LAUREL
ELECTRONICS, INC.

Ethernet Interface Board for 1/8 DIN Laureate Meters, Counters, Timers & Remote Displays
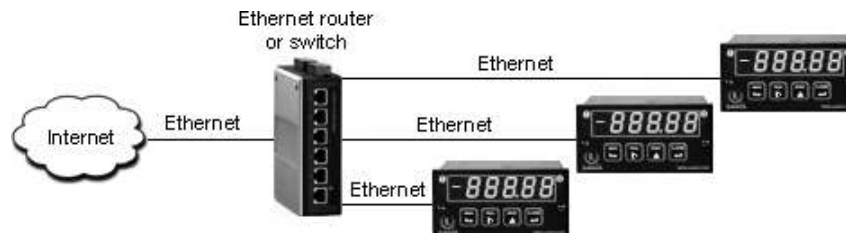
Features

- **Connects all 1/8 DIN Laureate DPMs, counters, timers & remote displays to a LAN via a standard Ethernet cable.**
- **Easily networked using Node Manager Software or Node resident web server software for discovery and setup.**
- **Selectable baud rates to 19,200.**
- **Powered by instrument.**
- **Isolated from meter and power grounds.**

Description

*Meters on an RS485 bus connected to the Internet via an Ethernet-to-RS485 device server board.*

The basic Laureate Ethernet interface board plugs into a host 1/8 DIN digital panel meter, counter, timer or emote display to provide a 10/100Base-T Ethernet interface via an industry-standard RJ45 connector. Multiple meters, each with its own Ethernet cable, can be connected to a local area network (LAN) or to the Internet via a router, or directly to a host computer. LAN, WAN, and Internet connectivity are fully supported so that the meter can be read and set up remotely.

Node Manager software is shipped on a mini CD with each Ethernet board. This free Windows-based application automatically discovers all Laurel Nodes (or Laurel Ethernet boards) on a LAN or WAN, plus the host meter connected to the Node. Node Manager software is also used to configure each Node, such as naming the Node and associated devices, entering email addresses for alarm notification and data requests, selecting the Node's time zone for time-stamping of streaming data, and setting communication parameters for associated meters. Please see our Ethernet Manual.

On a Wide Area Network (WAN), such as the Internet, the host computer is outside of the LAN and must know the public IP address of the LAN router to discover the Laurel Nodes.

Web server software is built into each Node and can be used to discover and configure all Laurel Nodes over the Internet.

Built-in DHCP server capability allows Laurel Nodes to constitute themselves into a network and be connected directly to a host computer when no router or dedicated DHCP server is present, as illustrated below. When a Node fails to find a DHCP server that responds to its request for a private IP address, it assigns one. When several Nodes fail to receive a Private IP address, they mutually agree to make one of the Nodes a temporary DHCP server that assigns a Private IP address to each device on the network.
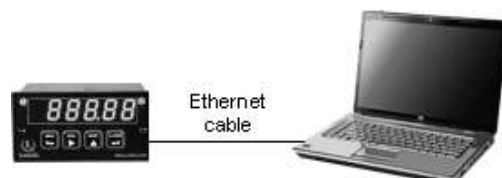
Data can be sent by Laurel Nodes in the form of real-time stream data upon request or in the form of emails. Emails can be sent in response to email requests from the host computer, periodically, or when devices encounter an alarm condition or go off-line.

Laurel's separate Ethernet-to RS458 server board can be used as an alternative to Ethernet board for connecting to the Ethernet up to 31 Laurel Instruments on an RS485 bus.
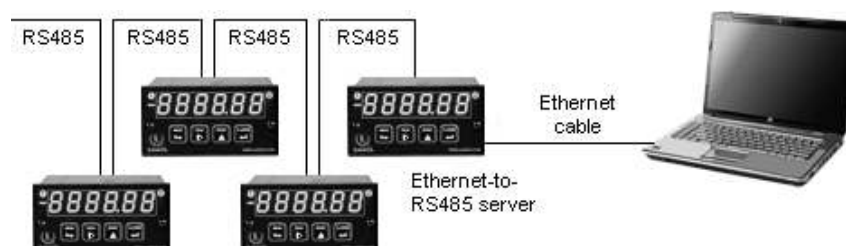
Easy connection of an RS485 bus with Laureate meters to a PC via an Ethernet cable.
No need for a separate router or dedicated DHCP server.

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Electrical Specifications

Ethernet Board Specifications	
Data rates	300, 600, 1200, 2400, 4800, 9600, 19200 baud with Laureate instruments.
	Up to 614,400 baud with non-Laureate instruments.
Devices per Node	Host digital panel meter, counter, timer or remote display
Ethernet connector	RJ45 jack
Ethernet cable	10/100Base-T
Ethernet compliance	EIA/TIA-485
Isolation	250V rms working, 2.3 kV rms per 1 min test
ESD Protection	15 kV per IEC 1000-4-2
EMI Immunity	10 V/m per IEC 1000-4-3
EFT Protection	2 kV per IEC 1000-4-4
Short Circuit Protection	Continuous

Protocol Specifications

(Protocol is implemented by meter main board)

Modbus RTU	
Standards Compliance	Modbus over Serial Line Specification V1.0 (2002)
Data Formats (selectable)	1. No parity, 8 data bits, 2 stop bits
	2. Odd parity, 8 data bits, 1 stop bit
	3. Even parity, 8 data bits, 1 stop bit
Applicable Interface Boards	Ethernet, USB, RS232, RS485, RS485 Modbus
Conversion to Modbus TCP	Automatic
Main Board Revision Level	Level 5 or above

Modbus ASCII	
Standards Compliance	Modbus over Serial Line Specification V1.0 (2002)
Data Formats (selectable)	1. No parity, 7 data bits, 2 stop bits
	2. Odd parity, 7 data bits, 1 stop bit
	3. Even parity, 7 data bits, 1 stop bit
Applicable Interface Boards	Ethernet, USB, RS232, RS485, Modbus RS485
Conversion to Modbus TCP Main	Automatic
Board Revision Level	Level 5 or above

Laurel ASCII	
Data Format	No parity, 8 data bits, 1 stop bit
Protocol	Laurel Laurel ASCII
Applicable Interface Boards	Ethernet, USB, RS232, RS485, RS485 Modbus
Main Board Revision Level	Any