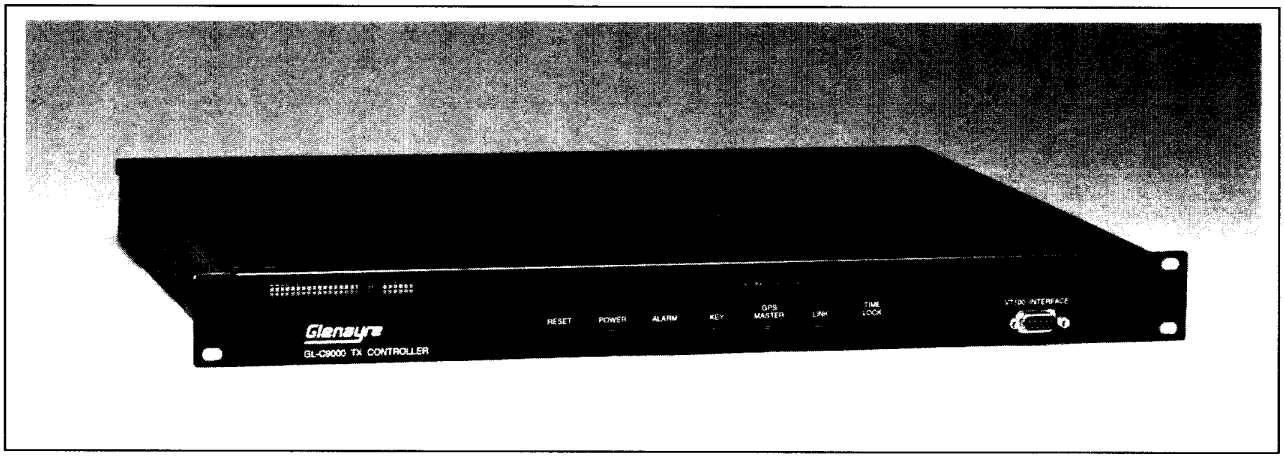
GL-C9000

DIGITAL HIGH SPEED NPCS CONTROL SYSTEM



Glenayre®

Flexible Network Interface Options Minimize Equipment Requirements

- Serial/LAN interface option
- DS0/LAN interface option (includes integral CSU/DSU/FRAD)
- DS1/LAN interface option (includes integral CSU/DSU/FRAD)
- Link Redundancy supported via connection to second Controller or Receiver at site

Plug and Play Interfaces Maximize Configuration Flexibility

- MTIP (Minimal Transmitter Interface Protocol) Plug & Play NPCS Transmitter Interface
- IPP (Inbound Paging Protocol) Plug & Play NPCS Receiver Interface

Site LAN and GPS Bus Allow Sharing of System Resources

- Site LAN links all co-located C9000 and R9000
- Allows multiple units to share single network interface at Master C9000
- Distributes link data to all C9000
- Provides maintenance path to all controllers and receivers
- GPS Bus allows all controllers or receivers at site to share a single GPS unit

DSP Technology Supports Future Enhancements

- Extensive utilization of latest DSP technology
- Software based design supports future enhancements while minimizing hardware upgrades
- Single controller supports InFLEXion, ReFLEX, and FLEX™ protocols
- Software configured FPGA allow critical portions of the hardware to be remotely upgraded

Powerful Processors Support Multiple Forward Channels

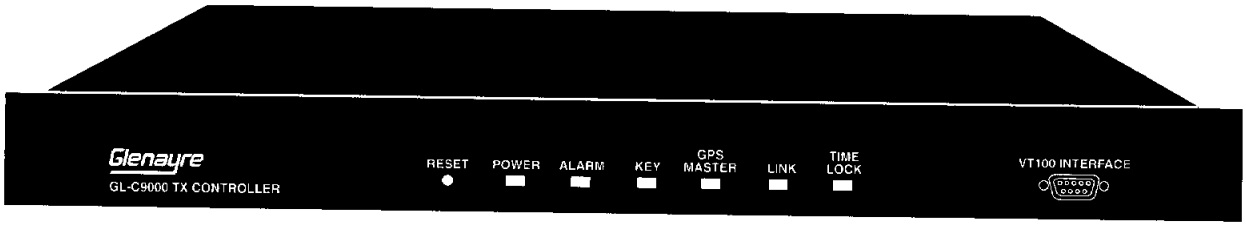
- Standard controller supports two channels of InFLEXion or three of ReFLEX
- Optional TX Interface Card supports four channels of InFLEXion or three channels of ReFLEX

GPS Synchronization Provides Simulcast Accuracy

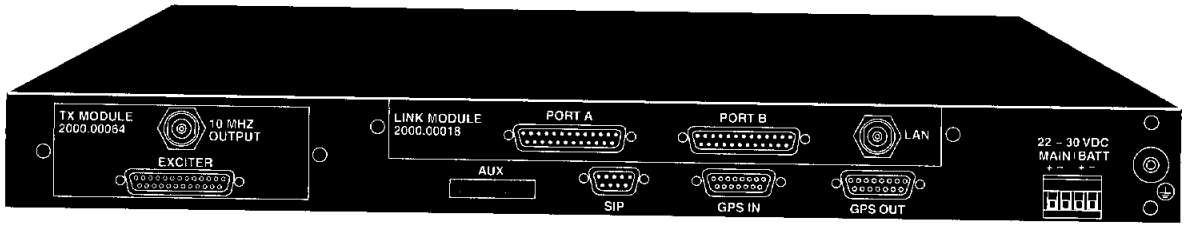
- Simulcast accuracy to ±1uS is assured utilizing GPS synchronization

Integrated Network Management Provides Operational Efficiency

- Remote software download capability
- Support for external modem to provide backup dial-up access
- Remote configuration and monitoring via TCP/IP
- Network management using SNMP and advanced alarming capability via GAP (Glenayre Alarm Protocol)
- Remote Telnet access to all screens over network



GL-C9000 Front Panel



GL-C9000 Rear Panel

GLENAYRE'S GL-C9000 NPCS TRANSMITTER CONTROLLER

Glenayre is proud to introduce its powerful new GL-C9000 NPCS Transmitter Controller System. New system architecture and technology based on proven paging system technology provides Glenayre an end-to-end solution for NPCS voice and data messaging applications

The GL-C9000 NPCS Transmitter Controller takes advantage of innovative Digital Signal Processing techniques to provide powerful and cost effective control of the next generation NPCS linear transmitters. This highly optimized technology is essential to support the demanding requirements of advanced InFLEXion™ and ReFLEX ™ protocols. The GL-C9000 Transmitter Controller is available in configurations to support several link interface options and multiple transmit channels.

Glenayre's extensive experience with high-speed control systems in one-way paging systems provided a blueprint for the design of our next generation control products.

Base station sites can be harsh environments, so the control equipment, *including the network interface*, must be designed to survive extreme temperatures not normally found in more traditional data network installation sites. To support this requirement, Glenayre has designed an integral CSU/DSU/FRAD option for the C9000 controller, eliminating the need for third party network interface equipment at the base station site. This also provides the added benefit that a simple battery backup unit can power the C9000, allowing it to report a power failure at the site.

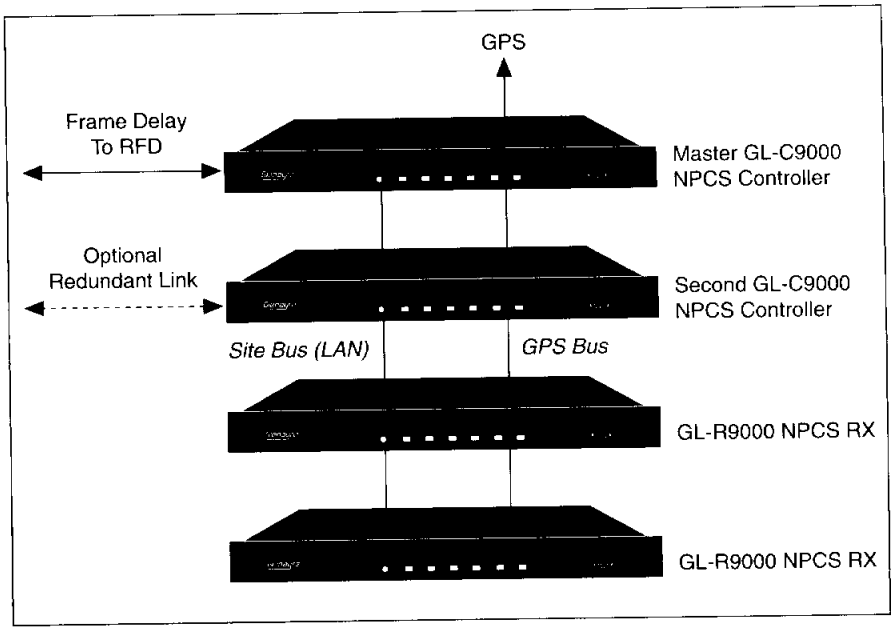
Customers make a major investment in infrastructure equipment, so it must be designed to support the requirements of today and tomorrow, *minimizing hardware upgrades*. Accordingly, the C9000 is extensively software based, and provides remote software upgrade of single or multiple sites to support feature additions and enhancements in the future.

Systems need to be sized to demand, and able to grow gracefully with expansion in the subscriber base. Glenayre has ensured that the C9000 supports a graceful system expansion through its ability to share site resources via the Site LAN and GPS Bus, and through its ability to support multiple channels of paging data.

Operational expenses can have a significant impact on a paging operator's profitability. The ability to efficiently monitor system performance, isolate equipment malfunctions, and dispatch repair personnel is critical to providing a cost-effective service. Glenayre has invested significant effort into providing a powerful and flexible remote monitoring and control capability for our base station equipment.

FEATURES:

- Flexible Link Interfaces including Integral CSU/DSU/FRAD option
- Supports Multiple Forward Channels
- Supports Glenayre Site LAN interface
- Based on proven C2000 Controller technology
- Integrated Network Management
- GPS Synchronization provides ±1 uS accuracy
- Plug and Play Interfaces for Transmitter and Receiver



NPCS Base Station Links

GL-9000 NPCS TRANSMITTER CONTROLLER SPECIFICATIONS

PARAMETER	SPECIFICATION
GENERAL INFORMATION	
Paging Formats	InFLEXion, ReFLEX, FLEX
Channel Supported (standard TX interface)	2 Sub-Carriers InFLEXion Voice, 3 Channels ReFLEX
Channel Supported (optional TX interface	4 Sub-Carriers InFLEXion
Synchronization Type	GPS
Simulcast Synchronization	±1 uS
Software Download	Via link or front panel
Device ID	12 Character Name
Site ID	12 Character Name
Front Panel Diagnostic Port	DB-9 Female, EIA-232 DEC Interface, 9600 bps
10 MHz REFERENCE OUTPUT	
Voltage	3.0 ±0.5 volts peak to peak into 50 ohms
Accuracy	10 ppb accuracy using GPS after 60 min warm-up
ALARMS	
Alarm Reporting	GAP
External Alarm Inputs	3 Digital
External Alarm Outputs	2 Digital, open collector
Alarm Equations	20 User Configurable alarm equations
POWER SUPPLY	
Input Voltage	+22 to +30 VDC
Power	100W
INTERFACE OPTIONS	
Plug & Play (standard)	Provides one Receiver P&P Port, DB-9 Male, EIA-232 DTE Interface, 9.6 to 38.4 kbps
Serial/LAN (option)	Provides 2 x (EIA 232, EIA 530, V.35) Serial plus LAN (10-Base-2)
DS0/LAN (option)	Provides 1 x DS0 (Subrate), 1 x (EIA 232, EIA 530, V.35) Serial, 1 x LAN (10-Base-2)
DS1/LAN (option)	Provides 1 x DS1 (T1), 1 x (EIA 232, EIA 530, V.35) Serial, 1 x LAN (10-Base-2)
PHYSICAL	
Size	483mm (w) x 394mm (d) x 44mm (h) — 19" (w) x 15.5" (d) x 1.75" (h)
Mounting	1RU 19" EIA Rack Space
Weight	5.0 kg
ENVIRONMENTAL	
Operating Temperature	-30°C to +60°C ambient
Storage Temperature	-40°C to +85°C ambient
Operating Humidity	0% to 95% non-condensing
Altitude	0 to 10,000 feet AMSL (derate 2°C per 1,000 feet above altitude of 5,000 feet)

Glenayre®

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Glenayre engineering, manufacturing, and customer service are registered to ISO 9001.