

# ETHERNET MERCATOR



## PC/104-PLUS DUAL ETHERNET + 24 DIGITAL I/O

### SPECIFICATIONS

ETHERNET	
No. of Ethernet controllers	1 (MRC-100) or 2 (MRC-224)
Protocol	IEEE 802.3 10Base-T and 100Base-TX compatible
Maximum baud rate	100Mbps
DIGITAL I/O	
No. of I/O lines	24, using 82C55 chip
Direction	
Ports A and B	Each port programmable for all input or all output
Port C	Programmable in 4-bit groups for input or output
Input voltage	Low 0.5V min, 0.8V max High 2.0V min, 5.5V max
Output voltage	Low 0.0V min, 0.4V max High 3.0V min, V <sub>cc</sub> - 0.4V max
Output current	±2.5mA max, each line
Pull-up resistors	10KΩ all lines, selectable with jumper
GENERAL	
I/O headers	
Ethernet	RJ-45 female sockets and 6-pin right-angle male headers
Digital I/O	26-pin (2x13) .025" square pin header
Mating cables	
Ethernet ports	RJ-45 sockets: Standard CAT5 cable Pin headers: Diamond Systems cable no. C-PRZ-02
Digital I/O	Diamond Systems cable no. C-26-18
Dimensions	3.55" x 3.775" (PC/104 standard)
Power supply	+5VDC ±10% @280mA / 1.4W
Operating temperature	-40 to +85°C
Weight	3.2 oz / 81g
PC/104 bus	Both PC/104 and PC/104+ stackthrough headers installed

### 2 in 1 ETHERNET + DIGITAL I/O

The Mercator PC/104 module integrates 2 PCI-based 10/100Mbps Ethernet ports with 24 user-configurable digital I/O lines on one board. This 2-in-1 combination of Ethernet and digital I/O can help lower the size and cost of your embedded system by eliminating one additional board from your PC/104 stack.

The Ethernet ports utilize the National Semiconductor DP83815 Mac + Phy PCI controller chip. Two I/O connectors are provided for each Ethernet port: a standard RJ-45 jack for convenience and a rugged friction-lock header for applications requiring vibration protection.

The 24 digital I/O lines are based on an 82C55 chip and feature programmable direction in 4- and 8-bit groups. Jumper-configurable options include the I/O address and 10K-Ohm pull-up resistors on the I/O lines.

Extended temperature capability (-40 to +85°C) enables the board to operate in environments with extreme temperature swings, such as vehicles or outdoor installations. In addition, the board may be custom-configured with 0-ohm resistors in place of jumper blocks for increased ruggedness in high-vibration applications.

A low-cost model with one Ethernet port, no digital I/O, and PCI-104 bus configuration (PCI connector only) is available as special order.



- ◆ 2 PCI-based 10/100 Ethernet ports
- ◆ RJ-45 and pin header Ethernet connections
- ◆ Ethernet activity LEDs for each port
- ◆ 24 digital I/O lines on ISA bus
- ◆ Rugged design for harsh environment
- ◆ Operating temperature -40 to +85°C
- ◆ Fully PC/104-Plus compliant mechanical design
- ◆ Multiple assembly options: 1 or 2 Ethernet ports, with or without digital I/O

### ORDERING GUIDE

<b>MRC224-XT</b>	Dual-Port PC/104-Plus Ethernet + 24 Digital I/O
<b>MRC100-XT</b>	Single-Port PCI-104 Ethernet, Low Cost (Special Order)

For cables and accessories, see pages 46-47.

### I/O Headers

The Ethernet ports are equipped with two I/O header options: an RJ-45 jack and a friction-lock header. The friction-lock header is a locking 1x6 position right-angle header. The pinout is compatible with Diamond systems cable no. C-PRZ-02, which provides a panel-mountable RJ-45 jack at the other end. The RJ-45 connector is an industry-standard RJ-45 right-angle jack and may be used directly with standard CAT-5 Ethernet cabling.

The digital I/O lines are provided on a 26-pin (2x13) pin header.

I/O HEADER	
1	COMMON
2	RX-
3	COMMON
4	RX+
5	TX-
6	TX+

*Locking Ethernet*

I/O HEADER	
1	TX+
2	TX-
3	RX+
4	COMMON
5	COMMON
6	RX-
7	COMMON
8	COMMON

*RJ-45 Ethernet*

DIGITAL I/O HEADER		
C7	1 2	C6
C5	3 4	C4
C3	5 6	C2
C1	7 8	C0
B7	9 10	B6
B5	11 12	B4
B3	13 14	B2
B1	15 16	B0
A7	17 18	A6
A5	19 20	A4
A3	21 22	A2
A1	23 24	A0
+5V	25 26	GROUND

*Digital I/O*