

Node Controller

The **NetworkAdvantage™** NC 5200 Node Controller is a dedicated satellite network management and control appliance located at each site in a satellite communications network.

The NC 5200 Node Controller functions both as a satellite modem and a powerful embedded computer. As a modem, it is dedicated to communicating with **NetworkAdvantage™** Node Controllers at remote sites via an 'out-of-band' control channel. The embedded computer within the Network Controller receives instructions from the Command Gateway and acts on them. In addition to a powerful CPU the Node Controller includes a solid state disk.



The Node Controller has a number of serial ports that can be used to connect to the management and control ports of satellite traffic modems and to a terminal for local configuration and interrogation.

Typically one Node Controller is required per site in the network.

How it works

The **NetworkAdvantage™** Node Controller at the hub coordinates all network activity via a dedicated control channel. The control channel is a permanently assigned low bandwidth connection to all Node Controllers at remote sites. The outbound channel is transmitting continuously to all remote sites using Time Division Multiplex (TDM) protocol. The inbound return link from remote sites to the Node Controller at the hub is burst-mode transmission using a variant of the Slotted Aloha Time Division Multiple Access (TDMA) protocol.

With up to 254 Node Controllers per control channel, multiple control channels can be established for large networks to support > 1000 remote sites. Both the outbound control channel and inbound control channel use a 64kbps data rate and can support 10 to 50 sites requesting links simultaneously.

The Node Controllers receive instructions from the Command Gateway and communicate with satellite traffic modems. When a transmission is scheduled, the Command Gateway informs the Node Controller of the frequencies and bandwidth assigned to the satellite traffic modem. The Node Controller instructs the satellite traffic modem to tune to the appropriate frequencies and prepare to receive and/or transmit.

Interfaces (SNMP, DTR, and H.323) are available for Node Controllers to initiate a link automatically. On request from the Node Controller the Command Gateway bandwidth manager then allocates bandwidth and transmission frequencies according to availability and priority. For example satellite may be used to restore service in the event of a terrestrial link failure. An alarm from the terrestrial system is used to trigger a pre-defined satellite link.

NC 5200

Innovative Features	Benefits
Open systems support <ul style="list-style-type: none">• Supports many industry satellite modems• A variety of standard interfaces (DTR, SNMP, H.323)	Manage the bandwidth in your existing network Customer applications can be easily integrated
Control of all transmission data rates supported by industry satellite modems (9.6kbps to > 45Mbps)	Flexible and future proof
Monitors satellite modem status	Respond appropriately to alarm conditions
Overlay (retrofit) to currently installed SPCP networks	Optimise bandwidth usage in existing systems Flexibility in network application Unobtrusive network management

Technical Specifications

- One NC 5200 is required per site (Hub or Remote) (Specify software H or S).
- Typical 'Link Setup' times of < 4 seconds.
- Interface to **Network Advantage™** Command Gateway at the hub: TCP/IP, 10/100BaseT.
- Network and monitoring interface : TCP/IP, 10/100BaseT.
- Monitor and control interfaces to satellite modems or other equipment:
 - Two RS-485 multidrop serial ports supporting up to 32 satellite traffic modems each.
 - Two RS-232 point to point serial ports supporting two satellite traffic modems and / or other equipment.
 - Two TCP/IP, 10/100BaseT ethernet ports
- Over the satellite connection to Node Controllers via built-in Control Channel satellite modem:
 - "Hub Outbound" continuous mode modulator (64kbps, QPSK ½ rate FEC)
 - "Hub Inbound" burst mode demodulator (Slotted Aloha TDMA, 64kbps, QPSK ½ rate FEC)
- Interface to satellite: 70MHz, 70 MHz/L-Band, L-Band (Specify interface).

General Specifications

Environmental:

Operating Temperature: 0 to 40 Degrees C
Humidity: 0 to 90% non-condensing

Power:

Input Voltage: 85 to 264 VAC (-48V DC Option)
AC Frequency: 47 to 440Hz
Input Power: 80 Watts (max.)

Connectors:

Modulator: BNC (70MHz)/ N-Type (L-Band)
Demodulator: BNC (70MHz)/ F-Type (L-Band)
Control Ports: DB9
Ethernet: RJ-45

Dimensions:

Case: 2RU 19" Rack
Size: 88(H) x 482(W) x 455(D) mm
Weight: 7.5 kg

Specifications subject to change without notice

PO Box 50-777 North City Plaza Porirua New Zealand
Phone+64 4 237 7716 Fax +64 4 237 6044
www.networkadvantage.biz