RapID™ Platform – EtherNet/IP Network Interface *with DLR*

2-Port Connectivity Solution with Device Level Ring

The *RapID Platform Network Interface* is a pre-tested solution that manages the industrial protocol, network traffic, and ring participation for a host processor

The *Network Interface* module or embedded design contains everything needed to participate in star, line, tree, or ring network topologies including the communications controller, protocol stacks, Flash, RAM, Ethernet switch and PHYs. A host processor connects to the *Network Interface* via a UART or 16-bit Parallel Interface. At the software layer the host connects to a "Unified Interface" so **other protocols can be used without changing the host software**. The *Network Interface* has **passed ODVA conformance testing and received the Plugfest Conformance Test endorsement**. This means your field device will operate problem-free with any EtherNet/IP scanner and will never disconnect from the network.

Easy Hardware and Software Integration

The *Network Interface* can be integrated into a design as either a module or an embedded design. As a module, the *Network Interface* plugs into a board using standard 2.54 mm pitch through-hole pins. When designing-in the module, hardware integration is as easy as connecting Power/Ground/Reset and interfacing the Host to the UART or 16-bit Parallel interface.

As an embedded design, **the *Network Interface* hardware design can be integrated directly using the schematics provided**. Also provided are the Bill of Materials and example layouts to minimize the hardware design effort. Software for the embedded design is provided as firmware that is downloaded to the flash. Whether using the *Network Interface* as a module or an embedded design, **no software development is required and there are no license fees or royalties.**

Software integration with a Host is also easy. Messages passed between the Host and *Network Interface* follow a "Unified Interface" definition. A simple to use, Innovasic supplied, **PC-based tool configures the Network Interface**, so the Host only passes parameters between it and the *Network Interface*. From this tool, it is also easy to specify how parameters will be passed to the EtherNet/IP scanner using the EDS file. Since the Host is only passing parameters, the Host software does not have to change if EtherNet/IP network parameters change or if another Industrial Ethernet protocol is used. There is also a "sockets" interface that supports direct Ethernet communication. Example C-code is provided to minimize the software effort for the Host / Network Interface communication.
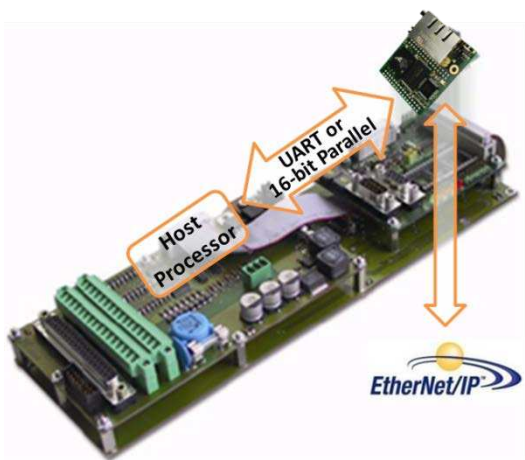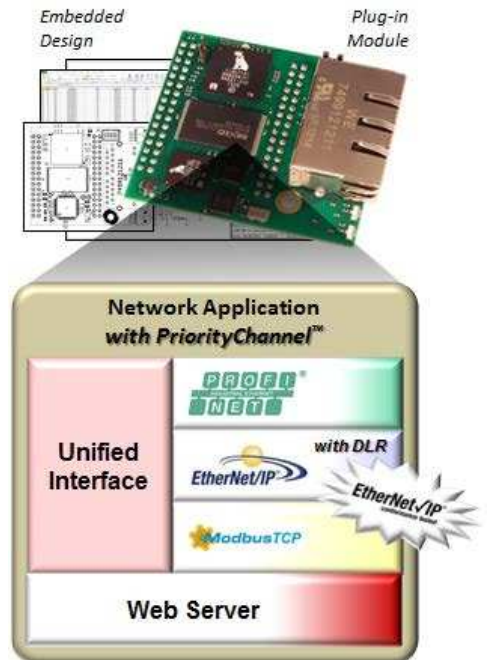
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Reliable, Flexible Network Integration

The RapID Platform Network Interface provides reliable EtherNet/IP communication with PriorityChannel™ – a revolutionary technology that eliminates the effects of network traffic and ensures reliable, real-time network performance. **It gives your device a significant competitive advantage**, extremely low jitter, and a reliable connection that **will not disconnect even with >95% network loading**.

EtherNet/IP support includes Dynamic Host Configuration Protocol (DHCP) and Address Conflict Detection (ACD). Together, these two protocols ensure seamless integration allowing devices to be easily added or removed from the network. DLR protocol operation is transparent to the host processor, and beacon-based ring participation is supported with **beacon intervals down to 200 μs**.

Support of all **EtherNet/IP message types – implicit, explicit, and unconnected** – provide the flexibility to implement only those types of messages that make sense for a field device's application, and the example EDS file provided can be tailored to describe those features of the field device to an EtherNet/IP scanner. To assist with commissioning, **a webserver is provided** so the field device's network information can be displayed on a standard browser.

Fast Evaluation and Development

The *RapID Platform Network Interface* Evaluation Kit provides a quick assessment for interfacing a Host to the module. An application example is provided in order to demonstrate end-to-end, Host-to-Network Interface-to-Scanner communication. Simply connect the Host development board to the *Network Interface* evaluation board via the UART or 16-bit Parallel interface. Once Host-side communication is established, EtherNet/IP communication can be evaluated using a PLC or Scanner simulator. The communication path between Host and EtherNet/IP Scanner can be completely verified before integrating the module into your field device hardware.

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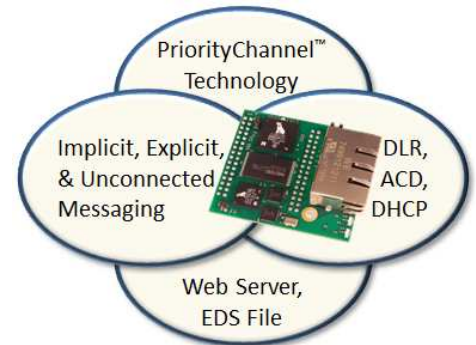
RapID Platform EtherNet/IP Network Interface with DLR	
Parameter	**Details**
Host Processor	Any CPU or DSP
Host Processor Interfaces	UART (115.2 kBaud) 16-bit Parallel (up to 12.5 Mbps)
Network Interface	Data Transport: IEEE 802.3
	Data Rate: 10/100 Mbps
	Ports: 2
Temperature	-40C to +85C
Power Supply	Voltage: 3.3 VDC
	Power consumption: 1.3W
TCP/IP	ICMP, IGMP, ARP, SNTP, BSD Sockets, DNS, DHCP, TELNET, TFTP, HTTP server, CGI
EtherNet/IP	Input Data: 504 bytes Output Data: 504 bytes
	Packet Interval: 2 ms (min.)
	Beacon Interval: down to 200 μs
	Supported Objects: Identity, Message Router, Assembly, Connection, Connection Manager, DLR, QoS, TCP/IP Interface, Ethernet Link
	Explicit and Unconnected Messaging
	Address Conflict Detection
Compliance	RoHS, CE, ODVA

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