

NEC Protocol Converter

- NEC Synchronous Serial Interface
- Standard asynchronous host serial port
- Converts between popular Satcoms protocols
- Simplifies RC&M systems
- RS-232/RS-485 host interface
- Free-standing unit
- Other packaging options available
- Summary alarm output (optional)
- Processing functions available

The DDA227-03 converts between the NEC synchronous serial protocol used on some of their satellite earth station equipment, and various asynchronous serial protocols which are more frequently found in the Satellite Communications area. As standard the unit supports "Printable ASCII" and "STX/ETX" protocols on the host side; others can be provided if required. On the NEC side of the interface the appropriate HDLC-based protocol is implemented, including link setup (with some restrictions, primarily under error conditions, which arise from NEC's implementation of the protocol). On the host side the DDA227-03 is able to automatically identify the protocol being used, and receive messages addressed to it. For maximum flexibility the message to be forwarded to the NEC equipment is hexadecimal encoded, allowing exchange of 8-bit data even with a 7-bit host interface.

The NEC interface comprises transmit data, receive data and clock, and operates at 128kbit/sec synchronous. From the host's perspective the DDA227-03 starts to respond to a poll in under 10msec, measured from receipt of the checksum character of the poll by the DDA227. (This is subject to the response time of the connected equipment).

The DDA227-03 supports up to 64 addresses on the host side; these are directly mapped to the first 64 NEC addresses.

The DDA227-03 may be allocated its own address; if this is done then various information is available including communications statistics and the status of each address on the NEC side of the interface.

An alarm output gives a hardware indication of persistent comms errors at the NEC interface.

The DDA227 may be customised to suit specific applications; typically by adding processing of the messages for command set translation, or by packaging in other forms.

Selection Guide

DDA227-03	Protocol converter including power supply.
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NEC Protocol Converter (cont.)

Specification	
Physical:	Free standing case, 123 (W) x 227 (D) x 44 (H)
Power:	90-250V a.c., 20VA max from external PSU
Host:	RS-232 or RS-422 on 9-pin D-socket. (RS-232 on 9-D plug, PC-compatible pinout, as factory option) Selectable 9600,e,7 or 19200,e,7
Equipment:	RS-422 synchronous 128kbit/sec on 9-pin D-socket Transmit data, data clock outputs Receive input
Host Protocols:	Printable ASCII (used by CPI, Miteq, STS, Novella) STX/ETX (used by Scientific Atlanta, Continental Microwave, Xicom) Other protocols available on request
Alarm Output:	Volt-free relay contact signals alarm on power supply failure, processor failure, or persistent coms errors to an NEC address

Modular LNA/LNB Power Supply & Switching Controller

- up to 4 LNA/LNB
- up to 4 waveguide or coaxial switches
- Supports all standard configurations: 1+1, 1+2, Dual 1+1, 4 independent
- Mechanically or electrically ganged switches
- Remote Monitoring & Control Port
- 2U 19" rack mount
- Adjustable LNA/B output voltage 12-21V
- 0-500mA current output
- Redundant power supplies
- Mimic-like front panel
- Display of LNA/B voltage and current
- Summary alarm output
- SA7630 emulation option

The DDA228 provides support for LNA/LNB redundancy systems. It provides the d.c. power required for the LNA/Bs, and performs fault monitoring and redundancy switching based on the current drain.

The DDA228 may be configured to support all the popular LNA/B configurations including 1+1, dual 1+1, 1+2 and also four independent LNA/B. The unit may be purchased with 2, 3 or 4 power supply/switch modules installed, and further modules may be added in the field.

Modular LNA/LNB Power Supply & Switching Controller *(cont.)*

The DDA228 includes a front panel mimic which shows the current switch configuration and LNA/B status. Each LNA/B includes a pushbutton to switch it on-line or off-line.

In automatic mode a failed LNA/B is switched off-line, and replaced by its standby.

Associated with each LNA/B is a waveguide switch interface (which will also drive many popular coaxial switches). The interface may be configured to drive both mechanically and electrically ganged switches.

Distributed power regulation is employed to minimise the effects of single point failures. Dual mains inputs and primary switch mode power supplies generate the internal power bus and provide the first line of redundancy. Each LNB feed then has its own secondary linear power regulator for best regulation and noise performance.

The LNA/LNB currents are monitored using a microprocessor to filter and process the readings, and simplify setup. These are then filtered and averaged before comparing against limits.

The nominal and alarm limit values for a channel are set up from the front panel menus, and are shown on the alphanumeric LCD. The actual current is available via a 4-wire RS-485 serial port - ideal for unmanned sites, since it gives better visibility of the situation rather than a simple 'pass/fail'.

Each LNA/LNB has its own output connector for power; this may be fed to the LNA/B either via a bias tee (not supplied), or by direct connection where supported.

Provisional Specification

Physical:	19" rack, 2U high, 460mm deep (excluding connectors).
Power:	90-250V a.c., 130VA max. Redundant power feed (dual power supplies)
Front Panel:	Polycarbonate laminate with mimic showing switching paths, LNA/B status. Also local/remote and manual/automatic controls, power supply status.
LNB Power:	+12-21V d.c., 500mA maximum (local adjustment)
Host Serial:	4-wire RS-422/RS-485, fixed 9600,7,e,1. Supports "Printable ASCII" and "STX/ETX" protocols. SA7630 emulation option in addition to standard command set.
Alarm Output:	Volt-free relay contact signals alarm on any monitored current out of tolerance.
WGS Drive:	Nominal 24V d.c. up to 3A, common negative coils. Tellbacks used for position indication.

Selection Guide

DDA228-02	LNA/B Power Supply and redundancy switch with two LNA/B and WGS modules (supports 1+1 configuration, mechanically or electrically ganged switches)
DDA228-03	LNA/B Power Supply and redundancy switch with three LNA/B and WGS modules (supports 1+2 configuration, mechanically ganged switches)
DDA228-04	LNA/B Power Supply and redundancy switch with four LNA/B and WGS modules (supports all configurations)