TELEPHONE & EXCHANGE TESTER ETT 10

The **Telephone & Exchange Tester ETT 10** is intended for testing the main parameters of

- subscriber lines,
- exchanges and PABXs
- subscriber telephone sets and other terminal equipment such as fax machines and meter pulse counters

LINE mode parameters:
Measurement of DC and AC voltages
Observation of DTMF, MP and Tone signals

EXCH mode parameters:
Measurement of DC and AC voltages
Off-Hook test
Measurement of Meter Pulse parameters

TEL mode parameters:
Measurement of DC and AC voltages
Resistance measurement
Capacitance measurement
Ring test
Off-Hook test
Measurement of DP parameters
Measurement of DTMF parameters
Generation of Meter Pulses

Accordingly, the **Telephone & Exchange Tester ETT 10** has three basic operation modes:

TEL MODE for measuring subscriber line and telephone set parameters
EXCH MODE for measuring subscriber line and exchange parameters
LINE MODE for measuring line voltages and observing DTMF, MP and Tone signals on the line

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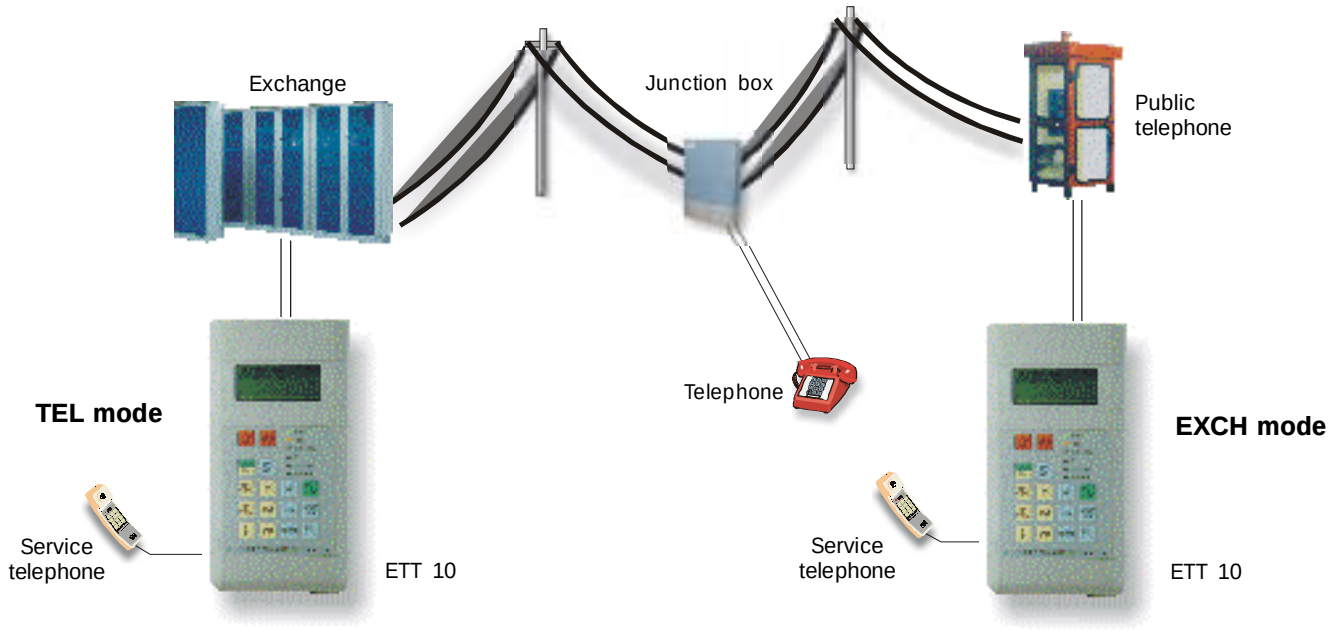

Maintenance statistics of telephone networks have shown that for most of the failures, the *exchange - line - subscriber* (EXCH-LINE-TEL) sections are responsible. Accordingly, the first step of the troubleshooting procedure is to locate the breakdown spot, i.e. to find out whether the failure source is within the exchange, the subscriber site or in the line (local loop). **This problem can be easily solved by the Telephone & Exchange Tester ETT 10,** in most cases without requiring the technician to visit the subscriber or the junction boxes along the line. Thanks to the remote diagnostics capability of the ETT 10, the *line - subscriber* section can be tested from the exchange side while the *line - exchange* section can be tested from the subscriber site. Further any section can be tested from an intermediate junction box. Following the incoming subscribrer complaint message, this remote diagnostics capability of the ETT 10 will help you to easily locate and eliminate the faults

TEL MODE

Normally, subscriber error massages are analysed from the exchange side (TEL MODE). These tests are aimed to check the line, as separated from the exchange, by measuring the DC and AC voltages between the two wires (T-R) and between each wire and the ground (T-G and R-G). In lack of interfering voltages, the ETT 10 will automatically continue to measure resistance and capacitance between the wires T-R,
T-G and R-G. These measurement results will allow you to check line condition and on-hook subscriber condition.

In course of the further investigation, the Telephone & Exchange Tester ETT 10 is operated as an exchange simulator by ringing the subscriber (RING), and with his assistance, can also test the subscriber equipment (telephone set, fax machine, PABX). The ETT 10 is suitable for measuring loop current, resistance of subscriber equipment, voice level, further DP and DTMF dialling parameters and finally calibration of meter pulse counter. Most of the test results are automatically evaluated and classified by an OK or ER? display.

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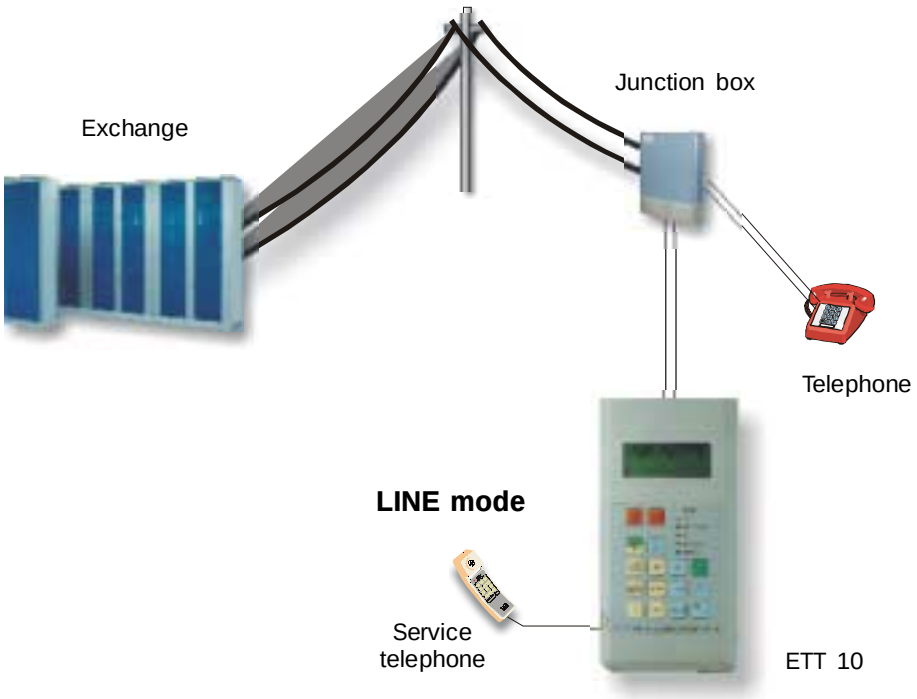

EXCH MODE

Assuming that the line and subscriber equipment proved to be faultless, the next step is to test the exchange parameters (such battery voltage, line current, ringing voltage, level and frequency of the dial tone on the line, DC and AC voltages between the two wires and the ground (T-G and R-G), further parameters of meter pulses transmitted by the exchange.

It may happen that in the absence of the subscriber, no remote diagnosis from the exchange can be carried out. In this case, the technician has to visit the subscriber in order to investigate, in the TEL operation mode, the subscriber equipment on the spot (telephone set, payphone or fax machine), or in the EXCH mode, to investigate the exchange line and the exchange parameters.

LINE MODE

Malfunction of lines can also occur at intermediate points along the line.
In this case, the ETT 10 can locate the failure by carrying out suitable measurements at the junction box connecting the subscriber.

SPECIFICATIONS

Measuring modes

LINE mode parameters ..... DC voltage, AC voltage
EXCH mode parameters ..... DC voltage, AC voltage, OFF-HOOK test, Meter pulse (receive)
TEL mode parameters ..... DC voltage, AC voltage, Resistance, Capacitance, RING test, OFF-HOOK test, DP test, DTMF test, Meter pulse (transmit)

Rated line voltage **LINE, EXCH, TEL**

in AC/DC voltage measurement mode ..... 270 Vp
in OFF-HOOK mode ..... 70 Vp

DC voltage measurement **LINE, EXCH, TEL**

Termination ..... high impedance
TR: 5MΩ
T–G and R–G: 100 kΩ
Voltage range ..... ± 1 to 200 V

AC voltage measurement **LINE, EXCH, TEL**

Termination ..... high impedance
T–R: 700kΩ
T–G and R–G: 80 kΩ
Voltage range ..... 2 to 180 Veff
Frequency range ..... 20 to 200 Hz

OFF-HOOK test (across lines T–R) **EXCH**

Termination ..... internal (600 Ω, 1,5 W) or external (service telephone)
Voltage range ..... 1 to 50 V
Current (through internal termination)..... 1 to 55 mA
Level range..... –26 to +10 dB
Frequency range ..... 200 Hz to 4 kHz

Meter pulse receiver **EXCH**

Termination ..... internal (200 Ω) or external (service telephone)
Carrier frequency range..... 11600 to 12400 Hz or 15680 to 16320 Hz
Burst time ..... 50 to 2000 ms
Burst level..... 40 mV to 1.2 V (–26 to +4 dB)
Number of bursts ..... 1 to 999
Break time..... 50 to 2000 ms

Resistance measurement **TEL**

Across lines T–R (polarity can be reversed), ... T–G, R–G)
Resistance range..... 1 kΩ to 5 MΩ

Capacitance measurement **TEL**

Across lines T–R (polarity can be reversed), ... T–G, R–G)
Capacitance range ..... 0.02 to 10 µF

Ring test **TEL**

Ring voltage..... 50 Veff
Clock..... 1 s ring / 3 s break
Trip time..... 50 ms
REN (1REN ≈ 0.3 VA) ..... 0 to 3 REN

OFF-HOOK test **TEL**

Across lines T–R (polarity can be reversed)
Termination ..... 600 Ω
Voltage range ..... 0 to 50 V
Current range ..... 0 to 25 mA
Level range..... –26 to +10 dB
Dial tone ..... 420 Hz, –16 dB
Fax tone..... 2100 Hz, –16 dB

Dial Pulse (DP) test **TEL**

Measuring modes..... SINGLE, FLASH, REDIAL
SINGLE test
Speed range..... 5 to 15 pps
Break / Make ratio..... 40 to 80 %
Break time..... 40 to 80 ms
FLASH test
Flash time ..... 100 to 300 ms
REDIAL test
Minimal interdigit time ..... 100 to 2000 ms
Displayed last number..... max. 16 digits

Dual Tone Multi Frequency (DTMF) test **TEL**

Measuring modes..... SINGLE, FLASH, REDIAL
SINGLE test
Level range..... –16 to –4 dB
Frequency range..... 500 to 2000 Hz
Burst time ..... 20 to 1000 ms
FLASH test
Flash time ..... 100 to 300 ms
REDIAL test
Minimal interdigit time ..... 20 to 1000 ms
Displayed last number..... max. 16 digits

Meter pulse transmitter **TEL**

Output impedance ..... 200 Ω
Nominal values (NOM)
Frequency ..... 12 kHz ± 0.5 %, or 16 kHz ± 0.5 %
ON time / OFF time ..... 200 ms / 110 ms
Burst level ..... 250 mV
Minimal values (MIN)
Frequency ..... 11.7kHz±0.5%, or 15.75kHz±0.5 %
ON time / OFF time ..... 77 ms / 110 ms
Burst level ..... 55 mV
Maximal values (MAX)
Frequency ..... 12.3kHz±0.5%, or 16.25kHz±0.5 %
ON time / OFF time ..... 900 ms / 110 ms
Burst level ..... 55 mV

General specifications

Power supply
Internal rechargeable battery pack
Operation time ..... approx. 5 hours
External DC source.....12 to 16 V, min. 400 mA
(e.g. mains adapter, car-battery)
When external DC source is connected to ETT 10, the battery pack is being charged automatically.
Ambient temperature range
Operating..... 0 to +50°C
Storage and transport ..... –20 to +70°C
CE test..... Rec. MSZ EN 55022
Dimensions..... 200 x 100 x 40 mm
Weight ..... 0.6 kg

Ordering information

TELEPHONE & EXCHANGE TESTER
ETT 10 257-000-000
Including:
Operating manual
Mains adapter
Service telephone
Measuring cables
Battery pack
Carrying bag and carrying case

ELEKTRONIKA reserves thr right to change specifications without prior notice !
2000.02.07

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