

## Digital Communications Analyzer

WG PFA-30 is a multi-purpose instrument designed for commissioning, maintaining and troubleshooting digital networks. It is used to carry out both framed and unframed tests on a wide variety of equipment such as multiplexers, demultiplexers, digital cross connects, automatic protection switches and circuits operating at speeds from 50 bit/s to 2048 kbit/s. WG PFA-30 tests  $n \times 64$  kbit/s circuits in both unframed and framed modes. The large high resolution LCD and softkey menu-driven operation, combined with 8 menu setups, make WG PFA-30 easy to use.

- Framed and unframed testing of PCM and data channels at speeds from 50 bit/s to 2048 kbit/s
- Multi-interface capability
- $n \times 64$  kbit/s error testing
- Mux/Demux measurements
- Level and frequency measurements
- CAS analysis
- V.24/RS232 remote control

**Extensive test capabilities** In unframed mode WG PFA-30 has 7 different interfaces for end-to-end and loopback testing of digital channels and VF, baseband and wideband data circuits. It can be configured as a DCE as well as a DTE; this allows a data circuit to be taken out of service and tested in sections so that a fault can be isolated to a specific part of the circuit. Mux/demux mode allows through testing of multiplexers using only one instrument. Autoconfigure mode allows tests to be initiated by a simple key sequence.

**Framed generator** In RX/TX mode a framed signal is generated internally by the WG PFA-30. The transmitter operates independently of the receiver. Various test patterns can be inserted into one selectable timeslot or into  $n \times 64$  kbit/s timeslots.

**Through mode** In Through mode a framed signal received by the WG PFA-30 is connected through to the WG PFA-30's transmitter. Selectable patterns can be written into any timeslot and errors can be injected in this mode.

**Framed receiver** WG PFA-30 can either terminate the circuit or act as a high impedance monitor. In both cases it provides:

- BER/BLER and G.821 analysis of a test pattern in one selectable timeslot or in  $n \times 64$  kbit/s timeslots
- BER and G.821 analysis (CRC or FAS)
- Simultaneous monitoring and evaluation of up to 18 alarms and errors
- PCM decoding and audio output of a selected timeslot over the WG PFA-30's integral loudspeaker
- Level and frequency measurements in any selected timeslot. For A-D measurements a tone can be injected into a telephone channel using, for example, the PCM-23 VF Tester. It can then be monitored in the 2048 kbit/s frame by the WG PFA-30, and the decoded r.m.s. level, peak code, coder offset and frequency displayed.



**Error and alarm indication** LEDs provide an instant indication of error and alarm status of the network under test. A programmable summary LED indicates the occurrence of any detected error and alarm event; a beeper is sounded simultaneously. Fourteen LEDs indicate individual alarms and errors.

## Specifications for the Digital Communications Analyzer

### Interfaces

Built-in compatibility with  
 G.703 (2048/704 kbit/s) balanced and unbalanced  
 G.703 Co-directional, V.11/X.24, V.24/RS232  
 Compatibility via adapter cable ..... V.35, V.36 and RS449  
 Bit rate ..... 50 bit/s to 2048 kbit/s  
 G.703 digital line code ..... HDB3, AMI, Co-dir  
 Input sensitivity, G.703 AMI/HDB3 ..... 0 to -33 dB  
 Framing ..... PCM30, PCM30 CRC, PCM31, PCM31 CRC  
 Errors and alarms ..... Up to 18 error and alarms  
 events measured  
 Results ..... BER, BLER, G.821 and histogram analysis  
 Patterns .....  $2^6-1$ ,  $2^9-1$ ,  $2^{11}-1$ ,  $2^{15}-1$ ,  
 1111, 0000, 1010  
 8 and 16 bit programmable word  
 QBF patterns  
 Programmable encoded sinusoidal signal

### Generator

Test modes ..... RX/TX, RX, Through, Mux  
 Demux, Monitor, Level and Frequency  
 G.703 digital line code ..... HDB3, AMI, Co-dir  
 Digital representation of sinusoidal signals  
 Frequency range ..... 5 Hz to 3998 Hz in steps of 5 Hz  
 Level range ..... -55 dBm0 to +3 dBm0 in steps of 1 dB

### RX/TX mode

Framing ..... PCM30, PCM30 CRC, PCM31, PCM31 CRC  
 Test pattern insertion ..... single timeslot  
 n x 64 kbit/s timeslots  
 Idle code ..... 8 bit programmable word  
 Signalling code ..... 4 bit programmable word

### Through mode

Framing ..... PCM30, PCM30 CRC, PCM31, PCM31 CRC  
 Test pattern insertion ..... single timeslot  
 n x 64 kbit/s timeslots  
 Drop and insert ..... single timeslot from/to V.11 interface

### Error injection

Bit, Code, FAS, CRC errors ..... single or 1E-3 to 5E-7.

### Receiver

G.703 digital line code ..... HDB3, AMI, co-dir  
 Framing ..... PCM30, PCM30 CRC, PCM31, PCM31 CRC  
 Jitter ..... to ITU-T Rec. G.823

### Level and Frequency measurement

Coding law ..... A-law to ITU-T Rec. G.711  
 Level measurements ..... -80 dBm0 to +5 dBm0

### Printer and Remote Control

Interface ..... V.24/RS232  
 Simulates ..... DTE or DCE (via adapter)

### Stores/Memory

8 test results stores each containing numeric results and histograms.  
 8 configuration stores each containing instrument setup configurations.

### General Specifications

Languages ..... English, German, Italian, French  
 Power supply  
 Batteries, rechargeable (fitted) ..... 5 x NiCd C-size cells  
 Operating time  
 (using rechargeable batteries) ..... approx. 8 hours  
 Dimensions (h x d x w) in mm ..... 72 x 136 x 195  
 Weight ..... approx. 1.7 kg

## Ordering information

### Digital Communications Analyzer WG PFA-30 BN 4523/50

complete with:

a.c. adaptor/charger LNT-1 with mains lead.

Please specify the required mains lead from the list below:

Standard European power plug	K 490
U.S. type power plug	K 491
U.K. type power plug	K 492
Australian type power plug	K 493

Accessories (available at extra cost)

V.11 DCE adaptor cable	K 1505
V.36/RS 449 DTE adaptor cable	K 1506
V.36/RS 449 DCE adaptor cable	K 1507
V.24/RS 232 DCE adaptor cable	K 1512
External clock adaptor	K 1513
Downloading cable	K 1515
Printer cable	K 1500

V.35 Adaptors (jackscrew fixing)	
V.35 DTE adaptor 1.6 mm dia pin male (AMP)	K 1508
V.35 DCE adaptor 1.6 mm dia pin female (AMP)	K 1509
V.35 DTE adaptor 1.6 mm dia pin male (Positronic)	K 1525
V.35 DCE adaptor 1.6 mm dia pin female (Positronic)	K 1526
V.35 Adaptors (clip fixing)	
V.35 DTE adaptor 1.0 mm dia pin male (Positronic)	K 1510
V.35 DCE adaptor 1.0 mm dia pin female (Positronic)	K 1511
Performance Test Software PTS-120	BN 4533/01
Equipment case	BN 4523/00.04
for storage and transportation of WG PFA-30, a.c. adaptor/charger LNT-1, cables etc.	
Equipment case	BN 4540/00.02
for storage and transportation of WG PFA-30, a.c. adaptor/charger LNT-1, PCM-23, printer (not supplied) with a.c. mains charger, cables etc.	
Soft case	BN 4518/00.08
suitable for WG PFA-30, printer, accessories and manuals	

test & measurement instruments