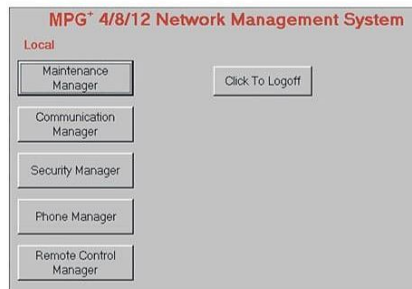


SHDSL Digital Pair Gain System

MPG+ Series SHDSL-Digital Pair Gain System TC-PAM version

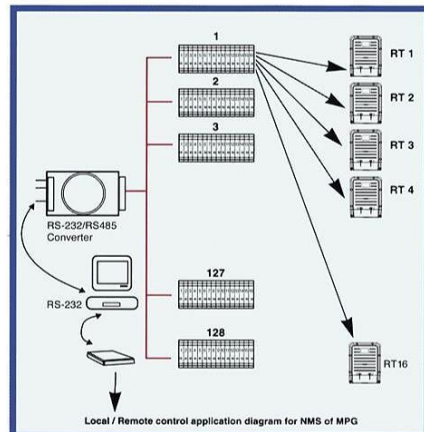
NMS System overview (SNMP available upon request)

MPG+ NMS (Network Management System) provides a friendly tool to monitor MPG+ system status through the Ethernet port (SNMP) or PC in central office or remote control through modem (NON-SNMP).



NMS System specification:

The system may support up to 128 (NON-SNMP) or more(SNMP) Shelves in one Central Office, and one Shelf may accommodate up to 16 pieces of LU card. For Central Offices in different areas, powerful SNMP may support / monitor systems in these offices simultaneously through Ethernet.



NON-SNMP configuration.

SPECIFICATIONS

◆ DSL Line Transmission Characteristics

Line Code Format : TC PAM
COT/RT DSL Impedance : 135 Ohms
Bit Error Rate : $< 10^{-7}$

◆ Transmission Characteristics of VF of LU & RT

Return Loss : ERL $> 15\text{dB}$ / SRL $> 12\text{dB}$
Channel Cross Talk : $< -65\text{dBmO}$
Idle Channel Noise : $< 25\text{dBmC}$
Frequency Response 300~3000Hz : $-0.6\text{dB} \sim +3\text{dB}$

◆ COT Side

Input Impedance : 600 or 900 Ohms
Operating Loop Current : $< 100\text{mA}$
Ring Detection Voltage : $> 40\text{Vrms}$
Ring Detection Frequency : 16~60Hz
Off-Hook DC Resistance : $< 400\text{Ohms}$

◆ RT Side

On-Hook Loop Voltage : $> 45\text{VDC}$
Loop Current : $> 20\text{mA}$
Off-Hook Detection : $< 800\text{ Ohms}$
Ring Frequency : $25 \pm 1\text{Hz}(20 \pm 1\text{Hz})$
Transmission Range : $< 800\text{ Ohms}$
Ring Voltage : $> 45\text{Vrms}$ (Sinusoidal)

◆ Alarm Card

Interface : RS485 (NON-SNMP)
Ethernet port (SNMP)
Baud Rate : 19,200bps (NON-SNMP)

◆ Power Consumption of MDLSL (12 channels off hook)

12 DSLs Full Load : 264W
LU+RT+DSL line : 22W
DSL Line : 3.5W
LU : 8.5W RT : 10W

◆ Operation Environment

Temperature : COT : $0 \sim + 50^\circ\text{C}$ RT : $-20 \sim + 60^\circ\text{C}$
Humidity : COT : up to 85% RT : up to 95%



MPG+, an SHDSL (Symmetric single pair High bit rate DSL) Digital Pair Gain System, conveys uncompressed PCM Voice channels in it. This system provides 4/8/12 voice channels or optional ISDN / Ethernet port over a single twisted pair subscriber line. Without digging ground or placing cable, it immediately solves subscriber line shortage problem.

The MPG+ series are mainly used to meet the demand of subscribers (or potential subscribers) at those area, where the number of subscriber lines cannot be expanded in proportion to the increase of subscribers. It applies the transmission technology of SHDSL interface to provide 4/8/12 (64 Kbps) channels over a physical pair of cables.



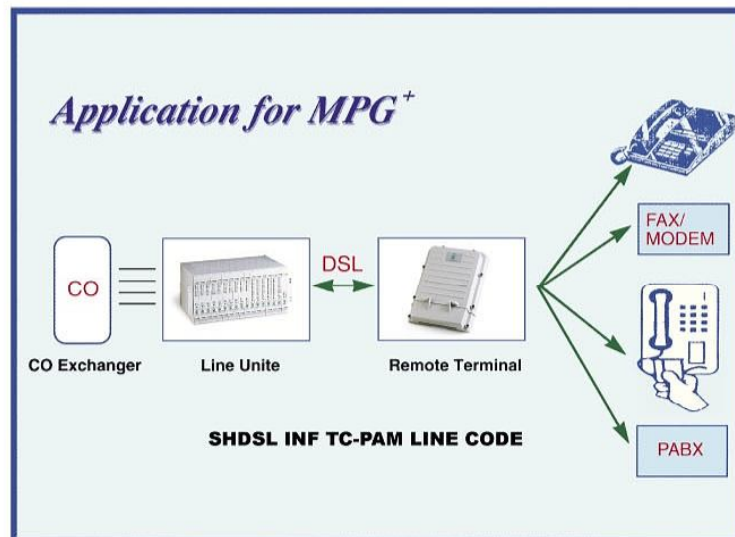
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SHDSL Digital Pair Gain System

Products Features:

- Optional 4, 8 or 12 clear 64Kbps channels over one single copper pair.
- Optional data rate to accommodate the transmission distance, without sacrificing voice channel bandwidth.
- High speed in transmission when Modem (Internet) or FAX connected.
- Excellent transmitted voice quality.
- Various metering functions for pay-phone.
- Remote power feeding for Remote Unit.
- On board power supply decreases the harm of power failure.
- Different channels units could be installed in the same Shelf.
- Powerful NMS to monitor system status.
- Short ,surge and lightning protections comply to ITU K-20 and K-21.
- Support Ethernet Port (IP)
- CLIP (Caller ID)
- SNMP is available upon request.
- Support Concentration (Option)



AU (Alarm Unit) / MPU

AU / MPU is mainly to warn the service people at COT side if any false occurred on synchronization. In order to work with NMS / SNMP, AU / MPU provides the interface for the system to collect the information from all the LUs in the same Shelf.

LU (Line Unit)-Shelf type

- The main function of LU is to provide. (1)an interface for switching system, (2)voice signal encoding/de-coding, (3)SHDSL interface for communication with RT, and (4) Supplying DC power for RT.
- Each piece of LU can provide 4/8/12 subscriber phone lines or ISDN / Ethernet service. The LU board exhibits visible LED for operation reference.

RT (Remote Terminal)

To adapt to different environment at remote side, RT is designed to be water resistance, collision protection, anti-UV, surge & lightning protections and anti-bugs. The main functions of RT are:

1. Provide ring generator, ON/OFF HOOK detector, public telephone billing pulse (12KHz or 16KHz) or polarity inversion generator [option], and a voltage ($\geq 45VDC$) for telephone.
2. Coding and decoding of A/D and D/A
3. Transmit coded signals of TC PAM through the SHDSL interface of circuit to users
4. Provide TC PAM line code for SHDSL interface to communicate with LU.
5. Provide DC supply transmitter. Convert the input voltage from COT to meet the demand of RT itself and subscriber phone sets.
6. Facilitate a transmission distance of 2.0km/with 0.4mm cable between the telephone set and RT.

