

Teltone offers a wide range of telecom simulation products for telecom hardware and application developers. This application guide provides helpful information for our customers to select the optimum testing solutions to match their requirements. In addition, our in-house Sales and Customer Support staffs are ready to recommend testing solutions to meet special requirements.

## **SECTION I: Teltone Simulators/Emulators Features Overview**

This section provides high-level descriptions of the telephone line simulators offered by Teltone. For more information, please visit our web site <http://www.teltone.com/>.



- **TLS-3B** – A portable, low cost, and simple to use unit that simulates two telephone lines with basic POTS (Plain-Old-Telephone-Service) features. It supports advanced network service features such as CID (Caller ID), and programmable line parameters such as phone numbers and line attenuation.



- **TLS-5C** – A rugged, cost effective unit that simulates four telephone lines with programmable line parameters such as phone numbers and line attenuation. It also supports advanced network service features such as CID and other CLASS features such as speed dialing and three way calling. Some PBX-specific features, such as call transfer/conference are also supported.
- **TLS-5D** – A 220 VAC power version of the TLS-5C.



- **TSP-EDGE-01 (DISCONTINUED)** – The Telecom Simulation Platform is a modular and scalable unit that supports a mix of digital (T1/E1/PRI) and analog (POTS) interfaces. The TSP has powerful bulk call generation and switch emulation capability allowing connections between all analog ports and digital channels. Developers can use its bulk call generation capability to load and stress test their telecom products or applications. The TSP can be controlled via the serial or Ethernet port using the included Configuration program. The unit is field upgradable via software download. Optional scripting software modules allow interactive testing scenarios for IVR and other CTI applications.

## **SECTION II: Teltone Simulator Applications**

This section describes the use of different Teltone Simulators (TLS and TSP Edge) to perform testing of many types of telecom devices and systems. The three sub-sections below illustrate the possible testing scenarios based on the type of telecom interfaces involved (analog, digital, or both).

### **1. For Applications Requiring Analog (POTS) Interface Only**

This is for applications where telecom devices with analog interfaces are normally connected to the PSTN (Public Switched Telephone Network) for single-ended or end-to-end communications.

#### **Sample applications:**

- Telecom CPE devices – telephones, answering machines, fax machines, and CTI (Computer Telephony Integration) devices that are normally connected to the PSTN.
- On-premise switching systems – PBX and key systems with analog station connections.

- Analog modems where full V.90/92 connection speed is not needed. (See Note 1 below for more details)



Applications <sup>2</sup>	Basic POTS	Caller ID Type I (CID)
2-line applications	TLS-3B	TLS-3B
4-line applications	TLS-5C/D/X	TLS-5C/D
8 to 24-line applications	TSP + FXS Modules <sup>3</sup>	
FXO (CPE Simulation)	TSP + FXO Modules <sup>4</sup>	

**Notes:**

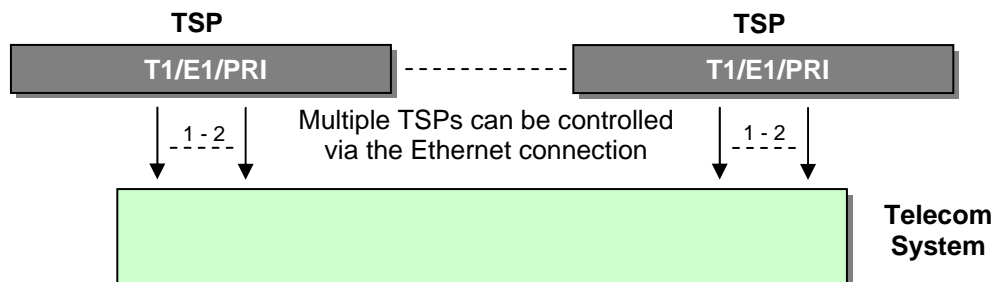
1. V.90 and V.92 modems are capable of supporting up to 56 Kbps connection speed if the modems at the Server-end (i.e. at the ISP) are connected to the PSTN via digital interfaces such as T1, E1, or ISDN (PRI). When two V.90 or V.92 modems are connected together via analog interfaces only – POTS from either the PSTN or the Teltone Simulators, the maximum connection speed is limited to 33.6 Kbps.
2. Teltone Simulators provide FXS analog interfaces, which simulate POTS lines from the telephone network. The interfaces are intended for connections to CPE (Customer Premise Equipment) that has FXO interfaces.
3. Software version 2.5 or higher.
4. Requires TSP Edge chassis and software version 3.5 or higher.

**2. For Applications Requiring Digital (T1/E1/PRI) Interface Only**

The TSP provides up to 2 digital interfaces that support T1, E1, and PRI signaling. The digital interfaces are configurable to simulate the Network (NT) or Terminal Equipment (TE) side.

**Sample applications:**

- Telecom equipment with T1/E1/PRI interfaces – PBX, channel banks, telephony gateways and servers.
- Load and stress testing of telecom systems with switch emulation and bulk call generation capabilities.

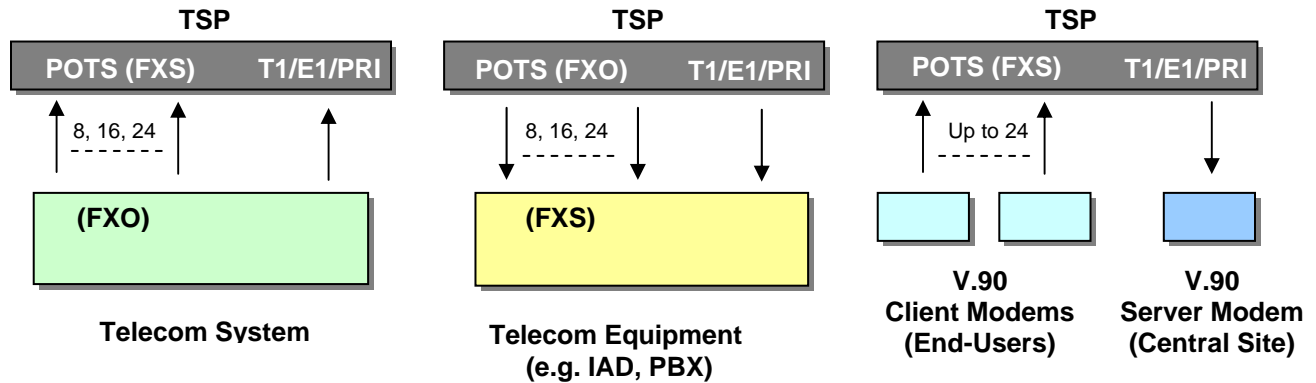


### 3. For Applications Requiring Both Digital and Analog Interfaces

The TSP can support testing of products that require connections to analog and digital interfaces at the same time. In addition to the FXS interface, the TSP offers the FXO interfaces for connection to equipment with network POTS interfaces, such as the station-side of PBXs and IADs (Integrated Access Devices).

#### Sample applications:

- Telecom equipment with both analog and digital interfaces – PBX, IAD, telephony gateways and servers.
- V.90 modem testing at maximum allowable connection speed. (Also see Note 1 below)



#### Note:

1. In order to obtain maximum allowable connection speed, the V.90 Client and Server modems need to be connected to the TSP using the analog (POTS) and the digital (T1/E1/PRI) interfaces respectively, as shown above. Although it is feasible to use a Channel Bank to derive the analog interfaces from the digital interface of the TSP, robbed-bit signaling used as part of T1 non-clear channel voice calls can prevent the modems from obtaining maximum connection speeds.