



# PS-67 Series

G.SHDSL



## Description

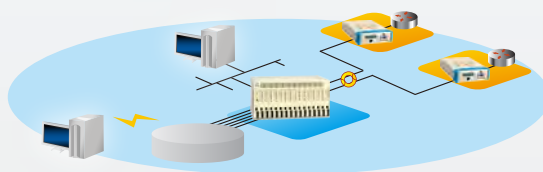
The Single-pair High-bit-rate Digital Subscriber Line System, PS-67, provides full duplex capability to support selected symmetric user data rates for T1, E1 or N x 64 Kb/s (range from 64 to 4608 Kb/s) leased line services or Ethernet interface extension using a Trellis Coded Pulse Amplitude Modulation (TCPAM) line code over one or two non-loaded two-wire metallic cable pairs.

The two-pair application of PS-67 doubles data transmission rate and extends transmission distance for the same data rate. PS-67 includes a standalone model and a rackmount model with up to 16 SHDSL interfaces.

## Hardware Features

- Complies with ITU-T G.991.2 Annex A and B.
- Flexible user interface, T1/E1, V.35, V.36, RS-449, EIA530, X.21 DTE, 10/100BaseT Ethernet Interface selection.
- T1 speed is n x 64 Kb/s, n=1 to 24 for 1 pair and 2 pairs.
- E1 speed is n x 64 Kb/s, n=1 to 32 for 1 pair and 2 pairs.
- DTE/LAN speed of n x 64 Kb/s, n=1 to 36 for 1 pair.
- DTE/LAN speed of n x 64 Kb/s, n=1 to 72 for 2 pairs.
- Cross over detectable capacity for 2 pair system.
- Performance monitoring feature for on-line quality monitor.
- Loopback and test pattern for on-site trouble shooting.
- V.54 remote loopback function implemented.
- Each unit can be configured to STU-C or STU-R mode.
- Each unit can be configured to sealing source or sink.
- Standalone model applies LCD panel for greater efficiency.
- GUI SNMP-based and remote Telnet Network Management System to centrally manage PS-67 system.
- Designed to support Remote Power Feeding (Option)

## Application



Centralized Application



Standalone Application

## Technical Specifications

### G.shdsl Interface

- **Number of pair** : One pair or two pairs.
- **Line Rate** :  
N x 64 Kb/s (Data rate) + 8 Kb/s (Overhead) + 8 Kb/s  
(for T1 interface only) N = 3~36
- **Data Rate** :  
The PS-67 supports symmetric multiple 64 Kb/s operation which includes
  - 1 pair : data rate - 64 to 2304 Kb/s
  - 2 pair : data rate - 64 to 4608 Kb/s
 as according to different interfaces (T1/E1/DTE/Ethernet).
- **Frame Structure** : Complies with ITU-T G.991.2 section 7.1.1
- **Modulation Method** : 16-TCPAM
- **Impedance** : Nominal 135Ω ± 5%
- **Total Output Power** :  
The STU-C and STU-R support power backoff function and the power backoff levels comply with Table 6-2 of ITU-T Rec. G.991.2  
The symmetric PSD of STU-C and STU-R complies with ITU-T Rec. G.991.2 PSD masks

### T1 Interface

- **Line Rate** : 1544 Kb/s ± 32 ppm
- **Data Rate** : N x 64 Kb/s, N = 1~24
- **Frame Format** : SF, ESF or Unframed
- **Line Code** : AMI or B8ZS
- **Impedance** : 100 Ω ± 5%, balanced
- **Pulse Shape** : Complies with mask of ITU G.703
- **Power Level** :  
For an all-one transmitted signal, the power in 3 kHz band centered at 772 kHz shall be between 12.6 and 17.9 dBm. The power in 3 KHz band centered at 1544 kHz shall be at least 29 dB below that at 772 kHz
- **Jitter** : Complies with ITU G.823 Jitter requirement

### E1 Interface

- **Line Rate** : 2048 Kb/s ± 50 ppm
- **Data Rate** : N x 64 Kb/s, N = 1~32
- **Frame Format** : Unstructured or Structured framing
- **Line Code** : HDB3 or AMI
- **Impedance** : 120 Ω ± 5%, balanced  
75Ω ± 5%, unbalanced
- **Pulse Shape** : Complies with mask of ITU G.703
- **Jitter** : Complies with ITU G.823 Jitter requirement

### DTE Interface

- **Interface Type** : V.35, V.36, EIA530, RS449, X.21
- **Data Rate** : N x 64 Kb/s, N = 1~36 (one pair) , N = 1~72 (two pairs)

### Ethernet Interface

- **Ethernet Interface** : 10/100BaseT auto sensing and 10M/100M half/full Duplex configurable Ethernet interface with auto MDIX Ethernet interface
- **Electrical Characteristics** : complies with IEEE 802.3/IEEE 802.3u.
- **Bridge Capacity** : Supports up to 2048 MAC learning addresses with 4-layer hashing algorithm and Bridge filter function
- **Encapsulation format** : HDLC
- **Data Rate** : N x 64 Kb/s, N = 1~36 (one pair) , N = 1~72 (two pairs)
- **Throughput** : Non-blocking full Packet Rate



### Performance Monitoring Management

- **SHDSL Interface** :
  - Current and 32 records of 15 minute LOSWS, ES, SES and UAS
  - Current and 7 records of 24 hour LOSWS, ES, SES and UAS
- **T1/E1 Interface** :
  - Current and 96 records of 15 minute LCV, ES, SES and UAS
  - Current and 7 records of 24 hour LCV, ES, SES and UAS

### Fault Management

- **SHDSL Interface** :
  - LOSW alarm.
  - SNR, loop attenuation and Performance Monitor cross over threshold
- **T1/E1 Interface** :
  - LOS, LOF, AIS and RAI alarm
  - Performance Monitor cross over threshold
- **DTE and Ethernet Interface** : Disconnection alarm

### Environment

- **Shelf and Standalone type** :  
0 ~ 60 °C, up to 95% non-condensing relative humidity.

### Power Supply

- **Shelf type** : -36 ~ -72 Vdc.
- **Standalone** : -36 ~ -72 Vdc, 90~260Vac or dual DC and AC power without external adapter.

### Regulations

- **EMC** : CISPR 22 Class A, FCC Part 15 Subpart B, Class A.
- **Surge** : IEC 1000-4-5 Class 2

### MTBF

- 4.6 Years

### Dimensions

- **Shelf type** : 222mm x 437mm x 306mm (HxWxD)
- **Standalone** : 40mm x 200mm x 300mm (HxWxD)

### Distance

Line Speed	200 kb/s		776 kb/s		1032 kb/s		1544 kb/s		2056 kb/s		2312 kb/s	
No of pair	1	2	1	2	1	2	1	2	1	2	1	2
Data Rate (Max.)	192k	384k	768k	1536k	1024k	2048k	1536k	3072k	2048k	4096k	2304k	4608k
N x 64kb/s	N=3	N=6	N=12	N=24	N=16	N=32	N=24	N=48	N=32	N=64	N=36	N=72
0.4 mm	7.3 km		5.5 km		5.2 km		4.3 km		4.0 km		3.8 km	
0.5 mm	8.0 km		7.5 km		7.3 km		5.6 km		5.5 km		5.0 km	
0.6 mm	13.4 km		12.3 km		10.2 km		8.0 km		7.8 km		7.5 km	