Functional Description

DeviceNet™
EtherNet Module

DN-E100

Rev. 1.03

HURON NET WORKS

771 Airport Boulevard, Suite 2, Ann Arbor, Michigan 48108 Phone: (734) 995-2637 Fax: (734) 995-2876

Revision History

Rev	Date	Note(s)
A.0	10/29/2001	Original
A.1	4/12/2002	Release
1.02	5/15/03	Changed Pub #
1.03	8/16/2004	Replaced DeviceNet connector with updated Visio Object

1. INTRODUCTION

The DN-E100 is a DeviceNet to EtherNet interface with 256kb flash memory and an 80186 processor, designed as a base for multiple applications. Possible applications will include diagnostic tools, configuration tools, and protocol converters.

An integral FTP server will enable uploading and updating of application software over the ethernet connection. The DN-E100 also contains a web server. DeviceNet data can be exchanged through html and xml protocols. This feature permits customizable, cross-platform user interfaces using ordinary browsers and javascript residing on the user's PC.

A serial port is also available, increasing the scope of possible applications. This port will be initially used for system maintenance, such as the updating of the BIOS. The serial port will support other diverse uses in future applications, for instance, ppp dial-up via a phone modem, connection to wireless modem, various RS-232 data gathering devices, and so on.

2. APPLICATION

2.1. Mechanical and Mounting

Overall dimensions 1.25 in. x 3.33 in. x 5.75 in. including flange for mounting. Mounting holes are 5 in. apart.

2.2. Power Supply

Power to the unit is provided by the DeviceNet bus power supply (11 - 25 VDC). This is brought in on the Device Net connector V+ and V- (see below).

2.3. Indicators

- Standard red/greed bi-color DeviceNet Module Status LED and Network Status LED.
- A Green LED represents ethernet link and traffic status.

2.4. EtherNet

This is an 8 pin RJ-45 modular jack for a 10Mb ethernet connection. Standard Cat-5 ethernet **Straight-through** cable is used for connection to the hub, with the following connections on both ends of the cable:

Straight Through Cable	Color Code	Name
Pin 1	white orange	TxData +
Pin 2	orange	TxData -
Pin 3	white green	RecvData+
Pin 4	blue	
Pin 5	white blue	
Pin 6	green	RecvData-
Pin 7	white brown	
Pin 8	brown	

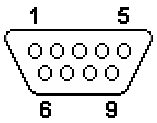
If a point-to-point connection with a PC is desired, use **cross-over cable**. One end will use the wiring shown above while the other end of the cable uses this wiring:

Cross Over Cable	Color Code	Name
Pin 1	white green	RecvData+
Pin 2	green	RecvData-
Pin 3	white orange	TxData +
Pin 4	blue	
Pin 5	white blue	
Pin 6	orange	TxData -
Pin 7	white brown	
Pin 8	brown	
The other side is a straight through cable, see Straight Through Cable		

A crossover ethernet cable is included with the DeviceGate.

2.5. Serial

A male DB-9 connector is provided as a DTE serial port.



1	DCD	Data Carrier Detect*
2	RD	Receive Data
3	TD	Transmit Data
4	DTR	Data Terminal Ready*
5	SG	Signal Ground
6	DSR	Data Set Ready*
7	RTS	Not used
8	CTS	Not used
9	Ring	Not used

*Note that 1, 4 and 6 are connected together on the circuit board.

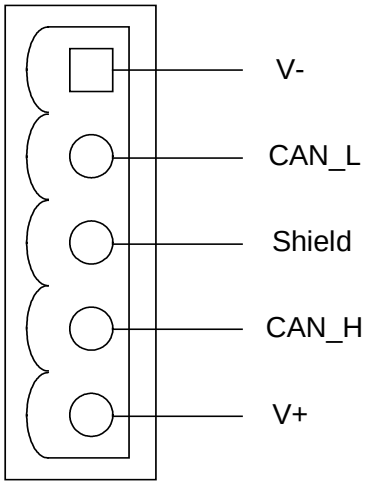
The use of this connector will depend on the application software of the DN-E100. If connecting to modems or other DCE devices, a standard DCE to DTE cable is used.

If connecting to another DTE port such as a PC Com port, a **null modem cable** will be required. A null modem cable is wired as follows. Note: Both ends of the cable must be female connectors.

Null-Modem Wiring		
DB-9	to	DB-9
1 & 6	to	4
2	to	3
3	to	2
4	to	1 & 6
5	to	5
7	to	8
8	to	7

2.6. DeviceNet

This is a phoenix style connector with the standard five DeviceNet signals; V+, V-, CAN_L, CAN_H, and shield drain. The shield drain wire has no connection on the module.



3. CONFIGURATION

For Ethernet operation, an IP address must be configured that does not conflict with other addresses on the network.

The DN-E100 is configured using the DG Tools software provided on the applications CD-ROM. The DG Tools program will display the current configuration of all DN-E100 units that are found on the ethernet network and allow the IP address of each to be modified. If the network supports DHCP, the IP address will be automatically configured at power on. In this case, the DHCP option should be checked in the DG Tools dialog.

Setting the DeviceNet baud rate and Id configuration will be handled by each particular application. For instance, a DeviceNet tool application might use automatic baud rate detection and automatic assignment to a free Mac Id. A web server based application may provide a form for setting these parameters.

4. SPECIFICATIONS

Overall Dimensions	
Length	5.75 in.
Width	3.33 in.
Height	1.25 in.
Weight	5.5 oz.
Environmental	
Operating temperature range	0 to 55 C
Storage temperature range	-20 to 85 C
Humidity	5 to 95% RH non-condensing
DeviceNet	
Data rates	125, 250, 500 kBaud
Node address & configuration	0 to 63
Connector	Phoenix 5-pin male
Indicators	Module and Network Status LEDs
Bus power consumption	60 ma avg. (receive) 120 ma max. (xmit)
Ethernet	
Connector	RJ-45 modular Jack, 8 pin
Indicator	Green Status LED
Serial	
Connectors	DB-9 male
Protocol	RS-232