RapID Platform Network Interface

User Guide

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Overview

Thank you for purchasing the RapID Platform Network Interface Evaluation Kit. Innovasic appreciates your interest in the RapID Platform – EtherNet/IP Network Interface and RapID Platform – EtherNet/IP Network Interface with DLR. Please contact us at any time to answer questions, help with set-up, or discuss ideas to make integration easy. Helping get your product to market efficiently and effectively is what our support team does best.

1.1 Network Interface Evaluation Kit

The RapID Platform Network Interface solutions are pre-tested Industrial Network interfaces that manage the industrial protocol and network traffic. Thanks to the module's Unified Interface, a single host interface hardware and software design supports PROFINET, PROFINET IRT, PROFIBUS, EtherNet/IP, EtherNet/IP with DLR, EtherCAT, and ModbusTCP. Choose the type of Network Interface to support the required Industrial protocols. The Unified Interface also ensures your host processor hardware or software interface does not need to change even when you switch or update protocols. The Network Interface connects to a host processor via a UART, 16-bit Parallel Interface, or Ethernet (future).

The evaluation kit provides a quick assessment for interfacing a host processor to the Network Interface module (module is sold separately). Once host-side communication is established, communication can be evaluated using third-party PC-based tools or vendor-specific Programmable Logic Controllers (PLC). The communication path between the host processor and a PLC can be completely verified before integrating the Network Interface into your end field device. Please take a moment to verify the contents of your evaluation kit.

Network Interface Evaluation Kit Contents:

a. Network Interface Baseboard
b. UART Personality Module
c. Parallel Interface Personality Module
d. Ethernet Personality Module (Future)
e. Power Supply with outlet adapters
f. Ethernet Cable
g. USB Cable
h. Innovasic Developer Portal Information Card

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Figure 1- NIEK Included Materials

1.2 Evaluation and Development

The purpose of the RapID Platform Network Interface Evaluation Kit is to provide an end-to-end evaluation of the communication path from the host processor to the PLC. This document describes how to use the kit to set-up and run an EtherNet/IP application example. The application example demonstrates an end-to-end communication from a host processor to a PLC.

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For the example described in this Quick Start Guide, the host processor is a PC and communicates to the Network Interface via a USB. Communication to the PLC is over the Industrial Ethernet interface using EtherNet/IP. A Rockwell PLC will be used to perform EtherNet/IP communication.

After running the application example, the reader will be ready to transition to the development phase of a project. It is intended that the kit and application example be used along with the Design Integration Guide to develop field device products. Figure 2 provides an overview of the evaluation and development process. There are detailed documents to help complete a field device design using the Network Interface. These documents are referenced in the Design Integration Guide.

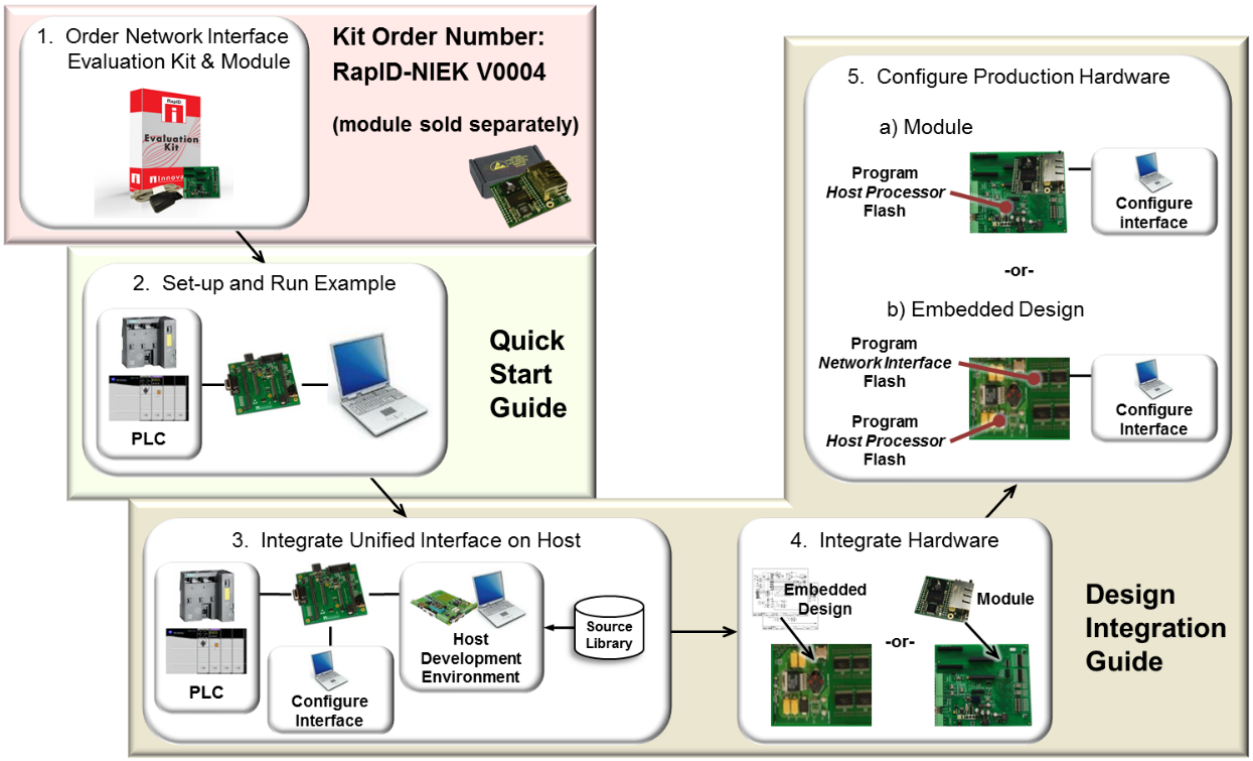

Figure 2- Evaluation and Development Overview

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2. Connecting the Evaluation Kit Hardware

This section describes how to connect the hardware provided in the Evaluation Kit. The steps below use a PC with USB as a host processor and a PLC with an EtherNet/IP Industrial Ethernet interface. Separate guides are available for other protocols.

2.1 ESD and Power Supply Considerations

2.1.1 Electrostatic Sensitive Device

The hardware should be handled in accordance with proper ESD device-handling techniques. Personnel using this board are advised to use their grounding wrist strap to prevent accidental damage to the hardware.

2.1.2 Power Supply and Grounding

A wall adapter power supply is included with your evaluation boards. This supply is 12V, 1A and attaches to the power supply barrel connector. There is also a screw terminal to attached a lab benchtop power supply. For either type of power supply connection, the input voltage to the board must be in the range of 9V to 33V.

2.2 Making the Connections

Setting up the hardware is a simple five step process. At the end of these five steps, the baseboard and module with connections should look similar to Figure 3. The Evaluation Kit ships with the correct jumpers installed so there is no need to set any jumpers. There is also no need to set any switches. The UART Interface, Parallel Interface, or Ethernet Interface Personality Modules are not used in this set up procedure.

Step 1: Connect the module to the baseboard as shown in Figure 3.

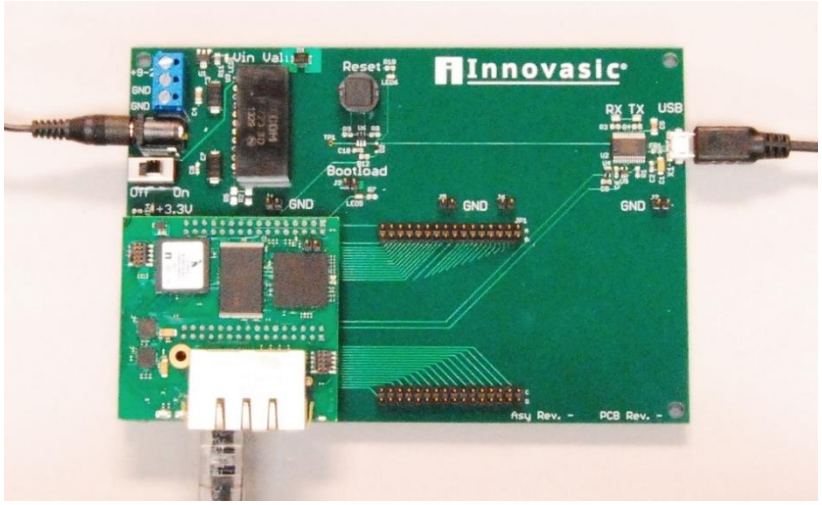

Figure 3 – Module and Baseboard Connection Detail Snapshot

Step 2: Connect the USB Cable from your PC to the baseboard. This will create two virtual COM Ports on your PC that will be used later in the application example.

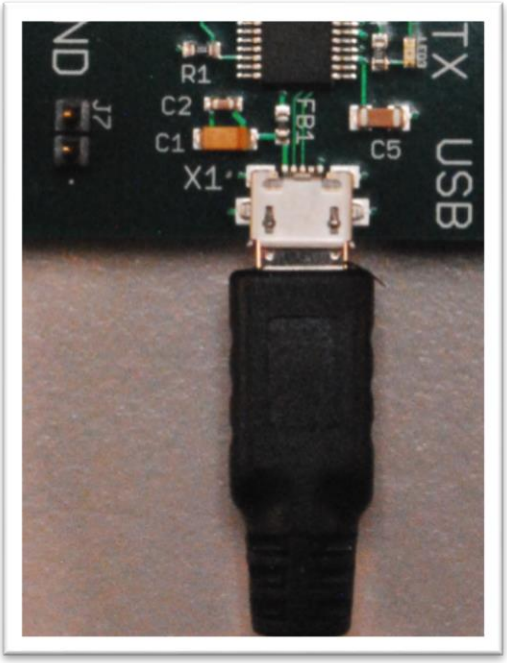

Figure 4 – USB Cable Connection

Step 3: Connect the power cable provided in the kit to the "POWER" port. The detailed location of the power port on the baseboard is shown below. Plug the other end of the power cord into a wall socket.

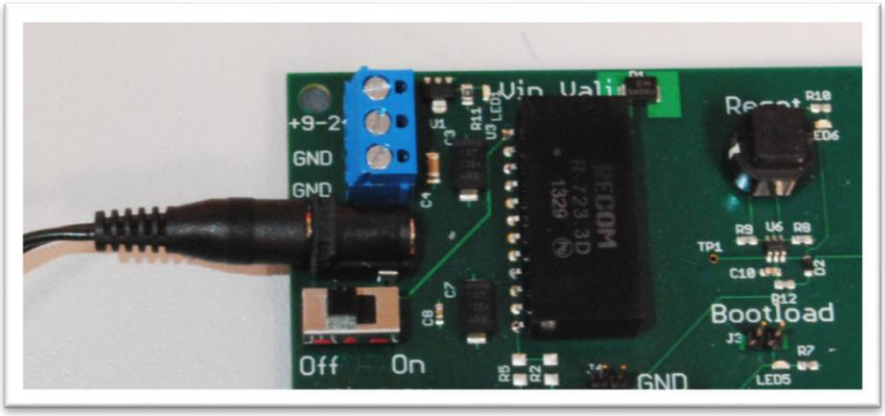

Figure 5 – Power Cable Connection

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Step 4: Connect one end of the provided Ethernet cable in the kit to either of the RJ45 jacks on the Network Interface module. The detailed location of the RJ45 jacks is shown below. Connect the other end of the Ethernet cable to the PLC. Then connect the PLC to your PC via Ethernet.

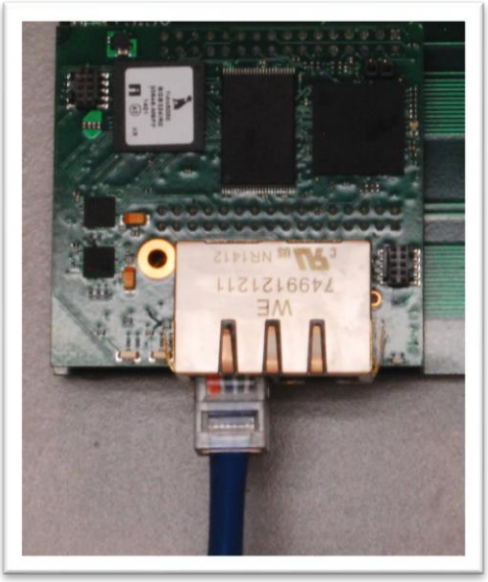

Figure 6 – Ethernet Cable Connection

Step 5: Apply power to the module by turning the Network Interface module baseboard power switch to the "ON" position. The detailed location of the switch on the baseboard is shown below.

Figure 7 – Power ON Switch location

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