

# LocalNet 20/100™ Z01 Option

Secure Packet Communications Unit



## Overview:

The LocalNet 20/100 Z01 option Packet Communications Unit (PCU) is a value-added service to the standard broadband LocalNet 20/100 PCU. It provides the user both data security and network protection. It is used with the KDC (Key Distribution Center) option of the LocalNet 50/100™ Network Control Center. The Secure PCU provides packet-mode data communications with end-to-end data encryption.

## Features

- Insures data privacy on the LocalNet™ local area network, protecting against both passive and active data interception.
- Encryption key distribution and data encryption functions are completely transparent to the user.
- Provides end-to-end data encryption between any two Secure PCUs.
- Uses Federal Data Encryption Standard (DES) algorithm.
- Complete compatibility with standard LocalNet PCUs.
- Users can choose either an encrypted or standard session.
- Permits users to engage in multiple encrypted and/or standard sessions simultaneously.
- Unique encryption keys are distributed for each secure session.
- Allows for Secure SubNets preventing intrusion by standard PCUs within the LAN, while allowing free access to all network resources from any Secure PCU.
- Provides for multiple security domains on one network, each with its own Key Distribution Center.
- Conforms to International Standards Organization (ISO) Open Systems Interconnection (OSI) protocol model.
- Is frequency agile; allows any of a pre-selected set of 15 or 20 frequency channels to be digitally tuned.
- Operates with standard CATV cable (or other 75 ohm coaxial cable) allowing for installation by local contractors, off-the-shelf parts and proven component MTBF (mean time between failure) rates averaging 18 years.
- Compatible with midsplit, subsplit, or dual cable installation for ease of installation on existing LANs.
- Uses branching tree topology, so that failure of any node or cable branch will not effect the rest of the network.
- Provides error rate of less than one in  $10^9$  for virtually error free data transmission.



## Description

The LocalNet 20/100 Z01 Secure PCU uses the Federal Data Encryption Standard (DES) algorithm specified in the Federal Information Processing Standard Publication (FIPS-PUB) 46. The DES device is certified by the National Bureau of Standards as being in compliance with the standard. Secure PCU functions include:

- Interacting automatically and transparently with Key Distribution Center of the LocalNet 50/100 to provide unique encryption keys for each secure session.
- Using a synchronous stream encryption mode.
- Employing cached keystream encryption method so that secure sessions do not reduce throughput of the PCU.

The 20/100 Z01 option PCU uses a sophisticated RF transceiver. It performs digital/analog (device to cable) and analog/digital (cable to device) conversion.

- Establishes, maintains, and disconnects virtual connections, between nodes.
- Formats and addresses user data packets to their destinations, using internal LocalNet data communication protocols.
- Controls the allocations of the channel bandwidth using CSMA/CD (Carrier Sense Multiple Access with Collision Detection) mechanisms.
- Controls the flow of data over the channels and supports virtual connections to prevent congestion and data loss—both local (at the terminal or host port) and global (aggregate traffic on the backbone channel).
- Detects errors through use of CRC (Cyclic Redundancy Checks), and corrects errors through retransmission of lost or damaged packets.

## Digital Interface Specifications

Number of DTE Interfaces: Two  
Type: EIA RS-232C  
Speeds: 75 bps to 19.2 Kbps  
Flow control: EIA (RTS/CTS), XON/XOFF or none  
Character length: 7 (with parity), 8 (without parity)  
Number of stop characters: 1, 1.5, or 2  
Parity: Odd, even, or none.

## User Interface Specifications

Type: A set of parameters and functions similar to those of CCITT X.3 is provided for the interface between the DTE and the 20/100 Z01 option PCU. Interface to LocalNet is provided via a CCITT X.28-like interface specifically designed to support local area networks.

Protocols: Virtual connection provides end-to-end data integrity. Key Distribution protocol is at the session layer.

Capacity: Up to four concurrent virtual connections supported per 20/100 Z01 option PCU.

## User commands

In addition to the standard LocalNet 20/100 user commands, Sytek's Secure PCU offers the following, user determined parameters.

k[DC] specifies the network address of the Key Distribution Center of LocalNet 50/100 Network Control Center.

sc[ALL] requests establishment of a secure session.

se[TMK] sets master encryption key used for secure data between a Secure PCU and KDC.

The Secure PCU also provides additional meaning to the following standard PCU list of commands:

do[NE] closes both standard and secure sessions.

li[STEN] allows a Secure PCU to optionally accept only secure calls via the s[ON] parameter.

pc[ALL] can implement automatic secure virtual connection via s[ON] parameter.

sta[TUS] displays all active sessions, indicating specific secure sessions in operation.

## Ordering Information

Model	Option	Description
20/100		Dual Port PCU
	Z01	Secure PCU
	U00	RS-232C user device physical interface
	W00	115 VAC 50/60 Hz AC Power
	W01	220 VAC 50/60 Hz AC Power

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Sytek, Incorporated  
an affiliate of General Instrument

1225 Charleston Road  
Mountain View, CA 94043  
Telephone (415) 966-7330