).

Make sure that only fuses with the required rated current and of the specified type (normal blow, time delay, etc.) are used for replacement. The use of repaired fuses and the short-circuiting of fuse holders must be avoided.

Whenever it is likely that the protection offered by fuses has been impaired, the instrument must be made inoperative and be secured against any unintended operation.

GROUNDING

Any interruption of the protective (grounding) conductor (inside or outside the instrument) or disconnecting the protective earth terminal can make this instrument dangerous. Intentional interruption is prohibited.

HIGH VOLTAGE

Any adjustment, maintenance, and repair of the opened instrument under voltage should be avoided as much as possible and, when inevitable, should be carried out only by a skilled person who is aware of the hazard involved.

Capacitors inside the instrument may still be charged even if the instrument has been disconnected from its source of supply.

Adjustments and service described herein are performed with power supplied to the instrument while protective covers are removed. Energy available at many points, if contacted, result in personal injury.

CAUTION

LINE VOLTAGE

BEFORE SWITCHING ON THIS INSTRUMENT, make sure instrument requirements match the voltage of the power source.

GROUNDING

BEFORE SWITCHING ON THIS INSTRUMENT, ensure that all devices connected to this instrument are connected to the protective (earth) ground.

BEFORE SWITCHING ON THIS INSTRUMENT, ensure that the line power (mains) plug is connected to a three-conductor line power outlet that has a protective (earth) ground. (Grounding one conductor of a two-conductor outlet is not sufficient.)

SECTION I
GENERAL INFORMATION

1-1. INTRODUCTION

This Operating and Service Manual contains information required to install, operate, and service the Hewlett-Packard Models 18135A RS-232C/V.24 and 18139A MIL-188C Interface Pods. The 18135A Interface Pod is shown in Figure 1-1.

This manual is divided into eight major sections which provide the following information:

SECTION I, GENERAL INFORMATION, provides specifications, safety considerations, accessory identification, and a brief description of the accessories.

SECTION II, INSTALLATION, provides information for initial inspection, preparation for use, power requirements, operating environment, and storage and shipment.

SECTION III, OPERATION, provides connector description, instructions to connect the Interface Pod to the Protocol Analyzer and the network under test, and a brief description of RS-232C/V.24 and MIL-188C standards.

SECTION IV, PERFORMANCE TESTS, are performed after the HP Protocol Analyzer is connected to the Interface Pod, the Performance Tests are located in the appropriate HP Protocol Analyzer Service Manual.

SECTION V, ADJUSTMENTS, There are no adjustments for HP 18135A RS-232C/V.24 or HP 18139A MIL-188C Interface Pods.

SECTION VI, REPLACEABLE PARTS, provides information required to order all replaceable parts and assemblies.

SECTION VII, MANUAL BACKDATING CHANGES, contains information to backdate the manual for earlier accessories and to maintain compatability with the HP Protocol Analyzer.

SECTION VIII, SERVICE, provides service and troubleshooting information. This includes theory of operation, block diagrams, component locators, and schematics.

1-2. SPECIFICATIONS

HP 18135A RS-232C/V.24 Interface Pod specifications are listed in Table 1-1. Table 1-2 lists specifications for HP 18139A MIL-188C. These specifications are the performance standards or limits against which the accessory can be tested.

1-3. SAFETY CONSIDERATIONS

Whenever internal circuits are exposed, caution must be exercised. Observe all warnings and cautions marked on the accessory or listed in procedures.

Table 1-1. Model 18135A RS-232C/V.24 Specifications

ELECTRICAL:	
Active Input voltage:	+3 to +25 = Binary 0 −3 to −25 = Binary 1
Max. Input Voltage:	±25 VDC
Input Impedance:	>10 kohms
Active Output Voltage:	−12 to −5 = Binary 1 +5 to +12 = Binary 0
PHYSICAL:	
Dimensions: (Interface Pod)	20.3 cm x 12.4 cm x 3.6 cm (8 in x 4.9 in x 1.4 in)
Weight including cable:	794 gr (28 oz)
Interface Pod Y-Cable Length:	46 cm (18 in)
OPERATING	
Temperature	0°C to +55°C (32°F to 131°F)
Altitude	Up to 4600 metres (15,000 ft)
STORAGE	
Temperature	−40°C to +75°C (−40°F to 167°F)
Altitude	Up to 15,300 metres (50,000 ft)

Table 1-2. Model 18139A MIL-188C Specifications

ELECTRICAL:	
Active Input voltage:	+0.5 to +6 = Binary 1 −0.5 to −6 = Binary 0
Max. Input Voltage:	±25 VDC
Input Impedance:	>10 kohms
Active Output Voltage:	−6 to −4 = Binary 1 +4 to +6 = Binary 0
PHYSICAL:	
Dimensions: (Interface Pod)	20.3 cm x 12.4 cm x 3.6 cm (8 in x 4.9 in x 1.4 in)
Weight including cable:	794 gr (28 oz)
Interface Pod Y-Cable Length:	46 cm (18 in.)
OPERATING	
Temperature	0°C to +55°C (32°F to 131°F)
Altitude	Up to 4600 metres (15,000 ft)
STORAGE	
Temperature	−40°C to +75°C (−40°F to 167°F)
Altitude	Up to 15,300 metres (50,000 ft)

1-4. INSTRUMENTS COVERED BY MANUAL

This accessory has a two part serial number. The serial number is in the form 0000A00000. The first four digits and the letter comprise the serial number prefix. The last five digits form the sequential suffix unique to each accessory. The content of this manual applies directly to accessories with the same or lower serial number prefix as listed under SERIAL PREFIXES on the title page.

An accessory manufactured after the printing of this manual may have a serial prefix higher than listed on the Title Page of this manual. This indicates that the Interface Pod has been modified, a yellow Manual Change Sheet will accompany the manual to provide information to adapt the manual to the newer accessory.

1-5. DESCRIPTION

The HP 18135A RS-232C/V.24 and HP 18139A MIL-188C Interface Pods provide the connection between the HP Protocol Analyzer and the Data Terminal Equipment (DTE) and/or Data Circuit-Terminating Equipment (DCE). The HP 18135A follows CCITT V.24 and EIA RS-232C electrical, mechanical, functional, and procedural specifications. The HP 18139A meets Military Standard 188-C.

Figure 1-2 illustrates typical placement of the Interface Pod during monitor mode in a network. The Protocol Analyzer operates in two modes, as a passive monitor of all data and control signals on a digital link or as a simulator, driving data and control signals to exercise the network or specific components.

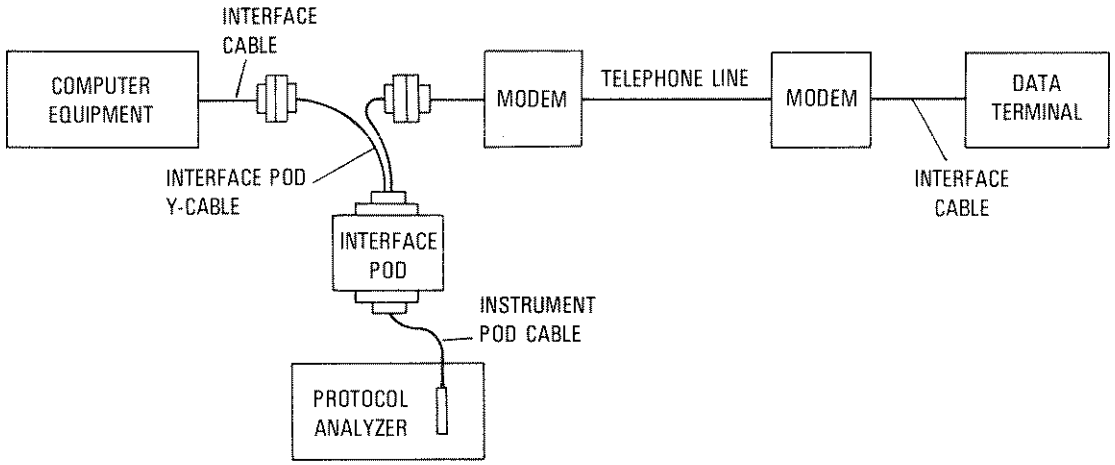

Figure 1-2. Interface Pod in Typical Monitor Mode Setup

1-6. RELATED MANUALS

Operating information for the Protocol Analyzer is located in the appropriate Protocol Analyzer Operating Manual. Service information including Interface Pod Performance Tests is located in the appropriate Service Manual.

1-7. USER REPAIR

Internal repairs to the instrument should be performed by authorized Service Centers only. For assistance, contact the nearest Hewlett-Packard Sales and Service Office, listed at the rear of this manual.

1-8. WARRANTY

Instrument warranty is as listed on the inside of the front cover.

SECTION II
INSTALLATION

2-1. INTRODUCTION

This section contains information for initial inspection, preparation for use, power requirements, storage, and shipment of the HP 18135A RS-232C/V.24 and HP 18139A MIL-188C Interface Pods.

2-2. INITIAL INSPECTION

Inspect the shipping container for damage. If the container or cushioning material is damaged, keep it. Check the contents of the shipping container for completeness, then check the unit for any physical damage. Refer to the appropriate Protocol Analyzer Service Manual for Performance Tests.

If the unit is physically damaged or fails the Performance Tests, notify the carrier and the nearest Hewlett-Packard office listed at the rear of this manual. Hewlett-Packard will arrange for repair or replacement of the Interface Pod without waiting for claim settlement.

2-3. PREPARATION FOR USE

2-4. POWER REQUIREMENTS

The Interface Pod requires no external power source. ±5 V and ±12 V are supplied by the HP Protocol Analyzer through the Instrument Pod Cable.

CAUTION

When attaching cables to the Interface Pod always fasten the slide locks to prevent damaging the cables and to assure a good electrical connection.

2-5. CABLES

The Interface Pod comes with one input/output interface, the Interface Pod Y-cable. It connects the Interface Pod to the network under test. Tables 8-1 and 8-2 give a complete description of the cables and pinouts.

2-6. OPERATING ENVIRONMENT

The Interface Pod should be protected from temperature extremes which can cause condensation in the accessory. It may be operated and stored in environments within the following limits:

OPERATING

Temperature ..... .0°C to +55°C (32°F to 131°F)
Altitude ..... Up to 4600 metres (15,000 ft

STORAGE

Temperature ..... −40°C to +75°C (−40°F to 167°F)
Altitude ..... Up to 15,300 metres (50,000 ft)

2-7. STORAGE AND SHIPMENT

2-8. TAGGING FOR SERVICE

If the accessory is returned to Hewlett-Packard for service, complete one of the blue repair tags located at the end of this manual and attach it to the accessory.

2-9. Original Packaging. Containers and packing material identical to those used in factory packaging are available through Hewlett-Packard sales offices. When returning an accessory to Hewlett-Packard for service, complete and attach the blue repair tag. Mark the container FRAGILE to ensure careful handling. In any correspondence, refer to the accessory by model number and serial number.

2-10. Other Packaging. Use these general instructions for packaging with commercially available materials:

1. Wrap the accessory in heavy paper or plastic. If shipping to a Hewlett-Packard Sales or Service Office, include a completed blue repair tag.

2. Use a strong shipping container, such as a double-wall carton with 275 lbs burst test.

3. Use a layer of shock absorbing material, 70-100 mm (3-4 in.) thick. This provides a firm cushion and prevents movement inside the container.

4. Seal the carton securely and mark it FRAGILE to ensure careful handling.

SECTION III
OPERATION

3-1. INTRODUCTION

This section describes connection of the HP 18135A RS-232C/V.24 and HP 18139A MIL-188C Interface Pods to the HP Protocol Analyzer and the network under test. A brief description of each standard is given. Refer to the appropriate Operating Manual for specific Protocol Analyzer operating instructions and test routines.

3-2. SELF CHECK

A self check routine is automatically performed at power up by the Protocol Analyzer. Interface Pod tests can be performed by selecting the desired test from the Protocol Analyzer menu. Refer to the Protocol Analyzer Operating Manual for complete instructions.

3-3. CABLES

Each Interface Pod is connected to two input/output cables. The Instrument Pod cable connects the Interface Pod to the Protocol Analyzer. The 50 pin connector on this cable is compatible with both the 18135A and 18139A. The other cable is the Interface Pod Y-cable (W2) and connects the Interface Pod to the network under test.

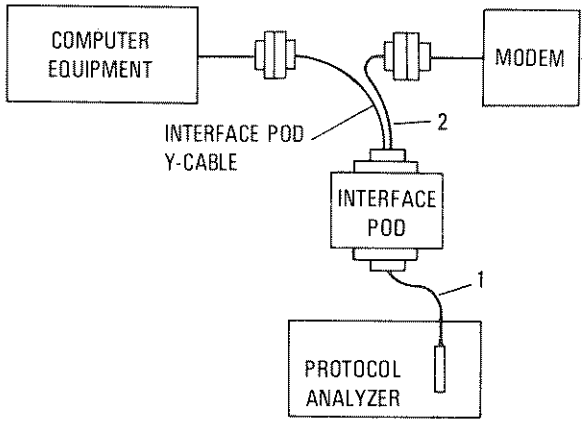

Figure 3-1. Cables

1. The Instrument Pod Cable which is supplied with the Protocol Analyzer connects the Protocol Analyzer to the Interface Pod.

2. Interface Pod Y-cable W2 connects the Interface Pod to the network under test.

3-4. OPERATOR CHECKS

Operation verification is performed with the Interface Pod connected to the HP Protocol Analyzer, but not to the network under test. Refer to the Protocol Analyzer Operating Manual for combined Protocol Analyzer and Interface Pod Operator Checks.

3-5. OPERATING INSTRUCTIONS

CAUTION

Turn off the Protocol Analyzer before disconnecting or connecting any Interface Pod.

3-6. SETUP

1. Connect the cable from the Protocol Analyzer to the Interface Pod and W2 from the Interface Pod to the network under test. The cable connectors are keyed to prevent backwards connections. Figures 3-2 and 3-3 illustrate typical simulate and monitor mode connections.

CAUTION

When attaching cables to the Interface Pod always fasten the slide locks to prevent damaging the cables and to assure a good electrical connection.

2. Once cables are connected to the Interface Pod, it effectively becomes a part of the Protocol Analyzer. Operating instructions are given in the appropriate Operating Manual.

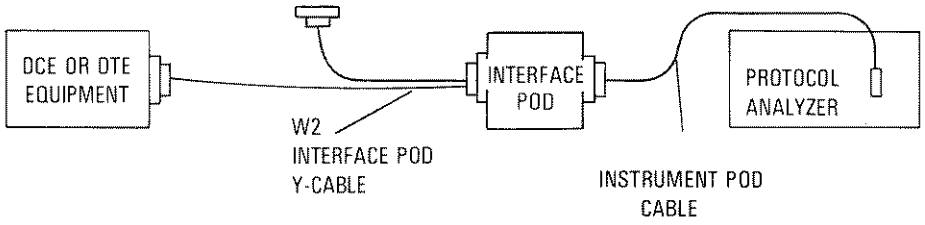

Figure 3-2. Simulate Mode Operation

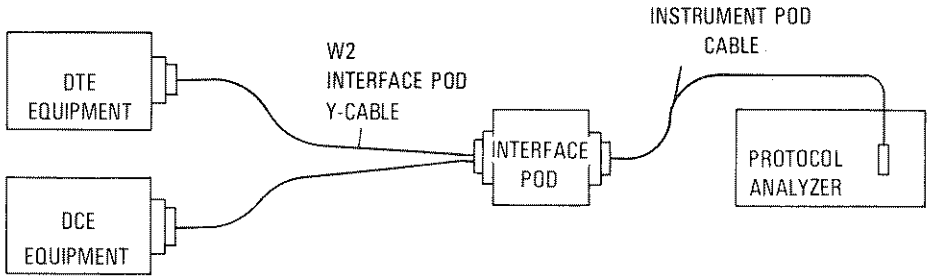

Figure 3-3. Monitor Mode Operation

3-7. PROTOCOL DESCRIPTION

V.24 is a CCITT international standard defining functional interchange circuits. RS-232C is an accepted standard in the United States for data communication interfaces.

3-8. RS-232C

RS-232C is an Electronic Industry Association (EIA) Recommended Standard. The standard describes the mechanical, electrical, functional, and procedural characteristics to establish, maintain, and disconnect the interface between the DTE and DCE.

3-9. V.24

The HP 18135A follows V.24, V.28, and ISO 2110 standards. These standards are collectively referred to in this manual as V.24. ISO 2110 describes the mechanical properties, V.28 the electrical characteristics, and V.24 the functional interchange circuits and procedures governing their interrelationships.

3-10. MIL-188C

MIL-188C follows the EIA RS-232C functional, mechanical, and procedural standards. The electrical thresholds are different and the polarity of signals TXD, RXD, STXD, and SRXD are inverted.