LocalNet 20/200™

Eight Port Packet Communication Unit

The LocalNet 20/200™ Packet Communication Unit (PCU) is a microprocessor-based, packet-mode network interface unit that is associated with groups of as many as eight user devices. The 20/200 provides distributed intelligence, and provides connection between the user device and a CATV-based local area network. LocalNet equipment can support over 20,000 connections to the network.

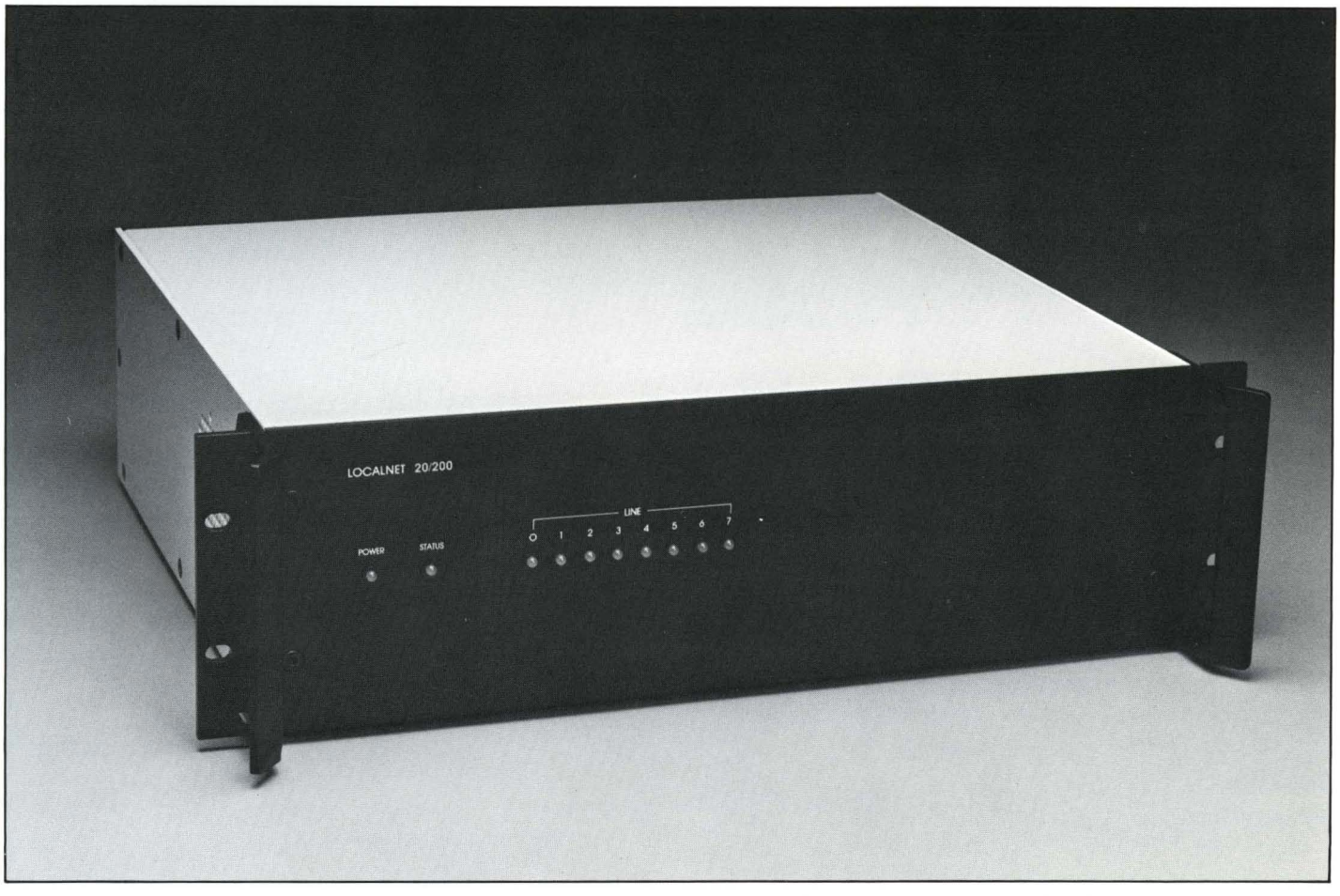
Features

- Provides an error rate of less than 1 in 10^9 bits for virtually error-free data transmission.
- Operates with standard CATV cable (or other 75 ohm coaxial cable), allowing installation by local contractors with no special electronics experience.
- Compatible with midsplit, subsplit and dual cable installations for easy implementation on existing networks.
- Uses branching tree cable topology, so that failure of a single node or cable branch has no effect on the rest of the network.
- Is frequency agile; allows any of a pre-selected set of 20 frequency channels to be digitally tuned.
- Provides virtual connection support and value added services.

Description

The 20/200 PCU is an extraordinarily sophisticated RF transceiver combined with a conventional time division multiplexer. It performs digital/analog (device to cable) and an analog/digital (cable to device) conversion, plus all the following tasks:

- Establishing, maintaining and disconnecting virtual connections between nodes.
- Formatting and addressing user data packets to their destinations, using internal LocalNet data communications protocols.
- Controlling the allocation of the channel bandwidth using CSMA/CD (Carrier Sense Multiple Access with Collision Detection) mechanisms.



- Controlling the flow of data over the channel and supported virtual connections to prevent congestion and data loss—both local (at the terminal or host port) and global (aggregate traffic on the backbone channel).
- Detecting errors through use of CRC (Cyclic Redundancy Checks), and correcting errors through retransmission of lost or damaged packets.
- Supporting optional value-added services, including protocol and code conversion, directory services, and end-to-end encryption.
- Exporting these functions to the user equipment through use of interface protocols.

The 20/200 PCU contains a frequency synthesized, full-duplex, frequency-shift keyed, RF modem with a fixed offset spacing between the transmit and receive frequencies. Each PCU in the network is frequency agile, and can operate on any of 20 preselected frequencies. Many PCUs can share the same frequency, using the CSMA/CD mechanism. Each 20/200 PCU can support eight serial user ports.

Analog Specifications

Transmitter

Transmit frequency range:	70 to 106 MHz (midsplit) 10 to 28 MHz (subsplit)
Transmitter power output:	+30 to +48 dBmV, factory adjustable
Output linearity:	±2 dB
Modulation technique:	Frequency shift keying (FSK)
Frequency deviation:	±35 KHz, with a tolerance of ±2 KHz
Frequency stability:	±0.005%
Number of channels supported:	120 midsplit, 60 subsplit
Channel spacing:	300 KHz
Frequency agility:	Any one of 20 subchannels within 6 MHz wide group is software-selected. Group assignment is an ordering option.
Carrier on/off ratio:	Greater than 50 dB
Carrier harmonic content:	Greater than 50 dB below carrier level
Output impedance:	75 ohms

Receiver

Receive frequency range:	226.25 to 262.25 MHz (midsplit) 226.25 to 244.25 MHz (subsplit)
Nominal input power level:	−2 dBmV ± 6
Dynamic range:	−8 dBmV to +4 dBmV
Receiver sensitivity:	Greater than 2.7 microvolts for 20 dB of quieting on all channels
Receiver stability:	±0.01%
Input impedance:	75 ohms

Digital Interface Specifications

Option P01:	EIA RS-232C asynchronous with full modem control
Data rate:	75 bps–9.6 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
Number of DTE interfaces:	Eight
Throughput:	16 Kbps

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 20/200 PCU. Interface to the LocalNet is provided via a CCITT X.28-like interface specifically designed to support local area networks.
Protocol:	Virtual connection (VC) higher-level protocol, providing end-to-end data integrity.
Capacity:	Up to 16 concurrent virtual connections supported per 20/200 PCU.

User commands

AU[tobaud]	Enables and disables the autobaud pin on the RS-232 connector.
BA[ud]	Specifies the DTE to 20/200 PCU port baud rate.
CA[ll]	Requests establishment of a virtual connection to another PCU.
CO[mmand]	Specifies character sequence (or break key) to be used to enter command mode.
DCD	Determines how the Data Carrier Detect signal is controlled.
DI[sable]	Specifies commands which are to be made unavailable.
DTR	Determines how the Data Terminal Ready signal is controlled.

DO[ne]	Terminates a previously established virtual connection.
EC[ho]	Causes 20/200 PCU port to echo data characters back to DTE when in the data transfer mode.
EN[able]	Re-enables previously disabled commands.
EOM	Specifies conditions for sending end-of-message signal to remote PCU.
EX[pand]	Specifies character sequence to be generated in response to a newline character from the DTE.
F[low]	Specifies method of DTE to 20/200 PCU port flow control.
G[roup]	Specifies the modem channel group for the PCU.
H[elp]	Displays list of 20/200 PCU commands.
ID[le]	Specifies the delay after the last byte is received by the 20/200 PCU port before a packet is sent.
IN[terrupt]	Causes the 20/200 PCU to send an interrupt (break) signal to the remote PCU.
LI[sten]	Specifies that the port is to listen for incoming call request packets.
LO[cation]	Specifies channel and link address for the 20/200 PCU.
M[axsession]	Specifies the maximum number of sessions allowed for this user port.
N[ewline]	Specifies the value of the newline character.
PA[rity]	Specifies the parity to be used from the 20/200 PCU port to the DTE. The parity of data received by the DTE is ignored.
PC[all]:	Determines if permanent sessions are to be established, and under what conditions.
PR[ivilege]	Enables or disables 20/200 PCU privileged mode. Privilege mode allows a 20/200 PCU to override both local and remote command disablement in order to execute any command on any PCU.
PU[nit]:	Identifies the unit and, optionally the port to which a permanent session is to be made.
Q[uiet]	Suppresses character echo and command responses from the 20/200 PCU port to the DTE.
R[emote]	Specifies commands that are to be executed at a remote PCU.
STA[tus]	Displays the status of the 20/200 PCU and the PCU port in use. This display contains the following information: Software version ID number Local address specification Baud rate to DTE Command mode entry character sequence Echo mode EOM conditions Newline expansion characters Flow control mode Idle timeout Listen mode status Maxsession count Newline character Parity selected Privileged mode status Quiet mode status Number of stops XON/XOFF characters Connection status PCALL PUNIT AUTOBAUD DCD DTR
STO[ps]	Specifies the number of stop bits on data bytes to be sent to the DTE.
SU[spend]	Suspends data transfer on the specified session.
SW[itch]	Deactivates the current session and switches the DTE to another session.
U[nit]	Specifies a unique identification number for the 20/200 PCU.
XOFF	Specifies the character to be used to represent XOFF.
XON	Specifies the character to be used as XON with XON/XOFF flow control.

(Note that these commands are applicable to any of the eight DTE interface ports. The status returned will then correspond to that particular port.)

Environmental Specifications

Operating temperature:	0 to +40°C
Relative humidity:	To 95% (non-condensing)

Physical and Mechanical Specifications

Rear panel connectors

Digital:	Eight DB-25S or equivalent for DTEs
RF:	Female type F coaxial fitting
Power:	Recessed male RFI-filtered fused AC connector
Rear panel controls:	System reset push-button

Front panel indicators

Power on:	Red/green LED indicates power on condition and packet transmission
PCU Status:	Red/green LED indicates self-test status, command mode, data mode, and packet reception from the cable
Port Status:	Eight red/green LEDs indicate the connection and command mode status of each DTE port
Size:	5.25″ high by 16.75″ wide by 14.875″ long, rack mountable
Weight:	15 lbs (approximate)
Power Requirements:	
Voltage/Frequency:	115 VAC ± 10%, 60 Hz ± 5% 220 VAC ± 10%, 50 Hz ± 5%
Power Consumption:	48W
MTBF:	1.13 years

Ordering Information

Model	Option	Description
LocalNet 20/200		
	P01	Asynchronous User Device Protocol
	U00	RS-232C User Device Physical Interface
	W00	115 VAC 50/60 Hz AC power
	W01	220 VAC 50/60 Hz AC power

IMPORTANT: Each LocalNet 20/200 PCU must be ordered with one modem channel group option from the following list.

Single Cable Midsplit Channel Groups

Option	Desc.	Rx Freq.	Tx Freq.
A01	Group A	226.25-232.25	70-76 MHz
B01	Group B	232.25-238.25	76-82 MHz
C01	Group C	238.25-244.25	82-88 MHz
D01	Group D	244.25-250.25	88-94 MHz
E01	Group E	250.25-256.25	94-100 MHz
F01	Group F	256.25-262.25	100-106 MHz

Dual Cable Midsplit Channel Groups

Option	Desc.	Rx Freq.	Tx Freq.
A02	Group A	226.25-232.25	70-76 MHz
B02	Group B	232.25-238.25	76-82 MHz
C02	Group C	238.25-244.25	82-88 MHz
D02	Group D	244.25-250.25	88-94 MHz
E02	Group E	250.25-256.25	94-100 MHz
F02	Group F	256.25-262.25	100-106 MHz

Single Cable Subsplit Channel Groups

Option	Desc.	Rx Freq.	Tx Freq.
L11	Group L	226.25-232.25	10-16 MHz
M11	Group M	232.25-238.25	16-22 MHz
N11	Group N	238.25-244.25	22-28 MHz

Dual Cable Subsplit Channel Groups

Option	Desc.	Rx Freq.	Tx Freq.
L12	Group L	226.25-232.25	10-16 MHz
M12	Group M	232.25-238.25	16-22 MHz
N12	Group N	238.25-244.25	22-28 MHz

LocalNet is a registered trademark of Sytek, Incorporated.

Sytek reserves the right to change any specifications without prior notice.

sytek

Sytek, Incorporated
1225 Charleston Road
Mountain View, California 94043
Telephone (415) 966-7300

© 1982 Sytek, Incorporated
Printed in U.S.A.
2020-0002 9/82