HP 37717C communications performance analyzer
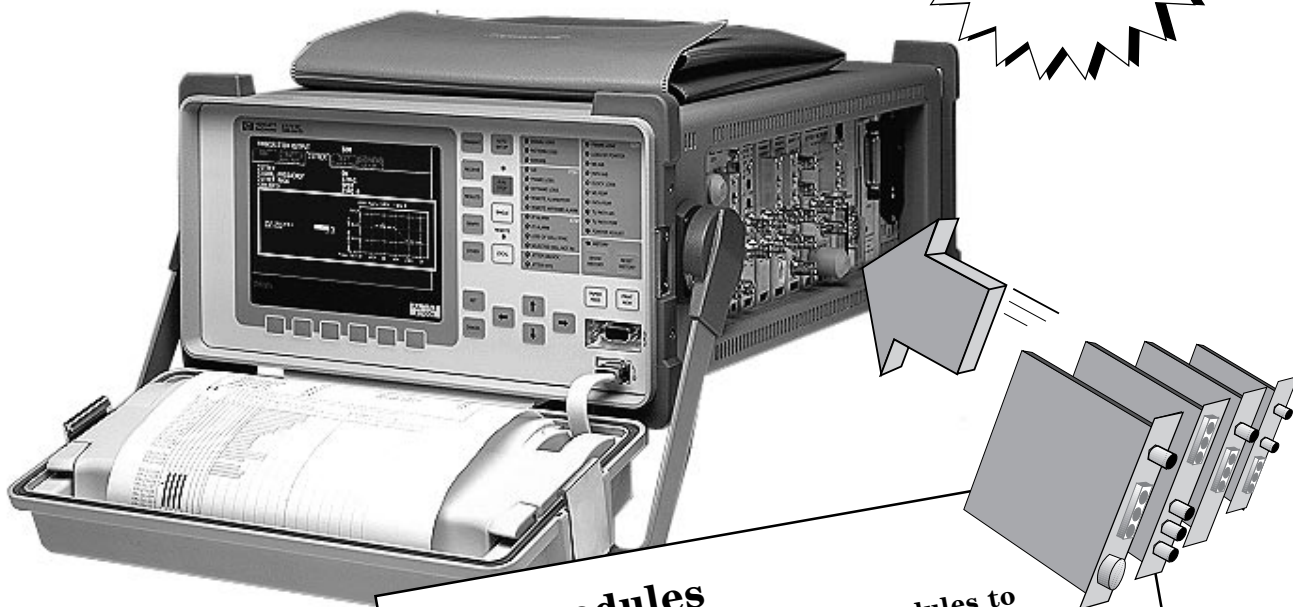
Configuration guide

Effective from November 1996

3-year warranty as standard

New modules

➤ Wander and jitter generation modules to ITU-T G.825/O.171 (10 µHz to 5 MHz)

➤ RMS, peak-to-peak and auto jitter transfer measurement modules to ITU-T O.171/G.825

➤ Broadband auxiliary module (adds ATM services with optional jitter capability)

Introduction

Contents

Small Siemens cross-reference

All options listed in the following pages are BNC. If you need small Siemens connectors, use the table below to select equivalent Siemens option.

BNC		Small Siemens
UKK	→	USB
UKJ	→	USA
UKN	→	USE
UKZ		not applicable
A1T	→	A1U
140	→	141
A3K	→	A3Q
UHN	→	US9
A3L	→	A3M
A3V	→	A3W
A3N	→	A3P
0YK		not applicable
USK		not applicable
USL		not applicable
UH3	→	US7
UH1		not applicable
UH2		not applicable
URU		not applicable
USN		not applicable
UKT		not applicable
0YH		not applicable
UHC	→	US6
A3D		not applicable
A3B		not applicable
UKX		not applicable
UH4		not applicable
UH5		not applicable
UH6		not applicable
UH7		not applicable
UH8		not applicable
UKP		not applicable
UKQ		not applicable

Your choice of test capability

The HP 37717C communications performance analyzer supports comprehensive functional test and jitter capability to help you test your PDH, SDH and ATM networks or network equipment. The analyzer comprises a mainframe with large color display and integral floppy disk drive, optional 80-column graphics printer, and includes power cord and operating manuals. You add the test capability you require by selecting from the optional test modules.

To meet your specific test needs, just order the capability you require. Simply order the HP 37717C analyzer and a single option per module type, where required, from the tables in the pages that follow. Remember, you can configure your analyzer to simultaneously include PDH, SDH, ATM cell layer and jitter, or you can configure it to contain PDH only, SDH only, ATM only or any combination.

HP 37717C communications performance analyzer
with color display, floppy disk drive as standard and optional integrated printer.

All the power you need for comprehensive performance testing.

Select optional PDH, SDH, ATM cell layer, ATM services and jitter modules for the analyzer:

- ATM services layer testing with native LAN connectivity
- ATM cell layer generation and measurement
- STM-1/STM-4 optical interfaces (1310 and 1550 nm)
- STM-1/STM-4 binary interfaces
- PDH and SDH jitter/wander Tx and Rx
- Multiple PDH outputs
- PDH testing (704 kb/s to 140 Mb/s)
- PDH binary interfaces with external clock input
- Printer/remote interfaces
- Graphics printer.

Example configurations

1. STM-4o/STM-1o plus jitter

Example user requirements

- PDH (2, 8, 34, 140 Mb/s) – full mux/demux capability
- STM-1e (155 Mb/s) electrical interfaces
- STM-4o/STM-1o (1310 nm) optical interfaces
- Optical power measurement
- Jitter and wander generation
- Jitter measurement (at all above interface rates)
- Graphics printer
- FC/PC optical adapters.

	Option code	Slots used
1. PDH and ATM test and interfaces option	UKJ	2
2. STM-1e test and interfaces option	A1T	2
3. Wander and jitter generation option	A3K	1
4. Wander and jitter measurement option	A3N	2
5. ATM services layer test option		
6. PDH binary interfaces option		
7. Optical interfaces option	UKT	Reserved
8. SDH binary interfaces option		
9. Multiple PDH interfaces option		
10. Remote-control/external-printer interfaces option		Reserved
11. Printer option	UKX	—
12. Optical adaptor option	UH4	—

2. ATM services and jitter

Example user requirements

- STM-1/OC-3c optical interfaces (1310 nm)
- DS1, DS3, E1, E3, STM-1e electrical interfaces
- ATM cell layer testing
- ATM Channel View, rate history, graphical CDV
- Jitter and wander generation (E1, E3, STM-1)
- Jitter measurement (E1, E3, STM-1)
- Screen dumps to printer
- LAN remote control
- FC/PC optical adapters.

	Option code	Slots used
1. PDH and ATM test and interfaces option	UKZ	2
2. STM-1e test and interfaces option	A1T	2
3. Wander and jitter generation option	A3K	1
4. Wander and jitter measurement option	A3V	2
5. ATM services layer test option	0YK	1
6. PDH binary interfaces option		
7. Optical interfaces option	UH1	Reserved
8. SDH binary interfaces option		
9. Multiple PDH interfaces option		
10. Remote-control/external-printer interfaces option	A3B	Reserved
11. Printer option	UKX	—
12. Optical adaptor option	UH4	—

3. STM-1e unstructured, no jitter

Example user requirements

- PDH (2, 8, 34, 140 Mb/s) – no mux/demux capability
- STM-1e (155 Mb/s) electrical interfaces
- PDH bit error output (for digital radio testing)
- RS-232-C remote control
- Remote PC operation
  (needs HP E4540A distributed network analyzer software).

	Option code	Slots used
1. PDH and ATM test and interfaces option	UKK	2
2. STM-1e test and interfaces option	A1T	2
3. Wander and jitter generation option		
4. Wander and jitter measurement option		
5. ATM services layer test option		
6. PDH binary interfaces option		
7. Optical interfaces option		Reserved
8. SDH binary interfaces option		
9. Multiple PDH interfaces option		
10. Remote-control/external-printer interfaces option	A3D	Reserved
11. Printer option		—
12. Optical adaptor option		—
Distributed network analyzer firmware	USS	—

Configuring the HP 37717C
communications performance analyzer

*There are reserved slots for optical interfacing and remote-control modules. In addition, you have a maximum of **eight** user-configurable slots to add PDH, SDH, ATM and jitter capability. Ensure that the number of slots used does not exceed **eight**.*
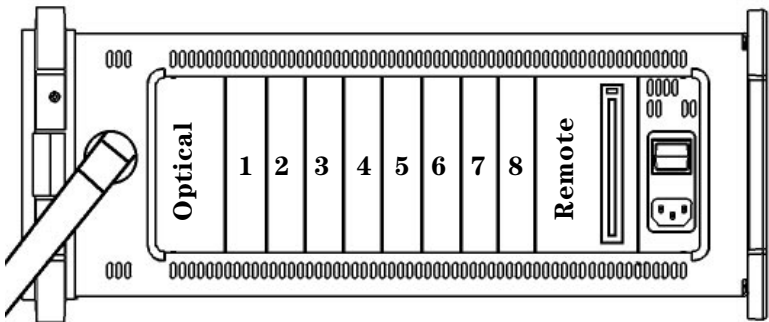
Step 1 Review sections 1 to 12 in the following pages to determine the capability you require. In each section, select one option as required and tick the option box.

Step 2 Enter the option code and slots used in the table below. Confirm slots used does not exceed eight slots.

	Option code	No. of slots	Slots used
1. PDH and ATM test and interfaces option		2	
2. STM-1e test and interfaces option		2	
3. Wander and jitter generation option		1	
4. Wander and jitter measurement option		1 or 2	
5. ATM services layer test option		1 or 2	
6. PDH binary interfaces option		1	
7. SDH optical interfaces option		—	Reserved
8. SDH binary interfaces option		1	
9. Multiple PDH interfaces option		1	
10. Remote-control/external-printer interfaces option		—	Reserved
11. Printer option		—	—
12. Optical adaptor options		—	—
Total number of slots used			

Step 3 Check that you have specified both test and interfacing for all required capabilities.

Your local HP sales representative will be happy to help you configure the HP 37717C analyzer to match your specific needs.

	Option code	No of slots	Tick one

1. PDH and ATM test and interfaces options

Choose one option (if required). All options provide PDH interfaces and PDH test capability. Also order option A3K or 140 (section 3) if you require jitter transmit capability.

	Option code	No of slots	Tick one
● Unstructured PDH testing: 0.7, 2, 8, 34 and 140 Mb/s interfaces plus an error output.	**UKK**	2	☐
● Structured PDH testing: 2, 8, 34 and 140 Mb/s interfaces (64 kb/s and n × 64 kb/s testing).	**UKJ**	2	☐
● ATM cell generation and analysis: 2, 34 and 140 Mb/s interfaces† – includes all capability of option UKJ (structured PDH testing).	**UKN**	2	☐
● ATM cell generation and analysis: DS1, DS3, E1 and E3 interfaces (equivalent to 1.5 Mb/s, 45 Mb/s, 2 Mb/s, 34 Mb/s)‡.	**UKZ***	2	☐

† *If you need ATM cell generation and analysis at STM-1, then also order STM-1e test and interfaces option A1T (section 2).*
‡ *If you need OC-3c/STM-1, then also order STM-1e test and interfaces option A1T (section 2) and appropriate optical interfaces and adaptor options (sections 7 and 12).*
* *Option UKZ does not support options UKX, A3K, 140, A3L, A3V or A3N at present. Please contact your local HP sales office if you require this capability.*

	Option code	No of slots	Tick one

2. STM-1e test and interfaces option

Choose if required. This option provide STM-1e interfacing and SDH test capability.

	Option code	No of slots	Tick one
● STM-1 (155 Mb/s) electrical interface: STM-1 overhead access, thru mode and pointer sequence generation, TU-12, TU-2, VC-3 and VC-4 mappings plus frequency offset generation, alarm and error generation/detection.*	**A1T**	2	☐

* *When used with option UKZ this option also provides STS-3c overhead access.*

	Option code	No of slots	Tick one

3. Wander and jitter generation options

Choose if required. For PDH jitter generation, also order option UKK or UKJ or UKN (section 1). For SDH jitter generation, also order option A1T (section 2) plus appropriate optical interfaces and adaptor options (sections 7 and 12).

	Option code	No of slots	Tick one
● PDH jitter generation: 2, 8, 34 and 140 Mb/s up to 80 UI (2 Mb/s). SDH jitter generation: STM-1 (155 Mb/s) and STM-4 (622 Mb/s) up to 200 UI (STM-4).	**140**	1	☐
● All the capability of option 140 plus wander generation: 2 Mb/s, STM-1 (155 Mb/s) and STM-4 (622 Mb/s) up to 14400 UI (STM-4).	**A3K**	1	☐

	Option code	No of slots	Tick one

4. Wander and jitter measurement options

Choose one jitter measurement option (if required). SDH jitter measurement options provide dedicated SDH jitter measurement interfacing (STM-1e, STM-1o or STM-4o). If you need PDH jitter measurement (2, 8, 34 and 140 Mb/s electrical interfaces) then also order PDH option UKK, UKJ or UKN (section 1). All optical interfaces receive at 1310 and 1550 nm. <u>Also</u> order appropriate optical adaptor options (section 12).

	Option code	No of slots	Tick one
● PDH (tributary) jitter and wander measurement: 2, 8, 34, 140 Mb/s, plus 2 Mb/s wander and estimated frame slip measurement with HP1, HP2 and LP filters to ITU-T O.171.	**UHN**	1	☐
● STM-1e line jitter and PDH (tributary) jitter; rms, peak-to-peak, auto jitter transfer and wander measurement: 155 Mb/s electrical interface with HP1, HP2 and LP filters to ITU-T O.171/G.825.	**A3L**	2	☐
● STM-1o/STM-1e, plus all the capability of option A3L.	**A3V**	2	☐
● STM-4o/STM-1o/STM-1e, plus all the capability of option A3L.	**A3N**	2	☐

	Option code	No of slots	Tick one

5.   ATM services layer test options

Choose one option (if required). As these modules use the interfacing provided by a PDH and ATM test and interfaces option, <u>must</u> also order option UKN or UKZ (section 1).

● Provides ATM and AAL capabilities including Channel View, rate history, ... **0YK** — 1 — ☐
graphical CDV, benchmark traffic.

● As per option 0YK (but occupying two slots). Upgradeable to capability of option USL. .... **USK†** — 2 — ☐

● As per option 0YK (but occupying two slots) plus native Ethernet and Token Ring LAN .... **USL†** — 2 — ☐
connectivity tests.

† Option USK and USL do not support jitter options 140, A3K, UHN, A3L, A3V and A3N at present.

	Option code	No of slots	Tick one

6.   PDH binary interfaces option

Choose if required. <u>Must</u> also order a PDH and ATM test option (section 1). (Option UH3 does not support option UKZ, 0YK, USK or USL at present.)

● PDH NRZ interfaces: Adds binary Tx clock and data, binary Rx clock and data, ... **UH3** — 1 — ☐
plus external clock input.

	Option code		Tick one

7.   Optical interfaces options

Choose one option (if required). All optical interfaces receive at 1310 and 1550 nm.*

Provides optical interfaces. <u>Must</u> also order STM-1e test and interfaces option AIT (section 2), and appropriate optical adaptor options (section 12).

STM-1 optical interfaces only *(for testing STM-1 only)*†

● STM-1 (155 Mb/s) optical interface: 1310 nm, −9 dBm output. .... **UH1** — reserved optical slot — ☐

STM-1/STM-4 optical interfaces *(for testing STM-1 at STM-1 and STM-4)*†

● Combined STM-1/STM-4 (155/622 Mb/s) optical interfaces: 1310 nm, −10 dBm output. .... **UH2** — ☐

● Combined STM-1/STM-4 (155/622 Mb/s) optical interfaces: 1550 nm, −1 dBm output. .... **URU** — ☐

Provides optical interfaces, plus optical power measurement and STM-4 test functionality, ie, for STM-4 overhead access. <u>Must</u> also order STM-1e test and interfaces option AIT (section 2), and appropriate optical adaptor options (section 12).

STM-4 test and optical interfaces†

● STM-1/STM-4 (155/622 Mb/s) optical interfaces: dual wavelength at 1310 nm, ... **USN** — ☐
−10 dBm output plus 1550 nm, −1 dBm output; includes STM-4 overhead access,
thru mode and optical power measurement.

● STM-1/STM-4 (155/622 Mb/s) optical interfaces: 1310 nm, −10 dBm output; .... **UKT** — ☐
includes STM-4 overhead access, thru mode and optical power measurement
(easily upgradeable to dual wavelength).

* If multimode fiber compatibility is required, contact your HP sales representative.
† When option UKZ (and A1T) are present, these interfaces also provide OC-3c capability.

	Option code	No of slots	Tick one

8. SDH binary interfaces option

Choose if required. <u>Must</u> also order STM-4 test and optical interfaces option USN or UKT (section 7).

● STM-1/STM-4 NRZ interfaces. 50 ohm ECL Tx data and Tx clock outputs, plus .... **0YH** 1 ☐
Rx data and Rx clock inputs.

	Option code	No of slots	Tick one

9. Multiple PDH interfaces option

Choose if required. <u>Must</u> also order a PDH and ATM test and interface option UKK, UKJ or UKN (section 1).

● Three additional 2, 8, 34 and 140 Mb/s outputs. .... **UHC** 1 ☐

	Option code		Tick one

10. Remote-control/external-printer interfaces options

Choose one option (if required).

● RS-232-C and HP-IB remote-control/external-printer interfaces.. **A3D** reserved remote slot ☐

● LAN remote control, RS-232-C and HP-IB remote-control/external-printer interfaces. .... **A3B**   ☐

	Option code		Tick one

11. Printer option

Choose if required.

● Integrated, full-width, 80-column graphics printer (for printing of graphics, ... **UKX** Uses lid ☐
results and screen dumps).

	Option code		Tick as required

12. Optical adaptor options

If specifying an SDH optical interface and/or wander and jitter measurements, choose the connector adaptor type(s) to suit your particular requirements:

● FC/PC .... **UH4** Not applicable ☐
● DIN47526.. **UH5**   ☐
● ST .... **UH6**   ☐
● Biconic .... **UH7**   ☐
● NEC D4 .... **UH8**   ☐
● SC .... **UKP**   ☐
● HMS-10/HP .... **UKQ**   ☐

Other options and accessories

Optical coupler

HP15744A: Optical coupler.*

*Order the appropriate option. For full
details of the HP 15744A optical
coupler, please ask your local HP
representative for a brochure.
The optical coupler and graphics
printer (option UKX) cannot both be
fitted at the same time.*

HP 15722A: Telephone handset for
options UKJ or UKN.

Remote, interactive control of analyzers

To operate the HP 37717C analyzer
remotely from your PC using MS
Windows® via a graphical user interface,
order option USS distributed network
analyzer firmware for the analyzer. Also
order an RS-232-C interface.
Option USS: HP distributed network
analyzer firmware – needs HP E4540A
distributed network analyzer software.†

*† For full details of centralized testing
using the HP 37717C analyzer and
other telecom testers from HP, please
ask your local HP representative for
brochure 5964-2240E (distributed
network analyzer software).*

Carrying cases and rack mount kit

HP 15910B: Soft, vinyl carrying case.
HP 15772B: Hard, robust transit case.
HP 15770A: Rack mount kit.

HP 15777C upgrade kit

Enhance the capabilities of the
HP 37717C analyzer at a later date.
To order HP 15777C upgrade kit options,
contact your local HP sales
representative.

MS Windows is a US trademark of Microsoft Corporation.

*HP manufactures the HP 37717C communications performance analyzer under
a quality system approved to the international standard ISO 9001 plus TickIT
(BSI Registration Certificate No FM 10987).*

Class 3a laser product
EN60825-1: 1994

Class 1 laser product
FDA 23 CER CH.1 1040.10 (1994)

CE 95

Graphics printer paper

Printer paper: Part number 9270-1360.

Warranty

3-year warranty as standard.

Manuals and calibration certificate

Option AVA: Calibration manual.
Option OB2: One additional operating
manual.
Option OBF: One additional remote
operation manual.
Option UK6: Calibration certificate.

Standards conformance

CE mark:* The HP 37717C
communications performance analyzer
has full CE mark compliance and meets
the following standards:

● ESD/mains fast transients/radiated
susceptibility: meets EN50082-1 (1991).
● Radiation emissions/conducted
emissions: meets EN55011 (1991).

Product safety: The HP 37717C
communications performance analyzer
meets the following safety standards:

● IEC 348/EN61010.

** All products sold in EC and ETSI
countries must have the CE mark.*

For more information on Hewlett-Packard
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or services please call your local Hewlett-
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available via Web through AccessHP at
http://www.hp.com. If you do not have
access to the internet please contact one of
the HP centers listed below and they will
direct you to your nearest HP
representative.