

EDT-130

E1 and Data Tester



- Minimum training for installation and commissioning applications
- Robust and reliable, low life-cycle cost
- All the tests needed to find simple and complex faults
- Upgradable
- Multiple Language Support

Applications

- Installing, commissioning and maintaining E1 circuits and multiplexers
- Installing, commissioning and maintaining E1 cross-connects and E1/G.703 co-directional multiplexers
- Commissioning and maintaining datacom circuits

This powerful tester includes a full set of measurements to install, commission and troubleshoot E1 and data circuits.

Installation tests require basic out-of-service Bit Error Rate (BER) testing to assess cabling integrity.

Full commissioning requires extended BER testing to international standards, as well as stress testing and complete assessment of link performance with respect to error and alarm reporting.

For successful maintenance, rapid identification of the current line status is critical to the speedy resolution of problems.

Functions

- E1 and n x 64k BERT with Auto-configure
- G.821, G.826 and M.2100 testing
- Clear OK/Status Page
- Multi-interface capability: V.24/RS232, V.11/X.24, V.35, V.36/RS449, G.703 (2048/704kbit/s), G.703 co-directional
- Multiplexer tests include MUX/DEMUX and A-D/D-A measurements

Features such as Autoconfigure and the 'Big OK' result screen make it easy to use with a minimum of training.

Quality of Service can be measured with G.821, G.826 or M.2100. A full range of print-outs and autoprints can be produced. Histograms down to one minute resolution aid troubleshooting.

The availability of the datacom interfaces enables performance testing of such links, as well as of multiplexers between these interfaces and E1. Other important features include round trip delay measurements on E1 and datacom circuits and E1 drop and insert.

Multiple languages are supported: English, French, German, Spanish, Italian, Portuguese and Turkish.

Easy to Use

The EDT-130 has been designed with the user in mind. As well as being lightweight and comfortable to hold and carry, the tester features a large LCD screen with integral backlight for the most demanding testing environments. If you wish to self-support the tester, the integral two-position backstand/carry-handle can easily be folded out, and can also be configured to suspend the instrument for hands-free viewing.

Test results are displayed in a concise, graphical format with our recognised 'Big OK' when no errors are present. Multiple language support is standard and comprehensive alarm and error status LEDs give a clear indication of problems, even from a distance. And, as you'd expect, all results data can be stored for later analysis or output with a single keypress from the ergonomic keypad.

Autoconfigure

The Autoconfigure feature greatly simplifies instrument set-up. A test can be started on framed or unframed traffic using just 2 key-presses. For framed signals the instrument can determine the framing type, timeslot allocation and test pattern type.

Gelbrich Synchronization

The patented Gelbrich Synchronization method enables synchronization on a test pattern to be maintained and accurate BER measurement to be made even in the presence of rapid bursts of errors. It also enables differentiation to be made between bit slips and bit errors.

Result Storage and Printing

The EDT-130 has 8 test memories for the storage of text and histogram results, for viewing or printing at a later time. Printing of results is supported through the serial port. A set-up screen enables the instrument to be set up for a range of printers.

Programmable timers

The instrument can be programmed to start a test at a specified date and time for a selectable duration.

Remote Operation

The instrument is compatible with the DTM-32 remote operation solution.

Battery/Mains Operation

8-10 hours battery life using rechargeable and exchangeable batteries. Long duration testing can be achieved with a.c. mains power.

Upgradable for Extensive Datacoms Testing

The upgrade option enables you to upgrade at any time in the future to a EDT-135. This adds further datacom circuit, V.24 modem and Frame Relay test capability.

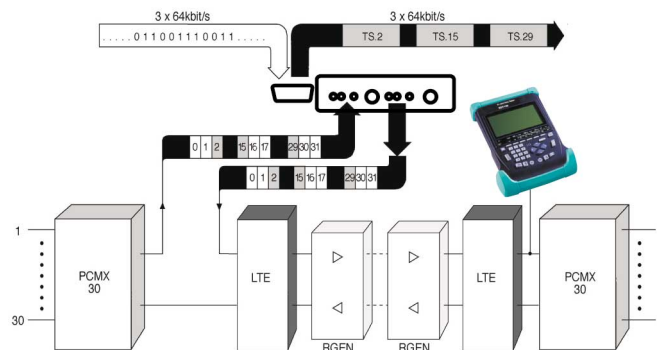
Instrument Applications

E1 Turn-up

Availability and performance of an E1 link can be established using either an intrusive or a non-intrusive test. The EDT-130 can be connected via 75Ω or 120Ω connectors using Hi-Z termination or at a protected monitor point. A typical simple E1 test will take no longer than 30 seconds, the OK screen quickly indicates when an E1 service is present and error-free. G.826/M.2100 test sequences can then be run, and the results displayed, stored and printed.

n x 64kbit/s Timeslot Analysis

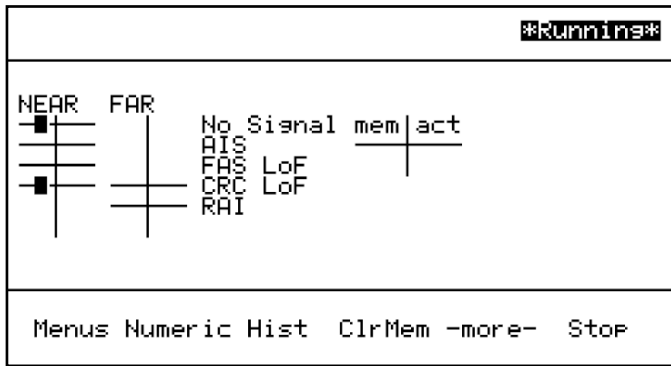
64kbit/s timeslots are grouped within the E1 frame to give end-customers intermediate data speeds such as 128 or 256kbit/s. The EDT-130 can perform BER analysis on bundles of n x 64kbit/s slots, and drop and insert n x 64 kbit/s to an external protocol analyser via V.11.



G.826 and M.2100 Analysis

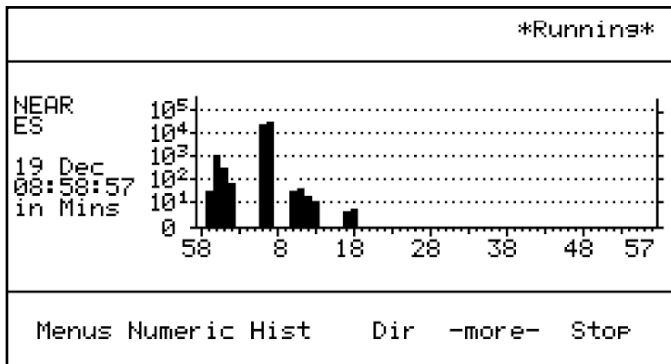
G.826 is the ITU-T recommendation for error performance of international digital paths at or above the Primary Rate. The complementary M.21xx series of recommendations permit rigorous testing of PDH links but in shorter time periods. Both methods are included as standard software modules in the EDT-130 tester. The following screens illustrate the summary results obtained from G.826 and M.2100 tests.

Results Monitor



The Results Monitor screen gives a graphic display of past and present alarm occurrences and error ratios for both near and far ends at the same time.

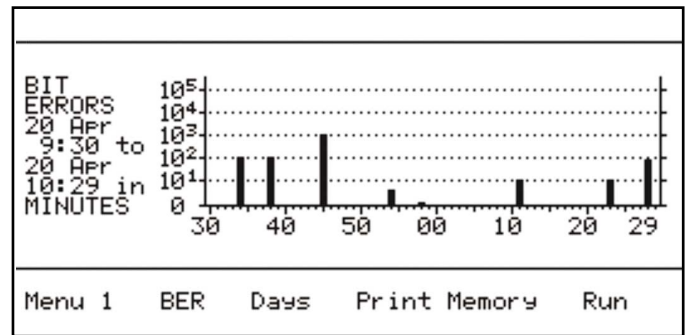
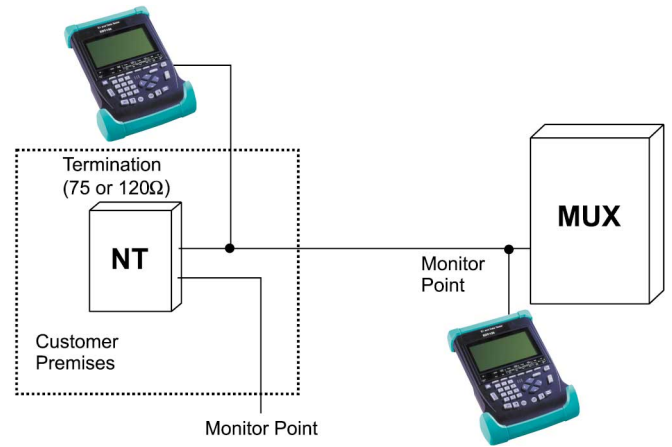
Histograms



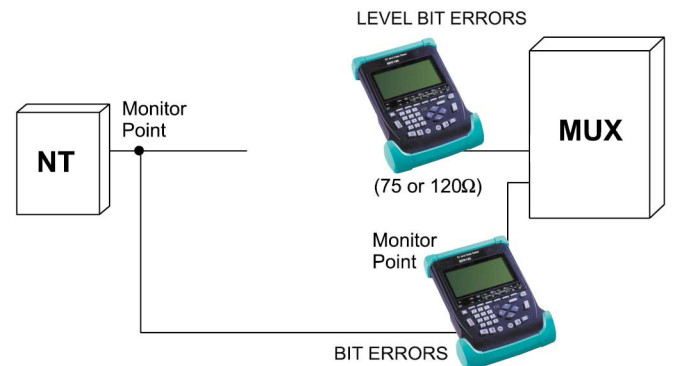
A set of histogram screens are displayed, based on the recorded history of alarms, errors and G.826 events. There are histograms for both near and far ends, for each valid alarm, error and G.826 result type (up to 12) at each resolution (days, hours, minutes and seconds).

E1 Troubleshooting

An extended bit error test will determine whether a periodic fault is causing problems. Electrical equipment such as air-conditioning may cause problems at regular times in the day. Error histograms make it possible to identify external events which can be isolated as causes of the problem.

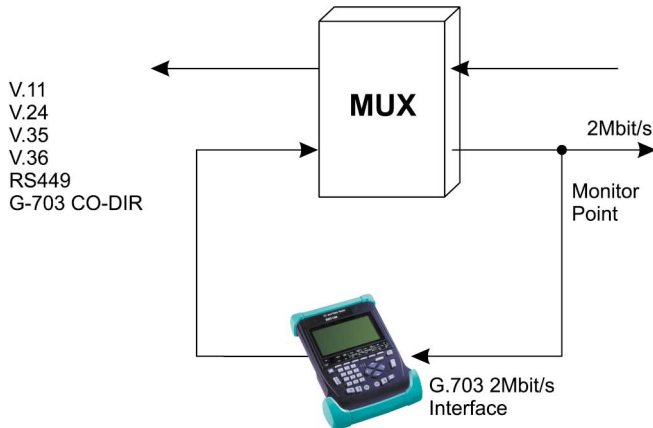


Error histograms can be indicated as a histogram on a scale of up to 60 days.



Primary Multiplexer Testing

The 2Mbit/s G.704 framed capability of the EDT-130, and its wide range of interfaces enable in-service and out-of-service testing of a multiplexer to be carried out using a single instrument. Testing is possible in mux and demux directions. For example, testing of the customer-network (mux) direction is performed by transmitting a test pattern into the multiplexer customer-side at $n \times 64\text{ kbit/s}$ via V.24, V.11, V.35, V.36, RS449 or G.703 co-directional. The 2Mbit/s frame generated by the multiplexer is then monitored and the BER of the pattern in the appropriate timeslot(s) is evaluated.



Accessories

V.11 Cable Test Adapter

This accessory detects a number of common faults on V.11 cables, which due to the nature of balanced line interfaces would otherwise go unnoticed.

ELM-2 Equalizer and Level Meter

The ELM-2 accessory allows the instrument to be connected to 2Mbit/s lines carrying hazardous voltages and \sqrt{f} distortion. It removes the DC voltage, equalizes the signal and also measures and displays the signal level.

PenBERT 2Mbit/s Monitor

The PenBERT PCM monitor can be used with the EDT-130 to perform simple end-to-end tests on a 2Mbit/s line. Errors and alarms are indicated by LEDs.

Equipment Cases

A range of equipment cases and shoulder-bags are available to allow convenient transport and storage of the EDT-130 and accessories.

DTM-32 Features

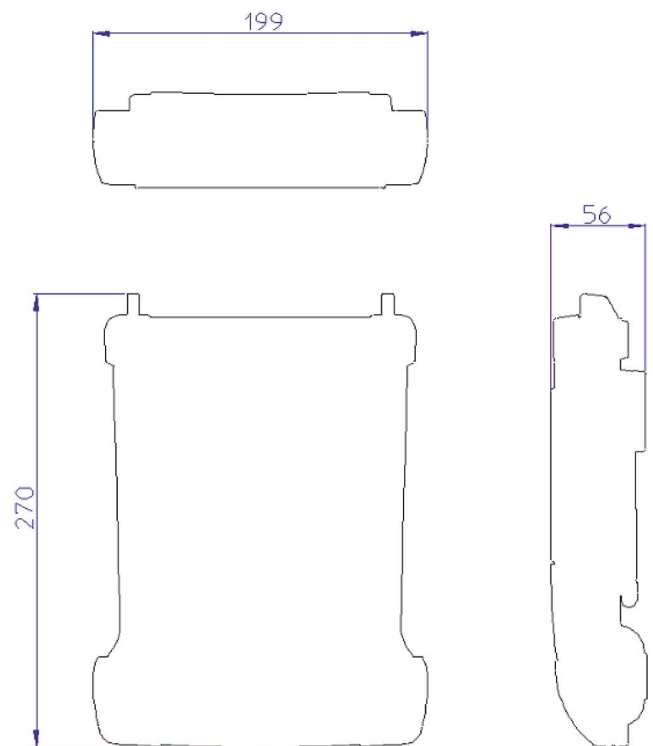
The DTM-32 product offers Remote Operation using an on-screen faceplate, via an easy to use Windows™ interface.

Weight/Dimensions

Weight:

1.55kg approx

Dimensions (in mm):



Technical Specifications

Generator/Receiver

Interfaces:

G.703

Outputs:

Balanced CF + Unbalanced BNC connector

G.703 Test Modes:

RX

Framing:

PCM30, PCM30CRC, PCM31, PCM31CRC, or Unframed

G.703 line code:

HDB3, AMI, co-directional

V.11 drop:

1 x 64kbit/s

RX/TX

As RX plus:

BER Test pattern generation:

Single timeslot
n x 64kbit/s timeslots

V.11 Drop/Insert:

Drop or Insert 1 timeslot
Programmable Si, Sa, A and e bits
and NMFAS

Through Mode

As RX/TX plus Drop and/or Insert via V.11

MUX and DEMUX Testing

Receiver and transmitter as for RX/TX mode

Unframed TX and RX on V interfaces or G.703 co-directional

Framed Monitor

Monitor and display of:

FAS, NFAS, MFAS, NMFAS, and CRC MFAS words 8-bit digital code word in any selected timeslot, CAS status of all 30 channels with idle/busy indication

Level and Frequency

Digital representation of sinusoidal signals in a timeslot. (A-law coding to ITU-T Rec. G.711)

Test Patterns

PRBS:

2^6-1 , 2^9-1 , $2^{11}-1$, $2^{15}-1$

Alternating 1s and 0s, All 1s, All 0s, 8 and 16 bit programmable word

Error Injection

Bit, Code, FAS, CRC errors:

Single, ratio or frequency

Clocking

G.703 transmit clock source

2048kbit/s and co-directional:

Internal, External, from RX

Error and Alarm Indication

LEDs:

2 summary, 14 alarm/error, option, low battery

Printer and Remote Operation

Interface:

V.24, DTE, Async

Baud rates:

300, 600, 1200, 2400, 9600, 19200, 38400

Front panel

Display:

42 character x 16 line LCD, LED backlight

Keyboard:

Numerical keypad, 4 cursor, 2 Contrast, Main Menu, 6 Softkeys, Alt, On and Off

Stores/Memory

8 test result memories and 8 configuration stores

Self Check

Comprehensive self check at power on

Languages

English, German, French, Spanish, Italian, Portuguese and Turkish.

Power supply

External supply:

External mains charger

Rechargeable batteries:

8 to 10 hours operating time

Battery low:

warning before auto switch off

Ordering Information

EDT-130 E1 and Data Tester	BN 4562/30
Complete with: a.c. adapter/charger. Select appropriate plug : US, European, UK, or Australian Operating Manual	
M.2100 Option	BN 4562/00.13
G.826 Option	BN 4562/00.34
Extended PRBS Option	BN 4562/00.36
 Accessories	
(available at extra cost):	
V.24 Download cable	K 1515
Printer cable 25 way (M/F), External Clock adapter	K 1500 K 1513
V.11 DCE adapter cable	K 1505
V.36/RS449 DTE adapter cable	K 1506
V.36/RS449 DCE adapter cable	K 1507
V.24/RS232 DCE adapter cable	K 1512
V.35 adapter cables (jackscrew fixing):	
V.35 DTE (AMP) 1.6 mm dia. pin male	K 1508
V.35 DCE (AMP) 1.6 mm dia. pin female	K 1509
V.35 DTE (Positronic) 1.6 mm dia. pin male	K 1525
V.35 DCE (Positronic) 1.6 mm dia. pin female	K 1526
V.35 adapter cables (clip fixing)	
V.35 DTE (Positronic) 1.0 mm dia. pin male	K 1510
V.35 DCE (Positronic) 1.0 mm dia. pin female	K 1511
DTM-32 Remote Operation Software	DTM32
Equipment case (small)	BN 4562/00.50
Equipment case (large)	BN 4562/00.51
Soft carrying case	BN 4518/00.08
Soft shoulder bag	BN 4562/00.01
Neck Strap	BN 4562/00.53
V.11 Cable Test Adapter	BN 4534/00.37
ELM-2 Equalizer Level Meter	BN 4546/01
PenBERT 2Mbit/s Monitor	BN 4555/10

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