

## TNP-100 Multiservice Network Access System

**High Performance, low latency leader.**

IPtec specializes in facilitating high performance, low latency services over packet based networks.

IPtec provides reliable, high quality products for low latency, E1/T1 (CESoIP), video and data acquisition (TMoIP) services. These products enable transport of high quality voice (E1/T1), video and telemetry signals over Ethernet, IP-based or MPLS networks.

**Standards based Multiservice over Packet (MSoP)**

**Low latency transmission over packet based networks**

**Superior Flat Line response**

**Four programmable multi-function IO ports**

**Enables Multiple TDMoIP (CESoIP) & LAN services**

**Enables Analog & Digital data acquisition services**

**Integrated Loopbacks, BERT, and Alarms**

**Managed via Embedded Web Server and SNMP**



### **Multiple Services over Packet based Networks**

The TNP-100 is a standards compliant network processor enabling transparent, low latency, bidirectional transfer of almost any type of digital and analog signals over Ethernet, IP-based and MPLS networks. The TNP-100 is a single platform Ethernet (LAN), Circuit Emulation (CESoIP), Video and Data acquisition (TMoIP, SCADA) services solution. Flexible, multi-function interfaces enable the network processor without physical re-configuration to be used in many different applications, where high performance and low latency are required, minimizing capital (CapEx) and operational (OpEX) expenses.

The TNP-100 provides IP Network Processing for up to four independent digital and analog signal sources. Each multi-function port can be independently configured for voice (E1/T1 CESoIP), Video, and Analog or Digital Data acquisition (TMoIP) services.

### **LAN & Network Interfaces**

The TNP-100 is equipped with both optical and electrical network interfaces, all supporting 10/100/1000Mbps Ethernet. Three Ethernet interfaces connected via a managed Ethernet switch provide flexible installation and interconnection options, as well as superior QoS capabilities.

### **Multi Media Card Interface**

The TNP-100 is equipped with a standard Multi Media Card Interface, which enables data recording and easy access to alarm and configuration data, as well as transmission of user data already stored on the MMC card.

### **Diagnostics Tools**

The TNP-100 provides statistics data and diagnostics tools for network installation and troubleshooting. The per port based tools include test pattern generation and Bit Error Rate Testing (BERT).

### **Superior Performance**

The TNP-100 supports individual port timing recovery, using sophisticated clock recovery to regenerate highly accurate source timing and enhanced jitter management required for E1/T1 CESoIP and TMoIP applications. An optional rate independent, flat line response feature guarantees an equal user-configured fixed transmission latency on all ports.

### **Powerful Management**

The TNP-100 can be managed local and remote via a standard WEB interface or SNMP. Performance monitoring, system configuration and upgrading capabilities simplifies network management and operations.

# TNP-100 User Spectrum

The TNP-100 addresses needs to deliver TDM, Video, Ethernet LAN and Data Acquisition over Ethernet enabled networks for various market segments:

**Incumbent carriers** can reduce capital and operations expenditures by using the TNP-100 to offer Multi-service (Voice, Video and Data) over new efficient packet-switched networks, while ensuring the same service delivery quality as offered by traditional networks.

**Network service providers and Mobile operators** may increase transmission capacity to add new mobile services, perform remote cell site surveillance and significantly reduce backhaul cost, by using a single Ethernet or MPLS network for all services.

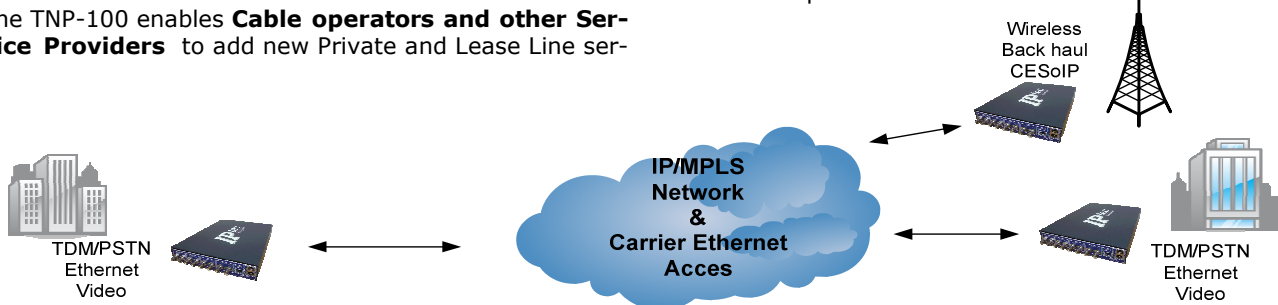
The TNP-100 enables **Cable operators and other Service Providers** to add new Private and Lease Line ser-

vice offerings using the packet based network.

**Transportation, Utility & Surveillance companies** can safely extend and simplify remote facility monitoring, surveillance and communications using the TNP-100 over a common packet based network.

**Enterprises** may significantly reduce communications expenses by replacing expensive PSTN lease lines, and converge Voice (PBX, ISDN BRI), Video and Data services over a single more economical switched packet network infrastructure.

The TNP-100 provides **Government & Military** similar benefits as for the enterprises, giving a low risk migration Path to packet based network infrastructure.



## TNP-100 Technical Specification Summary

### Multi-Function Interface

#### Number of user configurable inputs/outputs

4 multi-service ports.

#### Connector

BNC & RJ45 (using optional external Balun adaptor)

#### Impedance

75 ohm (Unbalanced), 110 ohm (Balanced)

#### Telecom

E1,T1 (CESoIP) (PWE3)

#### Digital Data Acquisition Format Support

TTL, ECL,RS-232 and RS-422 (TMoIP)

#### Impedance

50 ohm and 75 ohm

#### Data Rate

Up to 50Mb/s per port

#### IRIG Timing

Analog format (1, 10 & 100Khz)

#### Signal Level

Input: 0.2Vpp min. 10Vpp max

Output: 3Vpp (50 ohm), 10Vpp (25 ohm)

#### Impedance

Input: Hi-Z, 600 ohm and 50 ohm

Output: 25, 50 & 600 ohm

#### Analog Data Acquisition & Video

Baseband Analog signals (TMoIP)

#### Signal Level

5Vpp max

#### Impedance

50 ohm and 75 ohm

#### Bandwidth

Up to 10Mhz

#### Video data rates

5Mb/s-200Mb/s

#### Video Processing Latency

1mS to 10mS

### Signal Processing

Processing Latency <1mS

PVD Compensation: 1-100mS

Packet Size: up to 1500 bytes

### Remote Management

Built-in Web-based GUI and SNMPv2 and v3

### Ethernet Service Ports & Network Interface

One pluggable SFP module. 100/1000Base-X

Two RJ45. 10/100/1000Base-T

### Maintenance

An onboard BERT (Bit Error Rate Test) generator allows remote testing per port. Following test patterns are supported:

- Alternating Ones and Zeroes
- Pseudorandom  $2^{11-1}$
- Pseudorandom  $2^{15-1}$

### Physical Dimensions

1RU, 1/2-width 19". Two units fit in a 19" 1RU rack space (H x W x D) 1.75" x 8.50" x 10.00"

### Environmental Conditions

Operating Temperature: 0 to 50°C (32F to 122F)

Storage Temperature: -40 to 70°C (-40F to 158F)

Relative Humidity: 5% to 90% (Non Condensing)

### Relevant Publications

FCC CFR47 Part15B Class A

UL/IEC 60950-1

Telemetry over IP (TMoIP), RCC Standard 218-07

IETF-PWE3, SAToIP, CESoIP, G823/G.824, IEEE 808.1D, 1Q, 1P, 1p, 1ag, 3x, 1x, 2, 3ad, 3u, 3z, 3ah, IRIG 106, IRIG A/B/D/H/G

### Power

100 – 240V AC (47 – 63Hz). 25W