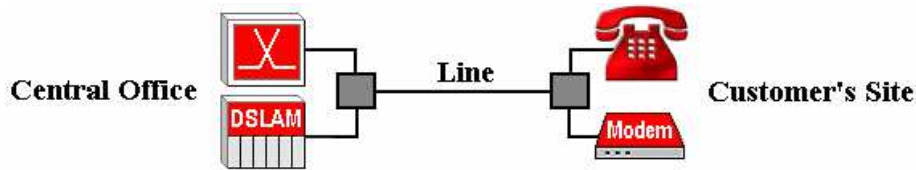


## Where is the fault ? ETET 30 gives the answer !

**SIX INSTRUMENTS IN ONE**

- **DMM Line Tester**  
For the test of the local access line
- **Exchange Simulator**  
For the test of the subscriber's phone
- **Telephone Simulator**  
For the test of exchange functions
- **Golden Modem**  
For the test of the xDSL functions
- **Spectrum Analyzer**  
For the detection of disturbers
- **High Resolution TDR**  
For the location of cable faults.

**APPLICATIONS**

ETET 30 is intended to be installed in the central offices for the verification of telephone and xDSL services. In case of service loss it is an excellent tool to find out whether the failure source is within the exchange, the subscriber's site or on the line.

**MAIN FEATURES**• **DMM Tests**

The DMM tests are aimed to test the line and the exchange when they are separated from each other.

User side DMM test

The user side DMM test consists of DC-AC voltage, insulation resistance and capacitance measurements between the two wires and between each wire and the ground.

Exchange side DMM test

The exchange side DMM test consists of loop current measurement and DC-AC voltage measurements between each wire and the ground.

• **Exchange Simulation**

In course of the further investigation, the ETET 30 is operated as an exchange simulator by ringing the subscriber, and with his assistance, can also test the subscriber telephone set

• **Telephone Simulation**

Assuming that the line and subscriber equipment proved to be faultless, the next step is to test the exchange parameters.

The ability of exchange to recognize the arriving dial tones (or pulses) and the ringing voltage sent to the subscriber can be tested by means of a service line.

• **Golden Modem**

The modem of ETET 30 is able to qualify ADSL or VDSL lines installed and connected to the DSLAM. Having synchronized with DSLAM ETET 30 provides useful information about the training process and the state of line:

- Actual bit rate (downstream / upstream)
- Line capacity
- SNR / Hlog / QLN / bit allocation / per tone
- Transmitted power
- Line attenuation
- Line alarms (LOS, LOF, LOP, LOM)
- Line errors (FEC, CRC, HEC)
- Ping test / trace route

Ethernet interface and WiFi-N are provided for PC or other user device connection.

• **Spectrum Analyzer**

In this mode ETET 30 provides disturbing voltage analysis and the detection of ADSL or VDSL modems at the user end.

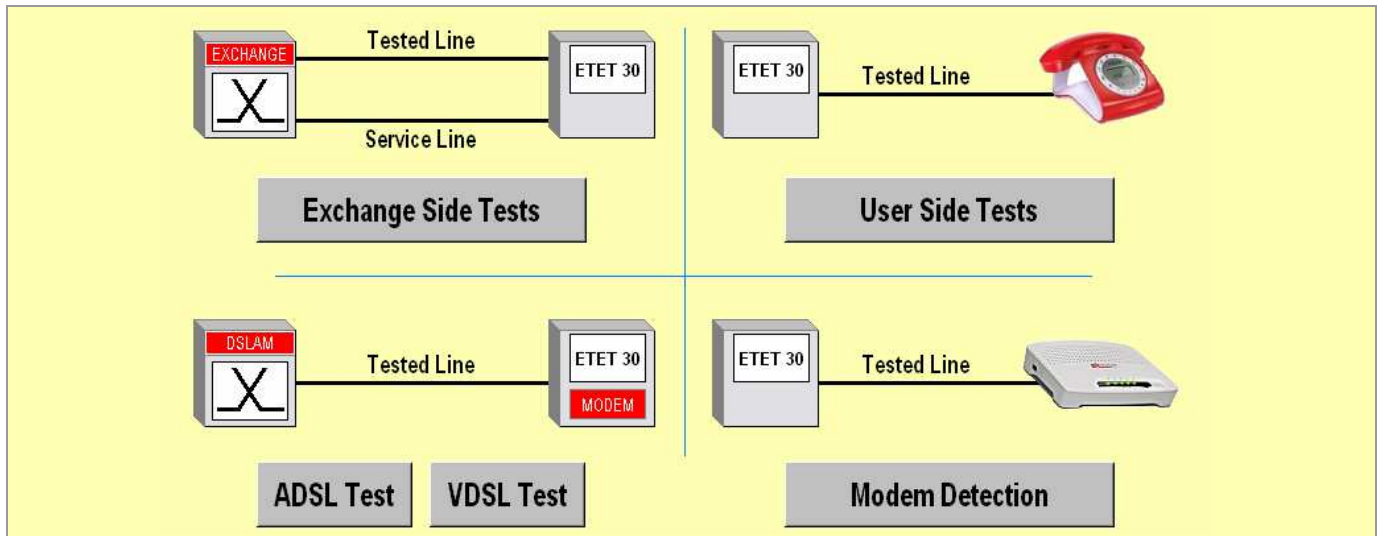
• **TDR**

The TDR is a powerful tool for trouble shooting.

• **USB Host Port for Data Transfer**

The obtained test results can be transferred to PC

TEST ARRANGEMENTS



TEST FUNCTIONS

Exchange Side Tests

DMM

- Exchange battery voltage measurement
- Loop current measurement
- Wiring continuity test

TDR

- Cable fault location in the central office

Ringing Test

The purpose of that test is to measure the ringing voltage when the user's number is called. In this mode ETET 30 sends a test call from the service line to the subscriber's line and indicates the appearance of ringing voltage

Register Test

Sometimes the subscribers complain that they are connected to another subscriber instead of the one they wanted to call. The purpose of that test is to identify the reason of the malfunction. In this mode ETET 30 sends a test call from the subscriber's line to the service line and indicates the appearance of ringing voltage

User Side Tests

DMM

- AC-DC voltage measurement
- Insulation resistance measurement
- Wiring continuity test
- Capacitance measurement

TDR

- Cable fault location at the access line

Spectrum Analyzer

The purpose of the Spectrum measurement is to get information about the disturbing voltages on the line

Test call

In this mode the subscriber telephone set can be tested in off-hook state with the subscriber's assistance. The operator should call the subscriber and communicate with him. ETET 30 provides:

- Loudness test with 800 Hz
- Loop current measurement
- Loop resistance measurement
- Dialing parameter test.

ADSL & VDSL Tests

The "Golden" modem of ETET 30 supports the most commonly used connection types

Bridge Mode

The modem provides an ADSL or VDSL link to the DSLAM and connects the LAN segment to the WAN.

Router Mode

In router mode the modem connects to the ISP and makes the authentication if necessary. It acts as a DHCP server on the LAN side and works as a DHCP client on the WAN side. Available connection types: IPoE, PPPoE, IPoA, PPPoA/ADSL only

Test Results

ETET30 shows the main parameters of ADSL or VDSL connection. The detailed line diagnosis helps the experts to verify the problem of a DSL connection.

Ping & Browser Functions

That functions allows ETET30 to check the connection to the ISP on IP level.

The PING utility used to test the reachability of a host on an Internet Protocol (IP) network and to measure the round-trip time of messages

The BROWSER (IE) can be used for retrieving, presenting and traversing information on the World Wide Web

**SPECIFICATIONS**

**General Specifications**

**Power supply**

Voltage .....48 V DC (36 to 72)  
Consumption .....app. 36 VA

**Auto power off**

After the last use ..... 1, 2, 3, 4 hours selectable

**Display** .....10.4" 800 x 600 color TFT-LCD  
with touch screen and backlight

**Connectors**

Mouse and pen drive.....2 pieces of USB 2.0  
Ethernet..... 10/100 BaseT  
Handset ..... RJ 11  
Service Line ..... RJ 11  
Exchange & User Line ..... Cannon 9 pole  
Power supply & ground..... PHONIX PC4/3-ST

**Degree of protection** ..... IP 40

**Mechanical data**

Dimensions (W x H x D) ..... 380 x 400 x 75 mm  
Weight..... app 6 kg

**Ambient temperature ranges**

Reference ..... 23±5°C  
Rel. humidity 45% to 75%  
Normal operation ..... 0 to +45°C  
Rel. humidity 5% to 95% \*(<25g/m<sup>3</sup>)  
Storage and transport..... -40 to +70°C  
Rel. humidity 95% at +45°C \*(<35g/m<sup>3</sup>)

\* without condensation

**User & Exchange Side Tests**

**User Side Line Tests**

(With the on hook state of subscriber's phone set)

**DMM**

Voltage

DC voltage. .... up to 400 V  
AC voltage..... up to 250 V eff  
Accuracy ..... ±3% ±1 V  
Frequency range ..... 15 to 300 Hz  
Input resistance ..... 1 or 2 M Ω

Insulation Resistance

Measuring range ..... 10 kΩ to 100 MΩ  
Measuring voltage..... 100 V  
Accuracy ..... ±3% ±1 kΩ

Capacitance

Measuring range ..... 10 nF to 10 μF  
Measuring voltage..... 11 Hz, 5 V or 100V DC  
Accuracy ..... ±3% ±0.3 nF

Test of Continuity

Resistance threshold .....Selectable  
Indication..... visual and acoustic

**Spectrum Analyzer**

Frequency ranges ..... up to 600 kHz

**Modem detection**

Measuring mode ..... Spectrum measurement

**Exchange Side Tests**

**DMM Measurements**

Voltage

DC voltage. .... up to 400 V  
AC voltage..... up to 250 V eff  
Accuracy ..... ±3% ±1 V  
Frequency range ..... 15 to 300 Hz  
Input resistance ..... 1 or 2 M Ω

Loop Current

Measuring range. ....1 mA to 0,1A  
Accuracy..... ±3% ±0.1 mA

**User Side Test Call**

(With the assistance of subscriber)

**Loop Test**

Loop Current

Measuring range..... 1 mA to 0,1A  
Accuracy ..... ±3% ±1 mA

Loop Resistance

Measuring range ..... 100 Ω to 1 kΩ  
Accuracy ..... ±3% ±5 Ω

**Loudness Test**

Test tone.....800 Hz

**Dialing parameter test**

Tone dialing .....The level of tones  
The frequency of tones  
List of dialed numbers  
Duration of key pressings

Tone dialing ..... Brake time  
Make time  
List of dialed numbers

**TDR**

**Measuring Modes**

Single pair short time ..... L1  
Single pair long time ..... L1LT

**Test Parameters**

Impedance ..... 120 Ohm  
Measuring ranges ..... 16m to 32 km  
Zoom ..... 1 to 5  
Gain range ..... 0 to 90 dB  
Pulse Amplitude ..... ~3 V  
Pulse width ..... 10 ns to 6 μs  
Propagation velocity  
V ..... 90 to 299m/μs  
V/2 ..... 45 to 150 m/μs  
PVF ..... 0.3 to 0.999  
Accuracy ..... ±0.5% ±1m

**VDSL Compliance****Over POTS Version**

- ITU.T G.993.1 VDSL1
- ITU.T G.993.2 VDSL2  
(Profile 8a/b/c/d, 12a/b and 17a support)
- Supports VDSL band plan, 997, 998, over POTS
- Downstream up to 100 Mbps
- Upstream up to 45 Mbps
- Rate adoptions
- SRA (Seamless Rate Adoptions)
- UPBO (Upstream Power Back-Off)
- Dual latency support in VDSL mode
- INP values up to 16
- Trellis coding
- PhyR PHY level retransmission technology
- PTM mode
- PPPoE (RFC2516)

**Over ISDN Version**

- ITU-T G.993.1 VDSL1
- ITU.T G.993.2 VDSL2  
(Profile 8a/b/c/d, 12a/b and 17a support)
- Supports VDSL band plan, 997, 998, over ISDN
- Downstream up to 100 Mbps
- Upstream up to 45 Mbps
- Rate adaption
- SRA (Seamless Rate Adoptions)
- UPBO (Upstream Power Back-Off)
- Dual latency support in VDSL mode
- INP values up to 16
- Trellis coding
- PhyR PHY level retransmission technology
- PTM mode
- PPPoE (RFC2516)

**ADSL Compliance****Over POTS Version**

- G.992.1 (G.dmt), Annex A compliant
- G.992.2 (G.lite), Annex A compliant
- G.992.3 (ADSL2), Annex A, L and M compliant
- G.992.5 (ADSL2+), Annex A and M compliant
- Reach-Extended ADSL (RE ADSL)

**Over ISDN Version**

- ITU-T G.992.1 (G.dmt), Annex B compliant
- ITU-T G.992.2 (G.lite), Annex B compliant
- ITU-T G.992.3 (ADSL2), Annex B compliant
- ITU-T G.992.5 (ADSL2+), Annex B compliant
- Reach-Extended ADSL (RE ADSL)

**Protocols over ADSL**

- Support VC-based and LLC-based multiplexing
- ADSL physical connection ATM AAL5  
(ATM Adaptation Layer type 5)
- Support multi-protocol over AAL5 (RFC2684/1483)
- PPP over ATM AAL5 (RFC2364)
- PPPoE (RFC 2516)
- MAC encapsulation routing
- Support up to 8 PVCs
- I.610 F4/F5 OAM

**xDSL Measurements****Measurements and displayed information**

- Actual bit rate (downstream/upstream)
- Line capacity
- Visualization of SNR /Hlog /QLN /bits /per tone
- Transmitted power
- Line attenuation
- Line alarms (LOS, LOF, LOP, LOM)
- Line errors (FEC, CRC, HEC)

**IP Ping / Trace Route**

- Set-up of the remote IP: In URL, IP address format
- Number of PING requests to be sent 1 to 100
- Size of PING packets 10 to 1000 bytes
- Average response time in msec

**Ordering information****TELEPHONE & EXCHANGE TESTER**

ETET 30..... 452-000-000 / Over POTS

Or

ETET 30.....452-000-000 / Over ISDN

**Including:**

- Operating manual, Calibration Certificate
- Hand set
- Power & ground connector plug (PHONIX PC4/3-ST)
- Service line connector plug (RJ-11)

**HW Options:**

Test lead (9 pole / Siemens plug).....Y107-450  
Test lead (9 pole / banana plugs).....Y107-451

ELEKTRONIKA reserves the right to change specifications without prior notice