

RapID™ Platform - PROFIBUS Network Interface

Single port, DP-V1, Slave Connectivity Solution



The RapID Platform Network Interface is a complete, pre-tested solution that manages the industrial protocol for a host processor

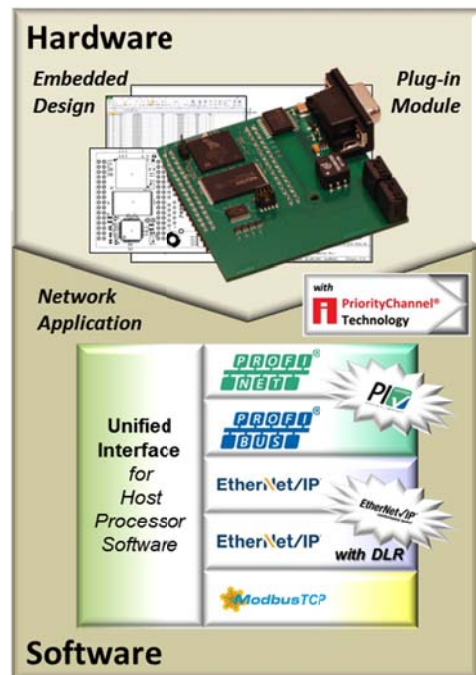
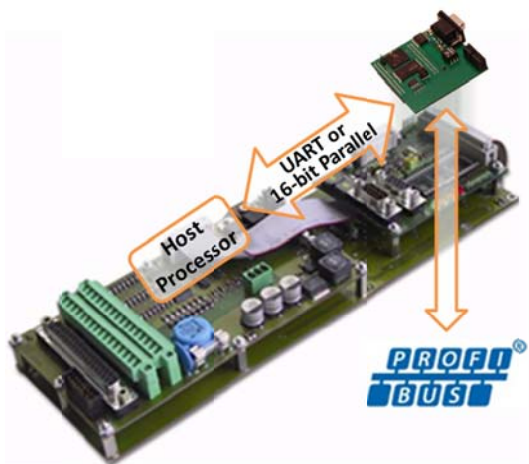
The *Network Interface* module or embedded design contains everything needed to participate in a PROFIBUS serial network including the communications controller, protocol stacks, Flash, RAM, and physical interface. A host processor connects to the *Network Interface* via a UART or 16-bit Parallel Interface. At the software layer, the host connects to the Unified Interface so **other protocols can be used without changing the host software**. The *Network Interface* has passed PROFIBUS certification for DP-V1 devices. This means your field device will operate problem-free with any PROFIBUS controller.

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 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 the 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 PROFIBUS controller using the GSD file. Since the Host is only passing parameters, the Host software does not have to change if PROFIBUS network parameters change or if another Industrial Ethernet protocol is used. Example C-code is provided to minimize the software effort for the Host / Network Interface communication.



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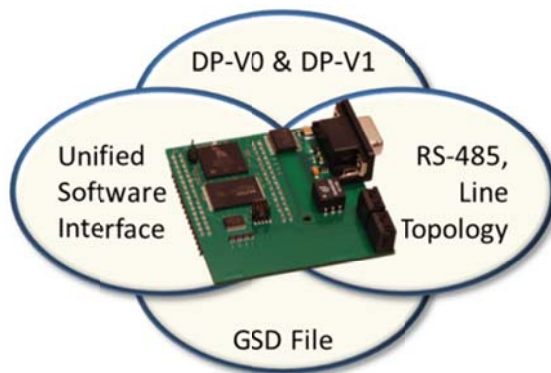


Reliable Bus Operation

The *Network Interface* physical interface is RS-485 differential Non-Return-to-Zero (NRZ) signaling that supports the required data rates from 9.6 kBaud to 12 MBaud. The physical interface provides complete isolation and uses the standard DB9 connector that mates with any PROFIBUS cable. Electrical characteristics meet all PROFIBUS requirements and the module has been tested for compliance.

As a PROFIBUS slave device, the *Network Interface* is a passive communication node that responds automatically to the master at either DP-V0 or DP-V1 performance levels. DP-V0 supports basic cyclic data exchange, and DP-V1 supports both cyclic and acyclic data exchange. Several alarm types are supported as part of the acyclic data exchange. Data rates down to 1 ms are supported at the maximum I/O data size of 244 bytes.

A generic General Station Description (GSD) file is provided as an example electronic data sheet for the communication properties of the device. The GSD file describes to the PROFIBUS master a device's specific information such as key device data (i.e. measure values and manipulated variables), communication capabilities, and diagnostic values.



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-Controller 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, PROFIBUS communication can be evaluated using a PLC or Controller simulator. The communication path between Host and PROFIBUS controller can be completely verified before integrating the module into your field device hardware.



RapID Platform PROFIBUS Network Interface	
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: RS-485
	Data Rate: 9.6 Kbps to 12 Mbps
	Ports: 1
Temperature	-40C to +85C
Power Supply	Voltage: 3.3 VDC
	Power consumption: 1.5W
PROFIBUS	Cyclic Input Data: 244 bytes Cyclic Output Data: 244 bytes
	Minimum Cycle time: 1 ms
	Alarm Types: Update, Status, Process, Diagnostic, Pull/Plug
Compliance	RoHS, CE, PI