



Terminal Multi-Services (TMS),

Access network data acquisition and analog measurements

The TMS is a multi-operation handheld tool for data acquisition and measurement created by CINTEL. The TMS is interoperable with centralized robots and dedicated measurement tools (high bit rates transmission, optic fiber), and aimed at making the access network analog measurements.

Easy and multi-purpose:

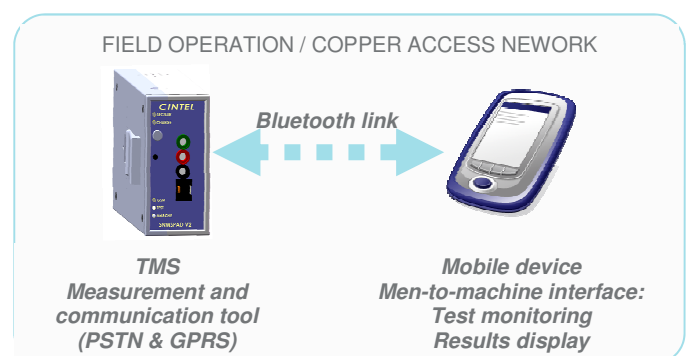
- ✓ 1 single tool to replace all other test and measurement equipments: testing phone, multimeter, megohmmeter
- ✓ 1 single connection to get all kind of test results
- ✓ Connection to the plant line through crocodile clips or telephone plug
- ✓ 1 clic to start the measurements and to access all the results
- ✓ Designed-to-fit carrying case, telephone capability, hands free, etc.
- ✓ Ease of results reading

Diagnosis and traceability:

- ✓ Interface to the centralized measurement robots and dedicated tools (high bit rate transmission, fiber optic, etc.)
- ✓ Subscriber ID acquisition
- ✓ Traceability of measurements including date, time, location, and twisted pair reference
- ✓ Elimination of diagnosis errors
- ✓ Data automatic upload to the operator's IS

Paired with a PDA- or smartphone-like mobile device, the TMS provides:

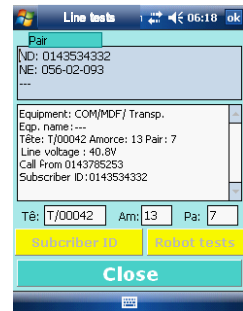
- Line tone and dialing sequence control for an ear check
- Measurement capabilities at any location of the access network: MDF (main distribution frame), SC (street cabinet), DP (distribution point), subscriber premises
- Standard electrical measurements:
 - ✓ Line voltage and subscriber ID
 - ✓ Capacitance, insulation resistance, and line length down to the open line location
- Actual line architecture from MDF to the subscriber premises
- Geographic location of the network equipment
- Results display
- Tests stamping with date, time and geo-localization
- Automatic and on-the-fly result data transfer either through PSTN or through GSM (GPRS, Edge, 3G) to the operator's database



Measurements results display

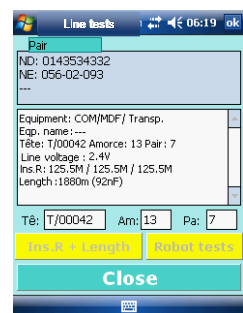
Line voltage and subscriber ID

- Line voltage and diagnosis
- 2 modems connection set-up
- Subscriber ID acquisition
- Re-creation of the actual line architecture from the MDF
- Measurement results recording in the database, with date/time and GPS location stamping



Insulation resistance and line length

- Line voltage and diagnosis
- Insulation resistance measurement between the 2 wires A & B, between A & ground, and between B & ground
- Line capacitance measurement
- Line length calculation up to the open location (based on a value of 49nF/km)
- Re-creation of the actual line architecture from the MDF
- Measurement results recording in the database, with date/time and GPS location stamping



Examples of result displays on PDA screens

Technical specifications

Displayed parameters

- GPS location
- Network equipment name
- Line architecture
- Line voltage
- Subscriber ID acquisition
- Insulation resistance between the 2 wires A & B, between A & ground, and between B & ground
- Line length and capacitance measurement

Power supply

- 4 batteries NiMh size AA 2600 mAh

Environmental specifications

- Operating temperature range: from 32°F to 104°F
- Operating hygrometry range: relative humidity from 10 to 90%

Content

- TMS
- Rechargeable batteries
- GPS antenna
- Earphone
- 3 colors measurement cables
- Crocodile clips
- RJ11 cable
- Telephone connector
- Power supply 12 V DC, 1,0 A

