

CLASS500-SMS - Universal telephone network simulator

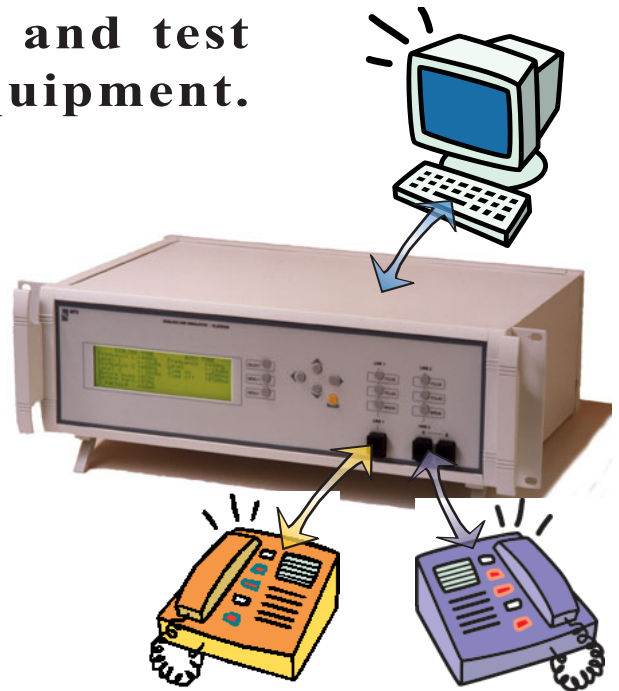
Simulation, emulation and test solutions in one equipment.

Standalone :

- Up to 100 network configurations instantaneously.
- SMS Service Center inside. Protocoles 1 and 2.
- CallerID type I and II. Any standards.
- Two independent and floatting lines.
- Running of embedded scenarios.

Remote controlled with the unique CLASS-SOFT:

- Complete SMS analyser.
- CallerID frames creation.
- Full control of the equipment.
- Powerful scenarios editor/interpreter.
- Real time signal analysis (FFT based).



A performance concentrate.

Electronics :

- Each of the two lines has its own feeding bridge and signals conditioning. The feeding bridges have some of the main characteristics of the famous PA100 feeding bridge. Modulation, received or transmitted for each line, is processed by a powerful DSP unit and 16bits/48KHz conversion. This approach gives the CLASS500 improved results in terms of accuracy and dynamics. The large LCD screen contributes to the exceptional ease of use of the CLASS500SMS.

Signals :

- Specific algorithms dedicated to telephony signals (DTMF, modem, ...) are added to FFT based analysis. Generated signals are accurate (level and frequency) and stable. Numerous signals can be processed simultaneously.

Working modes :

- **Standalone**, as standard network emulator. A situation, the CLASS500SMS excels in: Internal data base offers 100 configurations for each line, 20 CallerID frames of each type and the Service Center for SMS can receive and transmit protocol 1 or 2 ETSI messages.
- **Executing a scenario**. One of main strengths of CLASS500SMS is to be able to load and execute a specific scenario. It is then transformed into a specific tool dedicated to the test you wish to carry out.
- **Remote controlled by a PC**. Numerous and complex tests can be carried out and related to larger ressources or production management. Remote control dictionary of the CLASS500SMS is exhaustive and allows real time information on events. The CLASS500SMS is delivered with CLASS-SOFT (see next page).

Applications.

- Hardware R&D : to test circuits in all (non)working conditions.
- Software R&D : to test algorithms, and error events.
- Production : from simple standalone test up to integrated production management.
- Quality : compliance verification, quality insurance, certification.
- Marketing : for safe demonstrations with the right network simulation.

SM-SC architecture

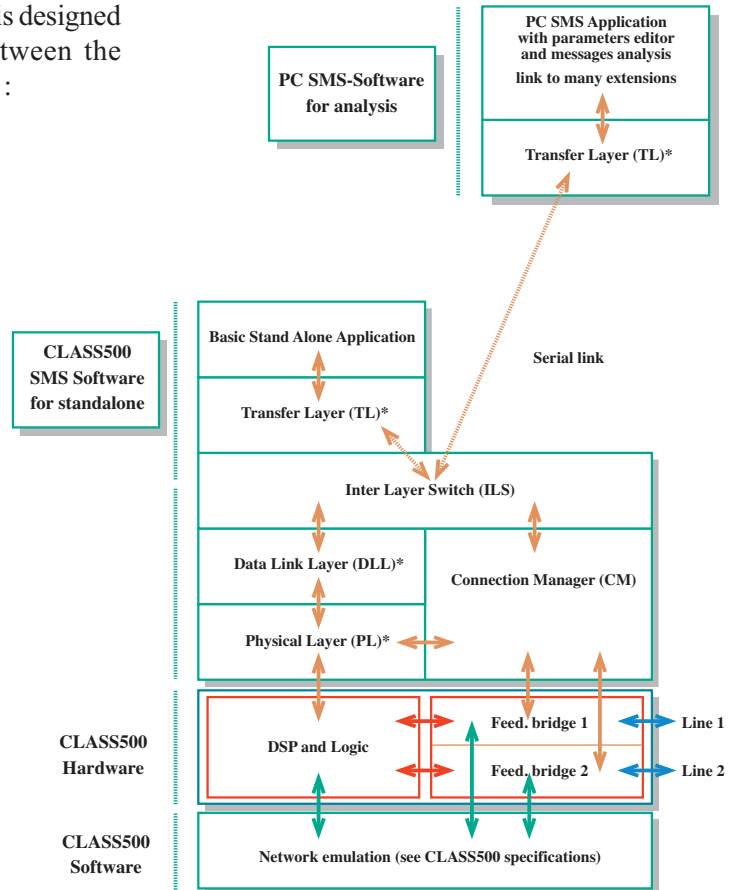
- The SM-SC architecture of CLASS500SMS is designed in order to have an automatic choice between the standalone or the remote control operation :

Standalone mode

- In standalone mode, the CLASS500SMS can receive and transmit Short Messages from the protocol chosen.
- If the message contains errors, the server will respond in accordance with the ETSI standard.
- With a scenario loaded it is possible to send a specific message or several messages or even a more complex sequence.
- Although it is not allowed by the standard, a received message from a terminal can be sent to the same terminal on the same line in order to facilitate tests.
- T10, T11, FSK level and white noise level can be set. The time between the receipt of the message and its transmission can also be set to simulate a realistic behaviour.

Remote mode

- **CLASS-SMS is a very powerful software** for a complete and precise analysis and simulation of Short messages received from or sent to the terminal. **One important feature is the ability to simulate errors from physical layer up to protocol layer.** But still the human interface of the SM-SC is simple and user friendly.
- **Delivered with a complete set of test configurations in accordance with STI27 (France Telecom) and ES201 912 (ETSI).**



CLASS-SOFT

CLASS-SOFT is a software offering :

- Access to SMS analysis. See CLASS-SMS above.
- Access to CLIP management. FSK or DTMF, type I and type II CallerID. Compatible with European, US, Australia, Asian standards and others. Physical layer is also configurable.
- Scenario editing, debugging and managing. This very powerful feature allows the creation of scenarios that can be downloaded in the equipment for a standalone mode. Ideal for after sale services, for example.
- Immediate access to all the parameters of the CLASS500SMS : feeding bridges, tones, pulse metering, numbers, memories, satellite delay, etc.
- Immediate use of the FFT analysis functions : frequency and level of the most significant signals, selective level measurement.

CLASS-SOFT is an all in one software, user friendly, that helps you to use the fantastic possibilities of the CLASS500SMS. It is delivered with the equipment.



SIM'COM CLASS 500SMS - Technical specifications

Line emulator All parameters are independant for each line.

- **2 lines (L1 et L2)** with a switching capability on line 2 (L2A and L2B) depending on the number dialed.
- **Line current** (normal and parking) : 5 to 99mA in steps of 1mA. Display of line current for each line.
- **Line resistance** : 250ohms to 12 950ohms in steps of 100ohms.
- **Line pick-up detection** : From 5 to 99mA. Non detection : 30% below the line pick-up detection.
- **Battery voltage** : 10 to 75V in steps of 1V (120 V-Option C2).
- **Impedance** : 600Ω (200Ω for 12 and 16KHz - Option D) or external.
- **Tone** : 2 frequencies of 200 to 5 000Hz in steps of 1Hz. Levels : -60 to +10dBm or OFF.
Times before "Busy" and before "Parking" from 0 to 250s in steps of 1s.
- **Busy signal** : From 200 to 5 000Hz in steps of 1Hz. Levels : -60 to +10dBm in steps of 1dBm.
ON and OFF time : 0 to 9 990ms in steps of 10ms.
- **Modem connection** : simple direct connection (L1-L2A) or with bell.
- **Gain L1<->L2** : From -60dB to +10dB in steps of 1dB. (Gain L1->L2 and L2->L1 independant - option G)
- **Satellite delay** : From 2,5 to 2 000ms in steps of 2,5ms.
- **Ringng** : Frequency from 17 to 120Hz in steps of 1Hz. Level : 10 to 99Vrms in steps of 1V.
ON time : 0 to 9 990ms in steps of 10ms. OFF time : 0 to 9 990ms in steps of 10ms.
Nbr. of rings : 1 to 99 or continuous.
Polarised and non-polarised mode.
- **«B answer» Signalisation** : Charging signal, polarity reversal, DTMF or single tone
(2 frequencies from 200 to 5 000Hz in steps of 1Hz.
Level : -60 to +10dBm or OFF. Time from 0 to 9 990ms in steps of 10ms).
- **Charging signals** : 12 and 16 kHz in differential mode, Levels : 5 to 4 000mVeff (e.m.f. value).
ON time : 0 to 9 990ms in steps of 10ms. OFF time : 0 to 999s in steps of 100ms.
Nbr. of pulses : 1 to 999. Automatic or manual.
Quantum pulses : 1 to 99 ascribable to each number.
Inter-time from 0 to 2 000ms in steps of 10ms.
- **Reversed polarity** : Controlled by the detection of line pick-up (with return to normal position when line returns to quiescent state) or via the control panel on the front side. The switch-over passes through a "0 Wait state" (0Ws) which is programmable between 0 and 9 990ms in steps of 10ms.
- **Impairment**: Opening of the line from 0 to 2,5s in steps of 10ms.
- **Detection of DTMF and decimal numbering** (10Hz and 20Hz).
Assignment of a call number to each line (17 digits max).
- **Detection of «Flashing»** : From 50 to 400ms (signalisation).
- **Internal numbers with answering machine functions**, for rapid telephometric testing.
- **Configuration memories** : 10 (EEPROM).

Caller ID signals generator (FSK&DTMF) All parameters are independant for each line.

- **Type I and II** signals according to a model built with a PC and loaded through the RS232 serial link.
- **Script memories**: 20 of each type. Script is the Caller ID frame description, do not confuse with Scenario.
- **Script execution** : Manual, remote controlled or automatic by calling from one line to other. Example : Calling line 1 from line 2 generates a type I script if line 1 is idle or type II if it is busy (communication with an internal line for example).

In a script editing, the following signals can be used with a precise timing (step of 10ms or 1bit for FSK) :

- **Tone** : Frequency of 200 to 5 000Hz in steps of 1Hz. Levels : -60 to +10dBm in steps of 1 dB.
- **FSK Mark and Cesure bits** : Frequencies and levels as for tone.
- **FSK rate** : 120 to 4800 bits/s in steps of 1 bit/s. Nb of start/stop bits : 0 to x (65535 max).
- **Ringng generator** : See specifications of line emulator.
- **DTMF generator** : Q23, level of each frequency adjustable from -60 to +10dBm (steps of 1dB).
- **Polarity reversal** : See specifications of line emulator.
- **White noise generator** (pseudo random) : OFF or from -60 to +10dBm (steps of 1dB).

SMS : SM-SC simulation and SMS editor.

- See callerID specification for FSK
- All parameters (in accordance with ETSI ES 201 912) can be set.
- Extensive errors generation/management. Delivered with France telecom STI27 and ETSI set of test configurations.

Miscellaneous

- **Serial link** : RS232C.
- **Power supply** : 230V ±10%. (115/230V - Option B)
- **Temperature range**: operation at 5 to 40 °C.
- **Dimensions** (L x W x D): 350 x 250 x 85 mm. 19" rack - 6U
- **Weight** : 5 Kg approx.

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