

NE-4100-P Series User's Manual

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NE-4100-P Series User's Manual

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The NE-4100-P Series embedded device server is a line of compact programmable modules that act as network enablers. NE-4100-P Series modules can be installed in or on a serial device to connect it to an Ethernet network, allowing you to gain network access to any electronic device that has a serial port. All NE-4100-P Series modules come equipped with built-in TCP/IP protocols for fast integration, saving you time and energy on programming.

The following topics are covered in this chapter.

- Overview**
- Package Checklist**
- Product Features**
- Product Specifications**

Overview

NE-4100-P Series modules are a type of embedded device server or network enabler. The module may be installed in or attached to a serial device to make it accessible from a network. There are three types of module offered: drop-in (NE-4100T-P), RJ45 (NE-4110S-P, NE-4110A-P), and pin header (NE-4120S-P, NE-4120A-P). The last two letters of the model number indicates the serial signal supported by the module. T-P indicates a TTL connector, S-P indicates an RS-232 connector, and A-P indicates an RS-422/485 connector. Each module includes 4 digital input/output channels, also known as DIO channels or GPIO channels.

NE-4100-P Series modules are very compact—less than half the size of a credit card. At such a small size, they can be installed into almost any serial device. Each NE-4100-P Series module also comes with a built-in TCP/IP stack for fast integration. Engineers can spend less time on TCP/IP programming, and focus more on developing other major features, thereby shortening your product's time to market. In addition, a Windows-based NECI (Network Enabler Configuration Interface) library is available to help you develop your own Windows utilities.

Each module comes with a complete development kit containing an evaluation board, documents, sample code, cables, and accessories.

Package Checklist

- 1 NE-4100-P Series module
- 1 NE-4100-ST (the evaluation board)
- NE-4100-P Series documentation & software CD
- 1 universal power adaptor
- 2 power cords
- 1 null modem cable
- 1 cross-over Ethernet cable
- Warranty statement
- Quick Installation Guide

NOTE: Please notify your sales representative if any of the above items is missing or damaged.

Product Features

All NE-4100-P Series modules have the following features:

- 10/100 Mbps auto-sensing Ethernet interface
- Compact size and ready-to-go design (NE-4100T-P measures 45 × 36 mm, other models measure 57 × 40 mm)
- Built-in TCP/IP firmware for fast integration
- Low power consumption (1.5W)
- 4 dedicated digital input/output (DIO) channels for user applications
- Software reset

Product Specifications

	NE-4100T-P	NE-4110S-P, NE-4110A-P	NE-4120S-P, NE-4120A-P
System			
CPU	16-bit MCU		
RAM	1 MB		
Flash	2 MB		
LAN			
Ethernet	10/100 Mbps, pin headers	10/100 Mbps, RJ45	10/100 Mbps, pin headers
Protection	built-in transformer with 1.5 KV magnetic isolation		
Serial			
Interface	TTL	RS-232 (NE-4110S-P) RS-422/485 (NE-4110A-P)	RS-232 (NE-4120S-P) RS-422/485 (NE-4120A-P)
Port Type	pin header	RJ45	pin header
Signals	TTL, RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND RS-422: TxD+, TxD-, RxD+, RxD-, GND RS-485 (2-wire): Data+, Data-, GND RS-485 (4-wire): TxD+, TxD-, RxD+, RxD-, GND		
Serial Communication Parameters			
Parity	None, Even, Odd, Space, Mark		
Data Bits	5, 6, 7, 8		
Stop Bit	1, 1.5, 2		
Flow Control	RTS/CTS, XON/XOFF		
Transmission Speed	50 bps to 115.2 Kbps for PCB V1.x, 110 bps to 230.4 Kbps for PCB V2.x		
Software Features			
Protocols	ICMP, ARP, IP, TCP, UDP, DHCP		
Power Requirements			
Power Input	5 VDC		
Power Consumption	290 mA @ 5 VDC (Max.)		
Environmental			
Operating Temperature	0°C to 70°C (32°F to 158°F), 5% to 95%RH		
Storage Temperature	-20°C to 85°C (-4°F to 185°F), 5% to 95%RH		
Regulatory Approvals			
EMC	FCC Class A, CE Class A		
Warranty	5 years		

Panel Layout and Pin Assignments

This chapter includes information about the panel layouts and pin assignments for NE-4100-P Series modules. The layouts and reference circuit diagrams for the evaluation boards are also covered. The evaluation boards are used for evaluation and development of applications for NE-4100-P Series modules.

The following topics are covered in this chapter:

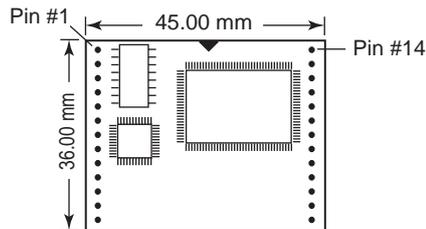
- ❑ **NE-4100T-P, NE-4100-ST**
 - Panel Layout
 - NE-4100-ST LED Indicators
 - Pin Assignments
 - Block Diagrams
- ❑ **NE-4110S-P, NE-4110A-P, NE-4110-ST**
 - Panel Layout
 - NE-4110-ST LED Indicators
 - Pin Assignments
 - Block Diagrams
- ❑ **NE-4120S-P, NE-4120A-P, NE-4120-ST**
 - Panel Layout
 - NE-4120-ST LED Indicators
 - Pin Assignments
 - Block Diagrams

NE-4100T-P, NE-4100-ST

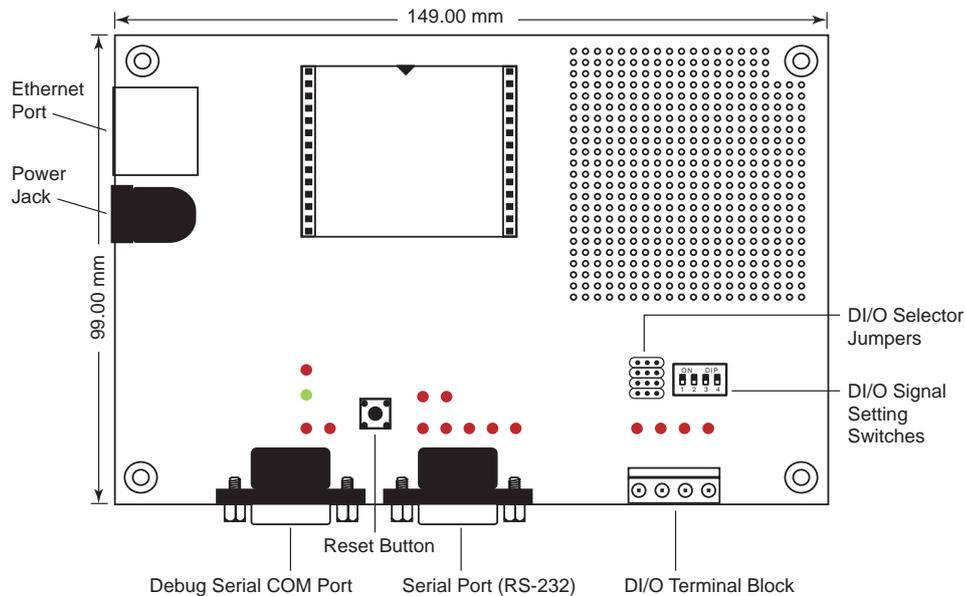
The NE-4100T-P is a TTL-to-Ethernet drop-in module. It measures 45 × 36 mm, and has a dual-in-line, 26-pin design, making it easy to integrate with your serial devices. The NE-4100-ST is the evaluation board for testing NE-4100T-P modules and developing your own applications.

Panel Layout

NE-4100T-P



NE-4100-ST



NE-4100-ST LED Indicators

LED Name	LED Color	LED Function
Power	red	Indicates the power is on.
Ready	green	Steady on: Power is on and NE-4100T-P is functioning normally.
	steady off	<ul style="list-style-type: none"> Power is off, or power error condition exists. IP address cannot be found in DHCP mode. IP address conflict.
DIO0	red	Indicates that DIO is in "low" (0) status.
DIO1	red	Indicates that DIO is in "low" (0) status.
DIO2	red	Indicates that DIO is in "low" (0) status.

LED Name	LED Color	LED Function
DIO3	red	Indicates that DIO is in "low" (0) status.
TXD0	red	Indicates that TXD0 has a signal.
RXD0	red	Indicates that RXD0 has a signal.
DTR0	red	Indicates that DTR0 has a signal.
CTS0	red	Indicates that CTS0 has a signal.
DSR0	red	Indicates that DSR0 has a signal.
DCD0	red	Indicates that DCD0 has a signal.
RTS0	red	Indicates that RTS0 has a signal.
TXD1	red	Indicates that TXD1 has a signal.
RXD1	red	Indicates that RXD1 has a signal.

Pin Assignments

NE-4100T-P

Pin	Signal	Pin	Signal
1	ETx+	14	PIO0
2	ETx-	15	PIO1
3	ERx+	16	PIO2
4	ERx-	17	PIO3
5	10M LED	18	100M LED
6	TXD	19	DCD
7	RXD	20	DSR
8	RTS	21	DTR
9	CTS	22	GND
10	Reset	23	Ready LED
11	GND	24	+5V
12	GND	25	+5V
13	TXD1*	26	RXD1*

*Pins 13 and 26 control the NE-4100-ST Debug Serial COM Port's TXD and RXD signals. The location of the Debug Serial COM Port is shown on the previous page. This port is not used with NE-4100-P Series modules.



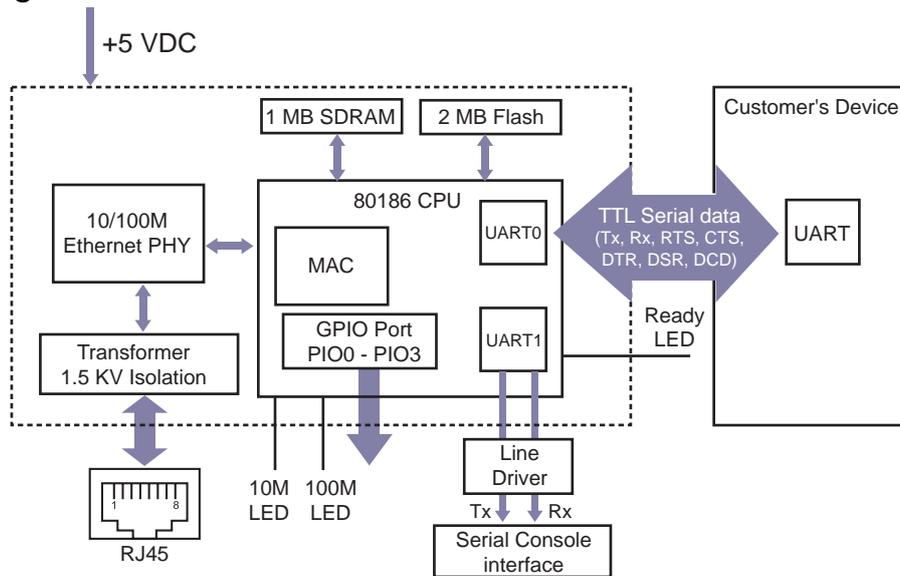
ATTENTION

NE-4100T-P Ethernet Signals: ETx+, ETx-, ERx+, ERx-
 Serial Signals: TXD, RXD, RTS, CTS, DCD, DSR, DTR
 LED Controls: 10M LED, 100M LED, Ready LED

NE-4100-ST Serial Port Pinouts (DB9 Male)

Debug Serial Port (reserved)			RS-232 Port for Connecting Serial Devices		
Pin	Signal		Pin	Signal	
2	RXD		1	DCD	
3	TXD		2	RXD	
5	GND		3	TXD	
			4	DTR	
			5	GND	
			6	DSR	
			7	RTS	
			8	CTS	
DIO Terminal Block					

Block Diagrams

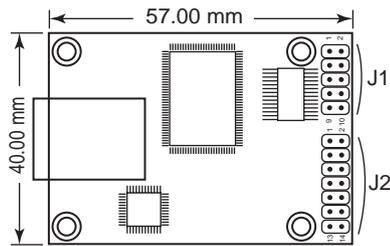


NE-4110S-P, NE-4110A-P, NE-4110-ST

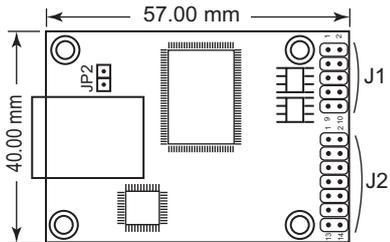
The NE-4110S-P is an RS-232-to-Ethernet server, and the NE-4110A-P is an RS-422/485-to-Ethernet server. Both models use an RJ45 connection and measure 57 × 40 mm. The NE-4110-ST is the evaluation board for testing NE-4110S-P and NE-4110A-P modules and developing your own applications.

Panel Layout

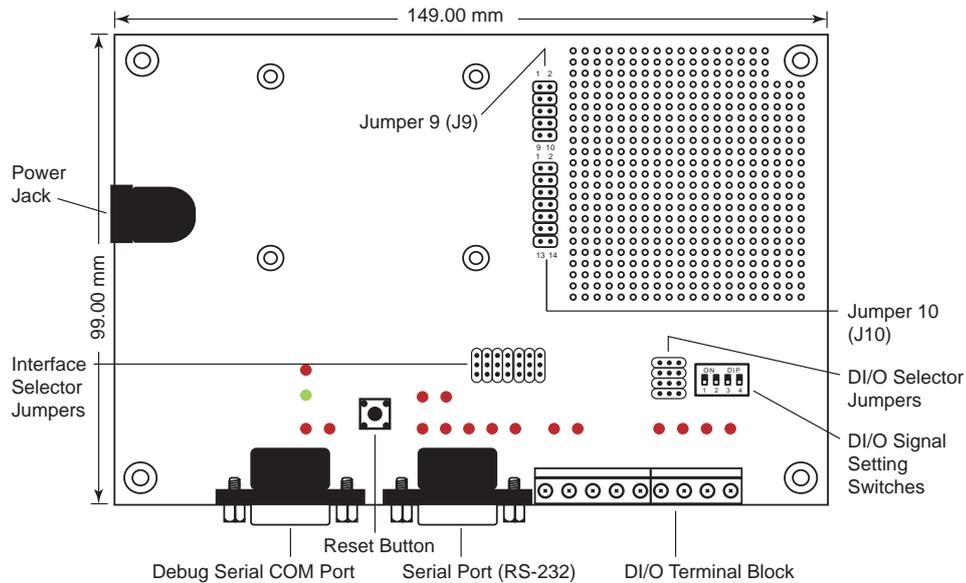
NE-4110S-P



NE-4110A-P



NE-4110-ST



* JP2 is used to select RS-232 or RS-422/485 operation. Use the RS-232 position for RS-232 operation (NE-4110S-P); use the RS-485 position for RS-422 or RS-485 operation (NE-4110A-P).

NE-4110-ST LED Indicators

LED Name	LED Color	LED Function
Power	red	Indicates the power is on.
Ready	green	Steady on: Power is on and NE-4110 is functioning normally.
	steady off	<ul style="list-style-type: none"> Power is off, or power error condition exists. IP address cannot be found in DHCP mode. IP address conflict.
DIO0	red	Indicates that DIO is in "low" (0) status.
DIO1	red	Indicates that DIO is in "low" (0) status.
DIO2	red	Indicates that DIO is in "low" (0) status.
DIO3	red	Indicates that DIO is in "low" (0) status.
TXD0	red	Indicates that TXD0 has a signal.
RXD0	red	Indicates that RXD0 has a signal.
DTR0	red	Indicates that DTR0 has a signal.
CTS0	red	Indicates that CTS0 has a signal.
DSR0	red	Indicates that DSR0 has a signal.
DCD0	red	Indicates that DCD0 has a signal.
RTS0	red	Indicates that RTS0 has a signal.
TXD1	red	Indicates that TXD1 has a signal.
RXD1	red	Indicates that RXD1 has a signal.

Pin Assignments

NE-4110S-P Serial Header Pinouts (J1)

NC	10	9	NC
CTS0	8	7	RTS0
DSR0	6	5	GND
DTR0	4	3	TxD0
RxD0	2	1	DCD0

NE-4110A-P Serial Header Pinouts (J1)

NC	10	9	NC
NC	8	7	NC
NC	6	5	GND
RxD-	4	3	RxD+
TxD+	2	1	TxD-

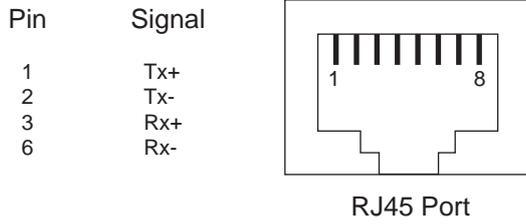
**ATTENTION**

The symbols "B" and "A" are often used in place of "+" and "-", respectively.

**ATTENTION**

For the 2-wire RS-485 interface, pin 3 is for Data+ (B) and pin 4 is for Data- (A).

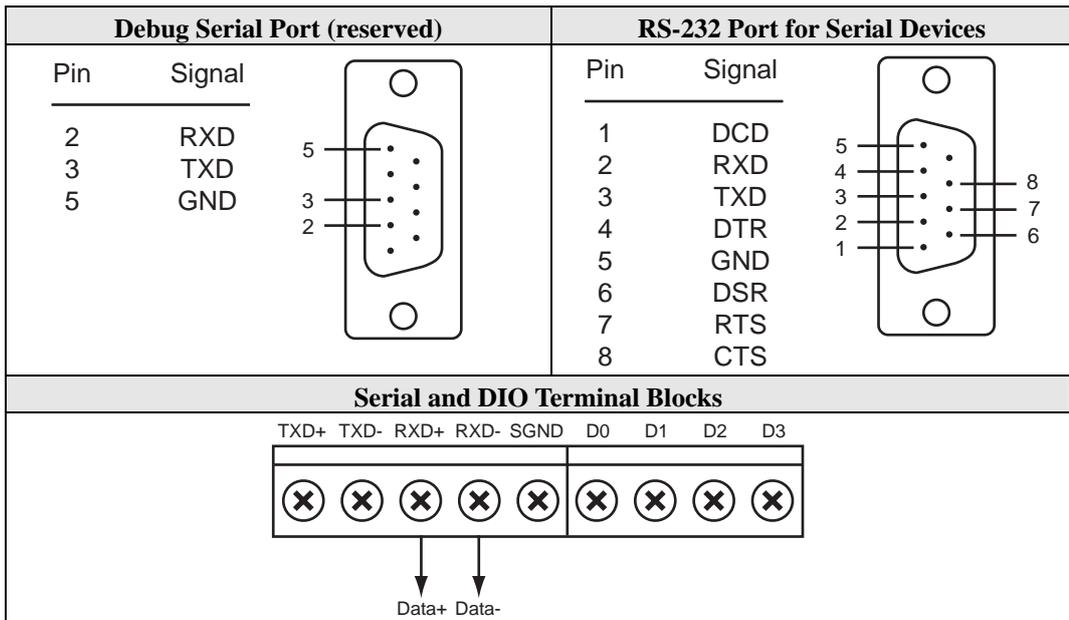
NE-4110S-P and NE-4110A-P Ethernet Port Pinouts



NE-4110S-P and NE-4110A-P DIO and LED Header Pinouts (J2)

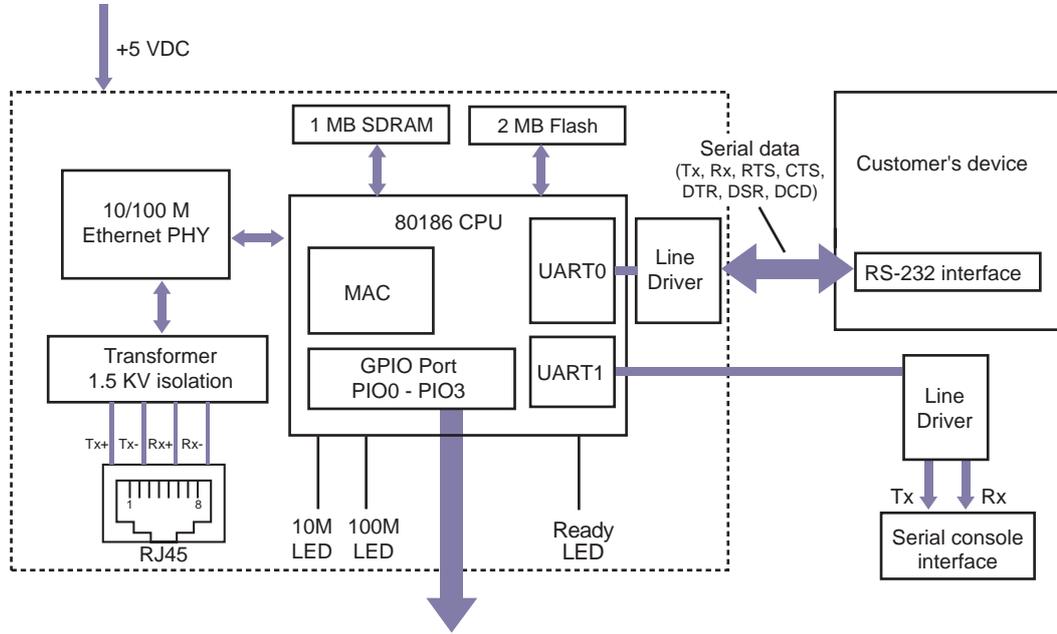
GND	14	13	VCC(+5V)
GND	12	11	VCC(+5V)
DIO0	10	9	10M_LED
DIO1	8	7	100M_LED
DIO2	6	5	Ready_LED
DIO3	4	3	Reset
TxD1	2	1	RxD1

NE-4110-ST Pinouts

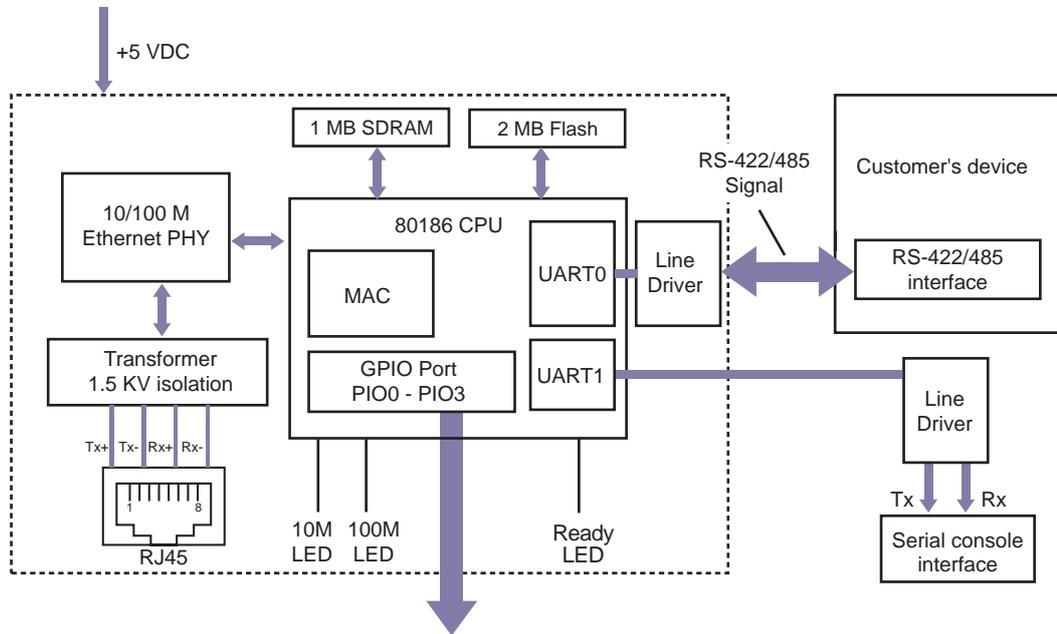


Block Diagrams

NE-4110S-P Block Diagram



NE-4110A-P Block Diagram



NE-4120S-P, NE-4120A-P, NE-4120-ST

The NE-4120S-P is an RS-232-to-Ethernet server, and the NE-4120A-P is an RS-422/485-to-Ethernet server. Both models use pin headers instead of RJ45 connectors. The NE-4120-ST is the evaluation board for testing NE-4120S-P and NE-4120A-P modules and developing your own applications.

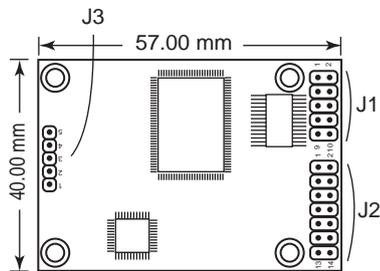


ATTENTION

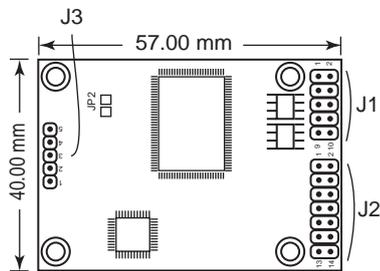
The NE-4120-ST is the same board as the NE-4110-ST but with an RJ45 jack and pin headers. If your evaluation board has "NE-4110-ST" printed on the board but has the RJ45 jack and pin headers, you have the NE-4120-ST board.

Panel Layout

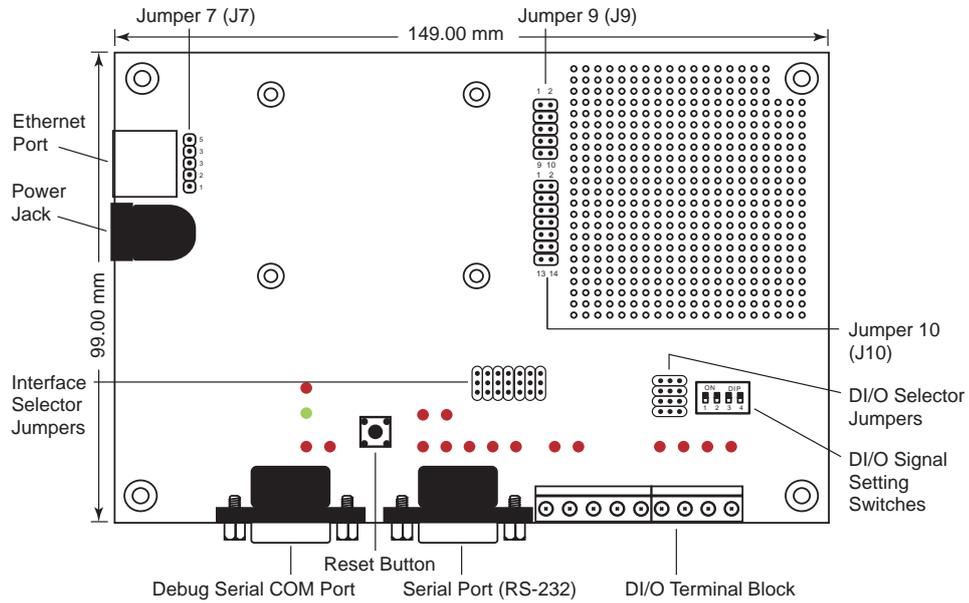
NE-4120S-P



NE-4120A-P



NE-4120-ST



* JP2 is used to select RS-232 or RS-422/485 operation. Use the RS-232 position for RS-232 operation (NE-4120S-P); use the RS-485 position for RS-422 or RS-485 operation (NE-4120A-P).

NE-4120-ST LED Indicators

LED Name	LED Color	LED Function
Power	red	Indicates the power is on.
Ready	green	Steady on: Power is on and NE-4120 is functioning normally.
	off	<ul style="list-style-type: none"> Power is off, or power error condition exists. IP address cannot be found in DHCP mode. IP address conflict.
DIO0	red	Indicates that DIO is in "low" (0) status.
DIO1	red	Indicates that DIO is in "low" (0) status.
DIO2	red	Indicates that DIO is in "low" (0) status.
DIO3	red	Indicates that DIO is in "low" (0) status.
TXD0	red	Indicates that TXD0 has a signal.
RXD0	red	Indicates that RXD0 has a signal.
DTR0	red	Indicates that DTR0 has a signal.
CTS0	red	Indicates that CTS0 has a signal.
DSR0	red	Indicates that DSR0 has a signal.
DCD0	red	Indicates that DCD0 has a signal.
RTS0	red	Indicates that RTS0 has a signal.
TXD1	red	Indicates that TXD1 has a signal.
RXD1	red	Indicates that RXD1 has a signal.

Pin Assignments

NE-4120S-P Serial Header Pinouts (J1)

NC	10	9	NC
CTS0	8	7	RTS0
DSR0	6	5	GND
DTR0	4	3	TxD0
RxD0	2	1	DCD0

NE-4120A-P Serial Header Pinouts (J1)

NC	10	9	NC
NC	8	7	NC
NC	6	5	GND
RxD-	4	3	RxD+
TxD+	2	1	TxD-



ATTENTION

The symbols “B” and “A” are often used in place of “+” and “-”, respectively.



ATTENTION

For the 2-wire RS-485 interface, pin 3 is for Data+ (B) and pin 4 is for Data- (A).

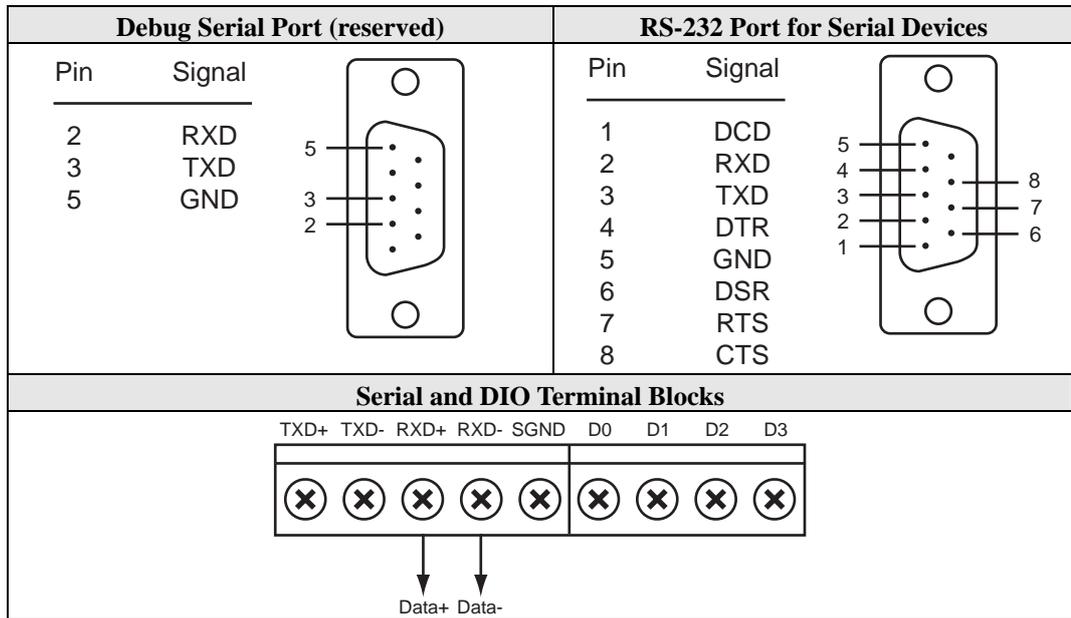
NE-4120S-P and NE-4120A-P Ethernet Header Pinouts (J3)

Tx+	1
Tx-	2
	3
Rx+	4
Rx-	5

NE-4120S-P and NE-4120A-P DIO and LED Header Pinouts (J2)

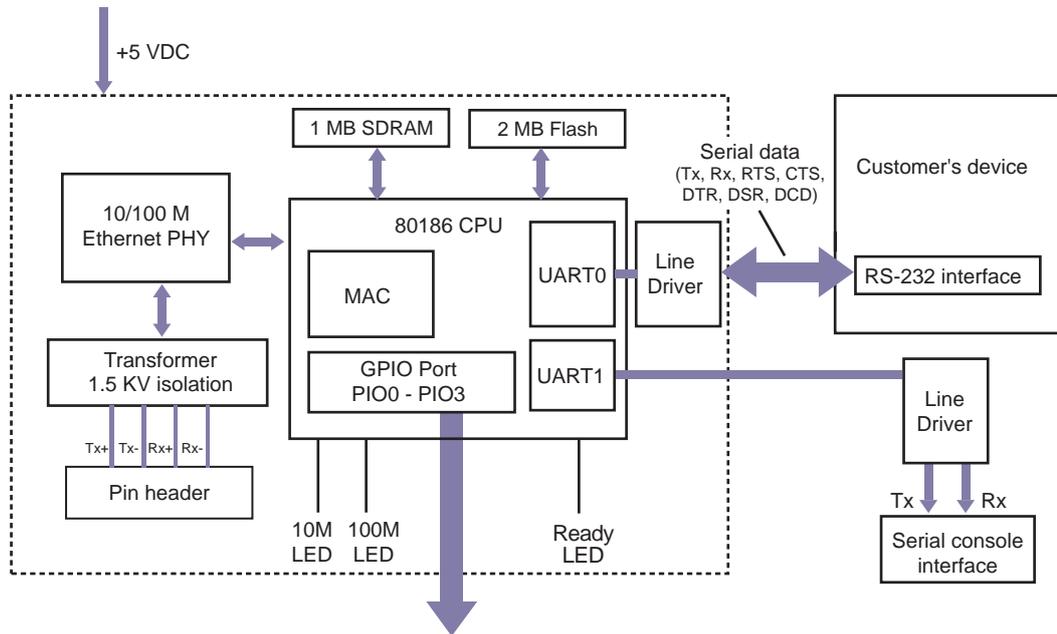
GND	14	13	VCC(+5V)
GND	12	11	VCC(+5V)
DIO0	10	9	10M_LED
DIO1	8	7	100M_LED
DIO2	6	5	Ready_LED
DIO3	4	3	Reset
TxD1	2	1	RxD1

NE-4120-ST Pinouts

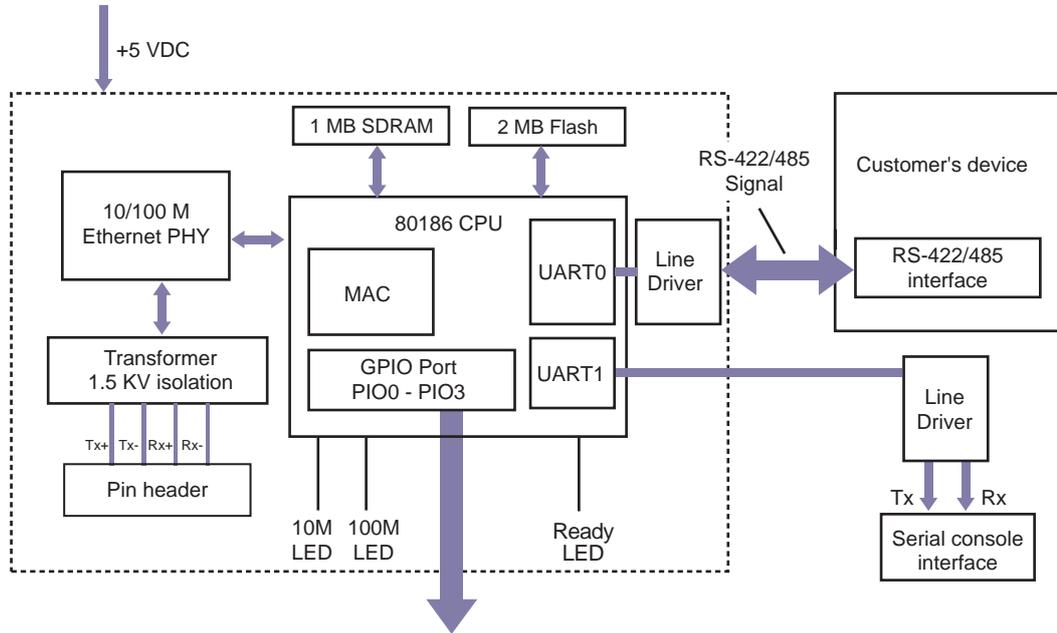


Block Diagrams

NE-4120S-P Block Diagram



NE-4120A-P Block Diagram



This chapter includes information about installation of NE-4100-P Series modules for development and testing.

The following topics are covered in this chapter:

- Wiring Precautions**
- Installing the NE-4100T-P onto the NE-4100-ST**
- Installing the NE-4110S-P, NE-4110A-P onto the NE-4110-ST**
- Installing the NE-4120S-P, NE-4120A-P onto the NE-4120-ST**
- Selecting the Serial Interface**
- Circuit Pad for External Connection**
- Connecting the Power**
- Connecting to the Network**
- Connecting to a Serial Device**
- Digital I/O Channel Settings**
 - Digital Output LED Circuit Design

Wiring Precautions

This section describes some important safety precautions that you should pay attention to before proceeding with any installation.



ATTENTION

Be sure to disconnect the power cord before installing or wiring the evaluation board.



ATTENTION

Determine the maximum possible current in each power wire and common wire. Observe all electrical codes dictating the maximum current allowable for each wire size.

If the current goes above the maximum ratings, the wiring could overheat, causing serious damage to your equipment.



ATTENTION

Please take care when handling the evaluation board. When plugged in, the board's internal components generate heat, and consequently the board may feel hot to the touch.

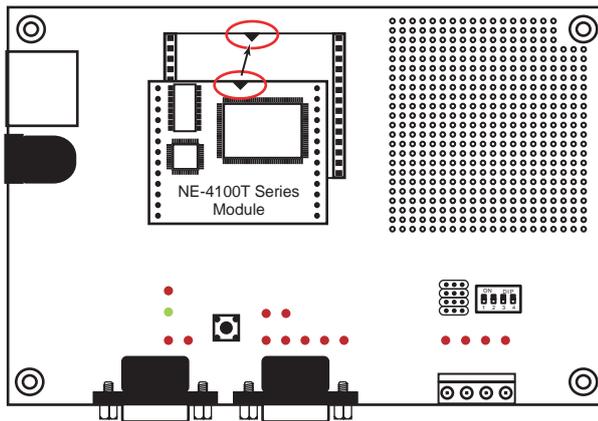
You should also pay attention to the following:

- Do not run signal or communication wiring and power wiring in the same wire conduit. To avoid interference, wires with different signal characteristics should be routed separately. Separate paths should be used to route wiring for power and devices. You can use the type of signal transmitted through a wire to determine which wires should be kept separate. The rule of thumb is that wires sharing similar electrical characteristics may be bundled together.
- Keep input wiring and output wiring separate.
- If power wiring and device wiring paths must cross paths, make sure the wires are perpendicular at the intersection point.
- All wiring should be clearly labeled.

Installing the NE-4100T-P onto the NE-4100-ST

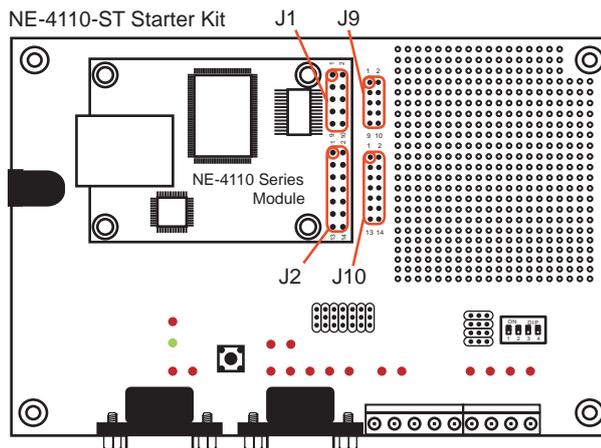
Before using the NE-4100-ST evaluation board with the module, disconnect the power supply, network, and serial device. In the center of the evaluation board, there is a square with one white inverted triangle (shown as black in the figure) on one of its sides, and 2 rows of female sockets on the other two sides. The NE-4100T-P module also has a white inverted triangle on one of its sides. When attaching the module to the evaluation board, make sure these 2 white inverted triangles are facing the same direction, as shown in the following figure. After the module is installed, connect the power supply, network, and serial device to the evaluation board.

NE-4100-ST Starter Kit



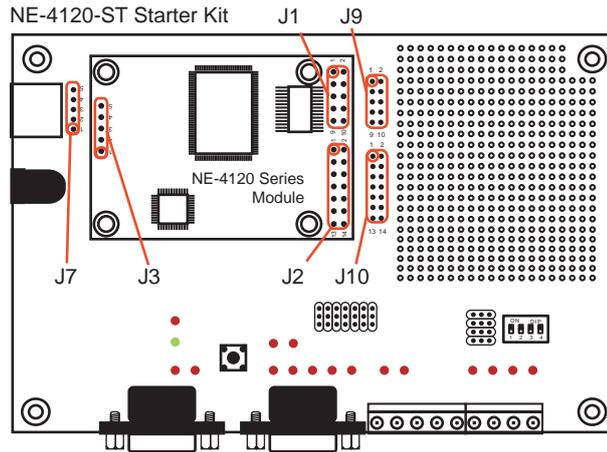
Installing the NE-4110S-P, NE-4110A-P onto the NE-4110-ST

The NE-4110S-P and NE -4110A-P modules are attached to the NE-4110-ST board using mounting screws that are provided with the board. When attaching the module to the board, make sure that the module is oriented so that the jumper banks on the module and the board are aligned as shown below. Use the provided ribbon cables to connect jumper block J1 on the module to J9 on the board, and jumper block J2 on the module to J10 on the board. When plugging in each ribbon cable, make sure that the red key wire corresponds with pin 1 on each jumper block.



Installing the NE-4120S-P, NE-4120A-P onto the NE-4120-ST

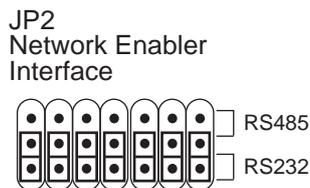
The NE-4120S-P and NE -4120A-P modules are attached to the NE-4120-ST board using mounting screws that are provided with the board. When attaching the module to the board, make sure that the module is oriented so that the jumper banks on the module and the board are aligned as shown below. Use the provided ribbon cables to connect jumper block J1 on the module to J9 on the board, J2 on the module to J10 on the board, and J3 on the module to J7 on the board. When plugging in each ribbon cable, make sure that the red key wire corresponds with pin 1 on each jumper block.



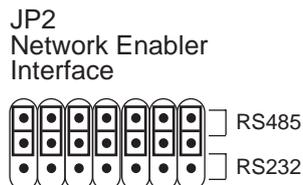
Selecting the Serial Interface

NE-4100-P Series modules are available for different serial interfaces. The NE-4110S-P and NE-4120S-P are designed for the RS-232 interface, and the NE-4110A-P and NE-4120A-P are designed for the RS-422/485 interface. On the NE-4110-ST and NE-4120-ST evaluation boards, the Network Enabler Interface jumper block is used to select the serial interface used for your particular module.

For the NE-4110S-P and NE-4120S-P, the evaluation board should be configured for the RS-232 interface, as shown below.



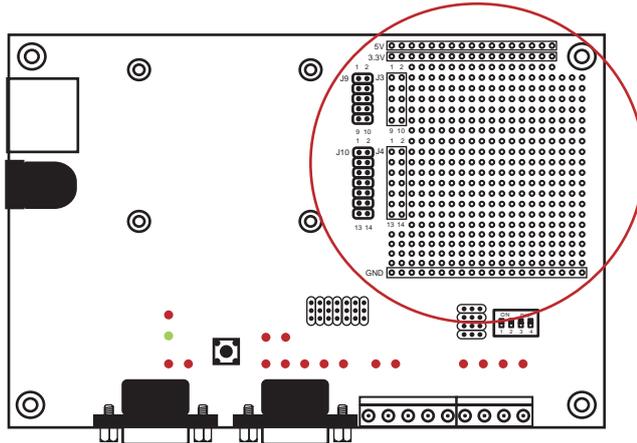
For the NE-4110A-P and NE-4120A-P, the evaluation board should be configured for the RS-485 interface, as shown below.



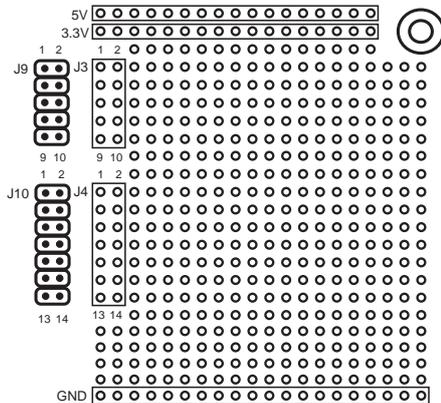
Note that the RS-485 interface is selected on the evaluation board for the NE-4110A-P and NE-4120A-P modules, even when the module is operating in RS-422 mode. Please refer to Chapter 2 - Panel Layout and Pin Assignments for additional details.

Circuit Pad for External Connection

A circuit pad is provided on the right side of each evaluation board for the development of additional application circuits.



The first row of the circuit pad is for connecting a 5V power supply; the second row is for connecting a 3.3V power supply. The last row of the circuit pad is for grounding. Serial signals are mapped to J3 as an extension of jumper block J9. DIO and LED signals are mapped to J4 as an extension of jumper block J10. This means that pin assignments for J3 on the circuit pad are the same as the pin assignments for jumper block J9; pin assignments for J4 on the circuit pad are the same as the pin assignments for jumper block J10.



Connecting the Power

Connect the 12 VDC power line with the evaluation board's power jack. If the power is properly supplied, the power LED will show a solid red color until the system is ready, at which time the ready LED will show a solid green color.

Connecting to the Network

To connect to the network for testing and development purposes, the module should be installed onto its evaluation board. Make sure that the module is correctly installed onto the evaluation board, then plug the Ethernet cable into the RJ45 jack. For models NE-4100T-P, NE-4120S-P, and NE-4120A-P, the RJ45 jack is located on the evaluation board; for models NE-4110S-P and NE-4110A-P, the RJ45 jack is located on the module itself.

If the cable is properly connected, the RJ45 connector will indicate a valid connection to the Ethernet as follows:



The green LED in the upper right corner blinks when the cable is properly connected to a 100 Mbps Ethernet network, and data is being transmitted.



The yellow LED in the upper left corner blinks when the cable is properly connected to a 10 Mbps Ethernet network, and data is being transmitted.

When using a private IP address for the module, which is the factory default, make sure that netmask and IP settings are configured appropriately in order to access the module from a host on the network.

Connecting to a Serial Device

To connect to a serial device for testing and development purposes, the module should be installed onto its evaluation board. The module's serial signals are routed to and from the RS-232 COM port on the evaluation board. Use a serial data cable to connect the serial device to the COM port on the evaluation board.

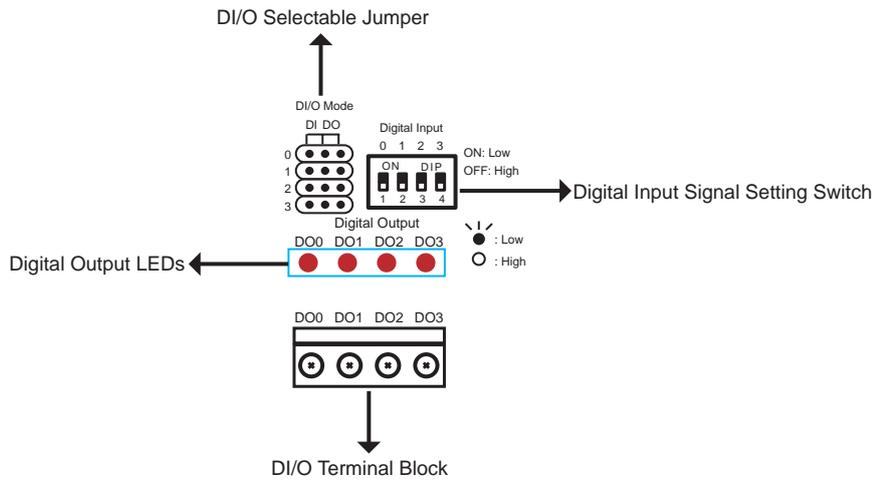
Digital I/O Channel Settings

Each module provides 4 digital I/O (DIO) channels. All 4 DIO channels may be configured by software for either digital output or digital input mode. A DI channel is a channel that is operating in digital input mode; a DO channel is a channel that is operating in digital output mode. You may use the evaluation board's Digital Output LEDs and Digital Input DIP switches as the digital input and output devices, or you may connect digital input/output devices to the DI/O Terminal Block.

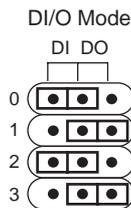


ATTENTION

When using a digital input device connected to the DI/O Terminal Block, the corresponding Digital Input DIP switch must be set to "OFF" or "High". Setting the DIP switch to "ON" or "Low" will interfere with the signal from your digital input device.



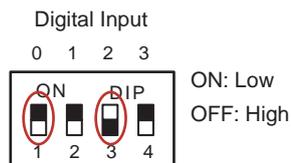
DI/O Mode jumpers 0 through 3 correspond with DIO channels 0 through 3. The jumper's position determines whether the corresponding channel is linked to a DIP switches or to an LED. When a channel's jumper is set to the DI position, the channel's input signal is controlled by the corresponding Digital Input DIP switch. When the jumper is set to the DO position, the channel's output signal is routed to the corresponding Digital Output LED. For example, if DIO channel 0 is operating as a digital input channel, setting DI/O Mode jumper 0 to the DI position enables the use of DIP switch 0 as that channel's input device.



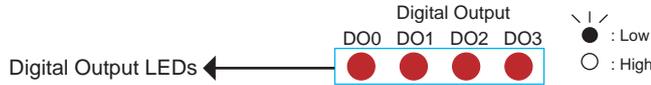
ATTENTION

The DI/O Mode jumpers are used to tell the evaluation board whether to use the Digital Output LEDs or the Digital Input DIP switches. The jumpers do not control the channel's mode. Input and output mode is configured through the web, serial, or Telnet console, or through Network Enabler Administrator.

When using a Digital Input DIP switch as your input device, the "ON" position corresponds to "Low" status and the "OFF" position corresponds to "High" status. The result can be monitored with the Network Enabler Administrator or with the web console. Make sure all DIP switches are set to "OFF" if you are using your own digital input device that is connected to the evaluation board's terminal block.



For channels in digital output mode, “Low” and “High” status is controlled from within the web console. When using a Digital Output LED as your output device, “Low” status will be expressed by the LED lighting up, and “High” status will be expressed by the LED turning off.



Digital Output LED Circuit Design

The figure shown below is the digital output LED circuit design. This is known as the “sink” design.



When developing your own applications, you need to be aware of the voltage limits shown below.

		Min.	Max.	Unit	Conditions
Low-level Input Voltage	Maximum voltage when DI is set to “Low” status.	-----	0.3xVCC	V	
High-level Input Voltage	Minimum voltage when DI is set to “High” status.	0.7xVCC	-----	V	
Low-level Input Voltage	Maximum voltage when DO is set to “Low” status.	-----	0.4	V	
High-level Input Voltage	Minimum voltage when DO is set to “High” status	2.4	-----	V	

The output current for digital output channels carries only 1 mA.

A

Well Known Port Numbers

This appendix is included for your reference. Listed below are port numbers that already have a well-established use. These port numbers should be avoided when assigning a port number to your NE-4100-P Series module; otherwise you may experience network problems. Refer to the RFC 1700 standard for Well Known Port Numbers or refer to the following introduction from IANA.

The port numbers are divided into three ranges: the Well Known Ports, the Registered Ports, and the Dynamic and/or Private Ports.

The Well Known Ports are those from 0 through 1023.

The Registered Ports are those from 1024 through 49151.

The Dynamic and/or Private Ports are those from 49152 through 65535.

The Well Known Ports are assigned by IANA, and on most systems, can only be used by system processes or by programs executed by privileged users. The following table shows famous port numbers among the well-known port numbers. For more details, please visit the IANA website at <http://www.iana.org/assignments/port-numbers>.

TCP Socket	Application Service
0	reserved
1	TCP Port Service Multiplexor
2	Management Utility
7	Echo
9	Discard
11	Active Users (systat)
13	Daytime
15	Netstat
20	FTP data port
21	FTP CONTROL port
23	Telnet
25	SMTP (Simple Mail Transfer Protocol)
37	Time (Time Server)
42	Host name server (names server)

TCP Socket	Application Service
43	Whois (nickname)
49	(Login Host Protocol) (Login)
53	Domain Name Server (domain)
79	Finger protocol (Finger)
80	World Wide Web HTTP
119	Network News Transfer Protocol (NNTP)
123	Network Time Protocol
213	IPX
160 – 223	Reserved for future use

UDP Socket	Application Service
0	reserved
2	Management Utility
7	Echo
9	Discard
11	Active Users (systat)
13	Daytime
35	Any private printer server
39	Resource Location Protocol
42	Host name server (names server)
43	Whois (nickname)
49	(Login Host Protocol) (Login)
53	Domain Name Server (domain)
69	Trivial Transfer Protocol (TETP)
70	Gopler Protocol
79	Finger Protocol
80	World Wide Web HTTP
107	Remote Telnet Service
111	Sun Remote Procedure Call (Sunrpc)
119	Network news Tcanster Protocol (NNTP)
123	Network Time protocol (nnp)
161	SNMP (Simple Network Mail Protocol)
162	SNMP Traps
213	IPX (Used for IP Tunneling)

B

Service Information

This appendix contains information on how to obtain information or service from MOXA for your NE-4100-P Series embedded device server and other MOXA products. The following topics are covered:

- MOXA Internet Services**
 - Technical support e-mail address
 - Website for product information
- Problem Report Form**
- Product Return Procedure**

MOXA Internet Services

Customer satisfaction is our top priority. To ensure that customers receive the full benefit of our products, MOXA Internet Services has been set up to provide technical support, driver updates, product information, and user's manual updates.

The following services are provided:

Technical support e-mail address

support@moxa.com

Website for product information

<http://www.moxa.com>

Product Return Procedure

For product repair, exchange, or refund, the customer must:

- Provide evidence of original purchase.
- Obtain a Product Return Agreement (PRA) from the sales representative or dealer.
- Fill out the Problem Report Form (PRF). Include as much detail as possible for a shorter product repair time.
- Carefully pack the product in an anti-static package and send it, pre-paid, to the dealer. The PRA should be visible on the outside of the package and should include a description of the problem along with the return address and telephone number.