

## 6NE ETHERNET SWITCH MODULE

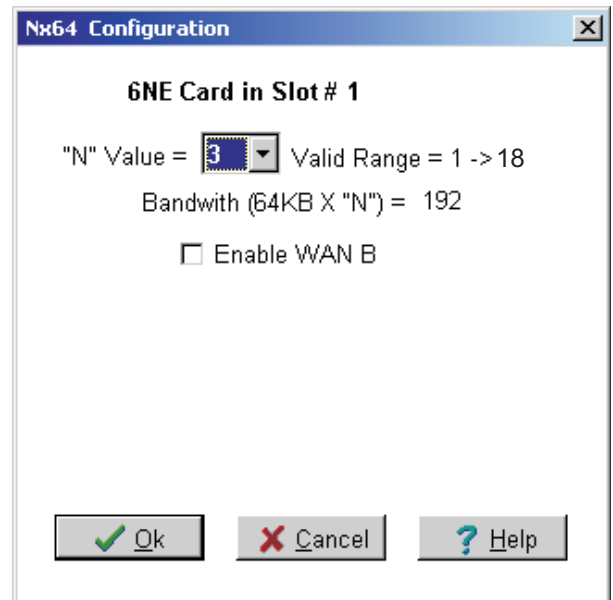
The 6NE module allows connection of any Ethernet compliant device through any pair or series of FOCUS chassis thereby extending the corporate Wide Area Network (WAN) via the FOCUS system. This allows you to communicate with Ethernet IEEE 802.3 protocol between devices near FOCUS connected chassis. 6NE is unique in that it has Ethernet-inherent packet switching and multiplexing abilities. Packet switching/multiplexing capability allows a substation with numerous devices, SCADA RTUs, IEDs and PCs to communicate through the fiber or electrical T1/E1 lines to the corporate office Ethernet portal. Ethernet switching functions ensure that data will be transmitted to the corresponding remote devices only, reducing unnecessary traffic through the channel link. The 6NE module also offers the option for two independent, fractional T1/E1 channels for chaining a WAN to many locations. WAN chaining requires only one module per location.

A 6NE module receives incoming packets from the Ethernet interface, searches its local address table for the destination MAC address and then forwards the packet to the appropriate port. If the destination address is not found, it will treat the packet as a broadcast packet and send it to all ports. 6NE automatically learns the MAC address of each port by looking at the incoming traffic. 6NE supports IEEE 802.3 priority queuing based in the priority tag. When the incoming traffic is destined for a remote location, the 6NE executes a protocol conversion from 802.3 Ethernet to HDLC protocol for T1/E1 transmission. At the remote location, 6NE rebuilds the 802.3 Ethernet packets from the received HDLC frame and forwards it to the appropriate port.

In addition, the 6NE module features auto MDI/MDIX crossover for IEEE 802.3, 10/100 compatible devices. The 6NE module can be connected directly to another Ethernet switch or to a PC using standard Ethernet CAT5 cable (no crossover cable required).

### Specifications

- Two independent internal T1/E1 interface ports for drop and insert of Ethernet traffic
- Two external IEEE 802.3, 10/100 interface ports
- Each external port works at 10 Mbps or 100 Mbps, full duplex or half duplex (auto-negotiation)
- Two high performance RISC processors with 600K bytes frame buffer memory per processor
- High performance lookup engine with support for up to 1024 MAC address entries with automatic learning and aging.
- 64K bytes frame buffer memory in the Ethernet switch
- Port based VLAN support
- 802.3X flow control, and Quality of Service (QoS, 802.1Q)
- Auto MDI/MDIX crossover (10/100 compatible devices only)
- Ethernet to HDLC protocol conversion
- T1/E1 Serial rate from 64K to 1,152K Point to Point Channel
- T1/E1 Serial rate from 64K to 768K Drop and Insert Channel



When setting N for values greater than 2, it is necessary to leave empty chassis slots to the right of the module. One empty slot for every 2 values of N greater than N=2. (i.e. one empty slot for N=3 or 4, two empty slots for N=5 or 6 etc.)