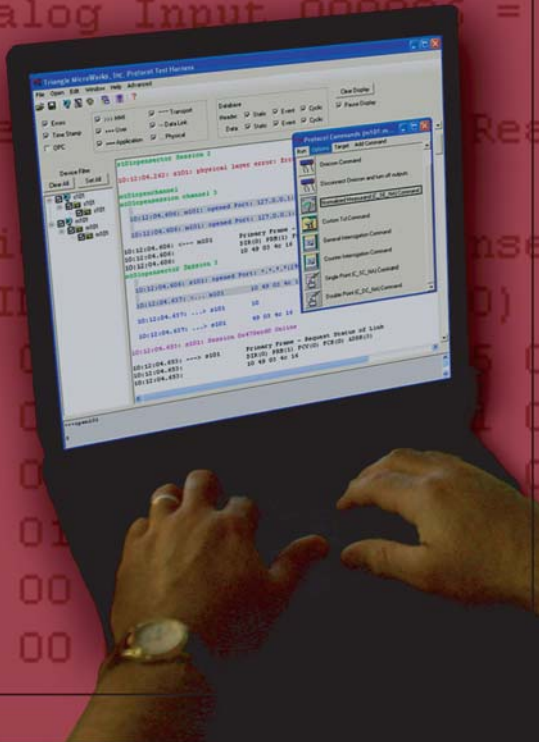


COMMUNICATION PROTOCOL

TEST HARNESS



Solutions for

Communication

Protocol

Development



TRIANGLE MICROWORKS, INC.

COMMUNICATION PROTOCOL TEST HARNESS

Protocols

▲ DNP3

▲ Modbus Plus

▲ Modbus Serial ASCII/RTU

▲ Modbus TCP

▲ IEC 60870-5-101

▲ IEC 60870-5-102

▲ IEC 60870-5-103

▲ IEC 60870-5-104

Perform Custom Functional Tests



▲ **Commands** may be executed individually or all run as a sequence. Conditional command sequences can be used to automatically test specific DUT functionality.

1 Clicking on the button next to the command description **executes the command**. The command description may be user modified.

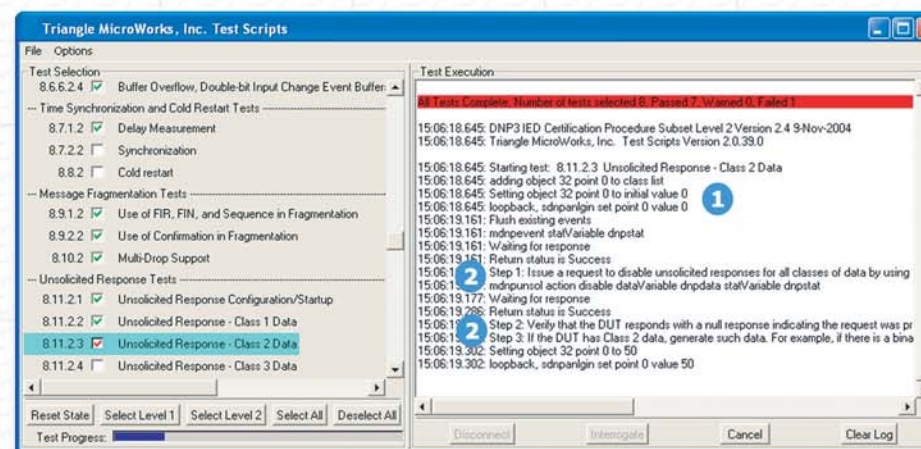
2 A **"progress bar"** gives graphic indication for time of next command execution when in repeat interval mode.

3 A **Validate Points Command** verifies the device returned the expected data values.

4 Drag & Drop (or cut/paste) to **change Command Order** or copy/move to another command window.

5 Use **custom Tcl commands** or any .NET programming language (VB, C#, J#, etc.) to provide functionality not covered by existing commands.

Automatically Perform Conformance Test Procedures



▲ Performs the official **Conformance Test Procedures** published by the Technical Committees of each protocol.

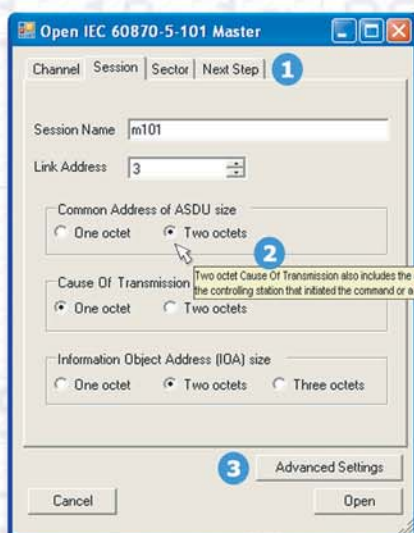
▲ Useful as a **periodic regression test** during continued product development or in preparation for third party conformance testing.

1 **Trigger necessary changes** in device inputs by:

- ▲ Voltage/current source such as OMICRON CMC156/256
- ▲ DNP Virtual Terminal message
- ▲ Custom Tcl command
- ▲ User dialog box

2 **Steps in test procedure** are listed in both the procedure window and protocol analyzer.

Easily Configured Graphical User Interface (GUI)



▲ **All configuration parameters** for each connection are conveniently located on one dialog box.

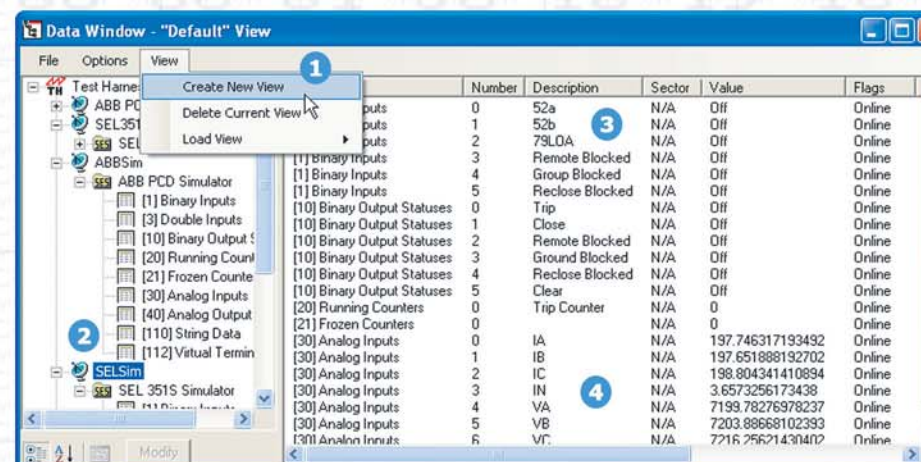
▲ Easy to use, **protocol specific menus** show configuration options and default values.

1 **Tabs** access each layer of the protocol.

2 **Tool Tips** describe Test Harness configuration options and are useful when learning a new protocol.

3 The **Advanced Settings** dialogue box gives access to parameters which are rarely changed.

View Data from Remote or Simulated Devices



▲ **Data window** provides graphical view of database points and values.

1 **Create custom views** of critical data by hiding unnecessary rows.

2 **Right click menus** allow easy modification of channels, sessions, sectors, and slave session data points.

3 **User-defined point descriptions**, as well as all other configuration data, are saved in a workspace file. The entire setup can then be easily restored as required.

4 **Load an actual field database point map** including point descriptions from spreadsheet or text file.

Simulate Master or Slave Devices



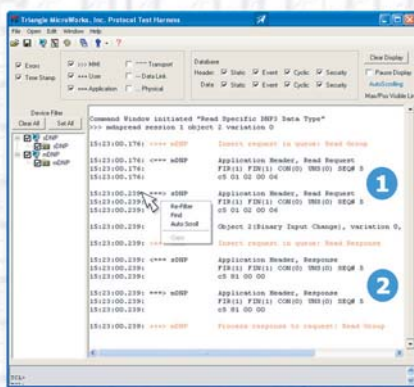
▲ **Simulate communications** to a large number of devices. Multiple Slave sessions can be active at one time.

1 When simulating a Master device, **easily configured command windows** allow commands to be sent once or repeated at desired intervals.

2 A **Functional front panel** may be used to change data values, or a **timed operation** can simulate periodic data changes.

3 **New simulators** may be added to the Test Harness by duplicating one of the sample simulators provided.

Monitor Communications



▲ **Analyze communication** using extensive filter options and customized colors/fonts/indentation on both real-time and capture buffers.

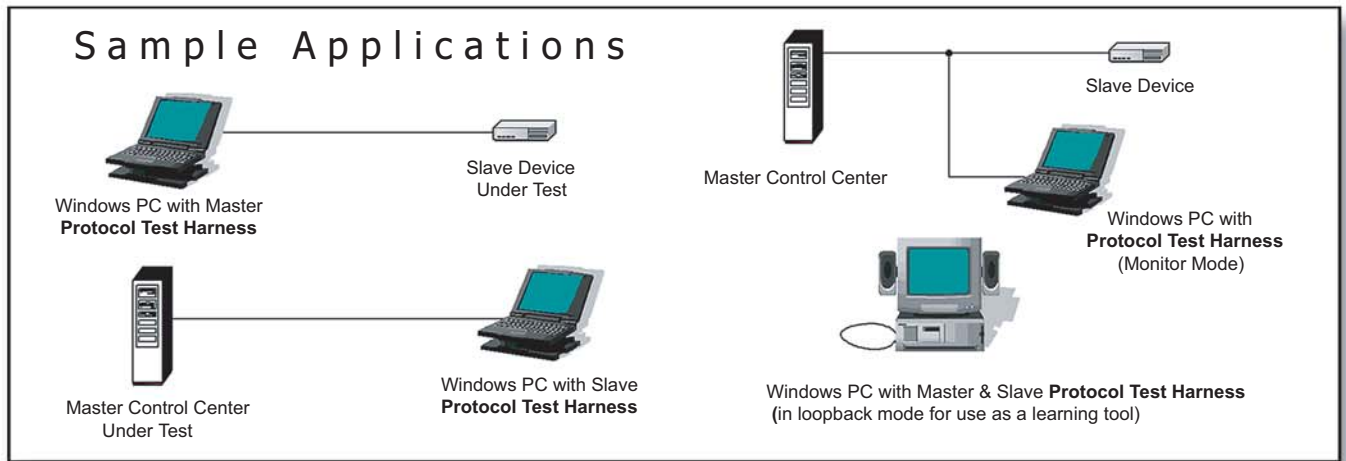
▲ **Passively monitor** serial or TCP/IP connections.

▲ **Parse and interpret a sequence of bytes** captured outside the Test Harness.

1 A **scroll back buffer** with search function provides for easy examination of previous exchanges.

2 **Save/restore or copy/paste** protocol analyzer output for post-capture analysis.

COMMUNICATION PROTOCOL TEST HARNESS



Hardware Requirements

The Protocol Test Harness uses standard serial communications ports or Ethernet ports on a PC running Windows 7, XP SP2, or Server 2008.

Pricing

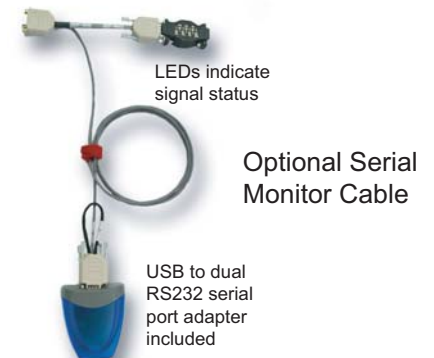
A single license for the Communication Protocol Test Harness is \$1,500 USD, which includes both Master & Slave components of a single protocol. Additional protocol components may be added to a Test Harness license at a cost of \$500 USD each.

The Modbus Slave Conformance Test Module is included with the base Modbus component. An Executable version of the DNP3 Outstation Conformance Test Module is available for an additional \$1,500 USD.

Support and Upgrades

The Communication Protocol Test Harness includes one year of the Maintenance & Enhancement Plan, which provides upgrades and technical support. The cost of renewing this plan after the first year is 25% of the total list price at the time of renewal. When purchased in advance, renewals for future years will be **discounted 30%**.

Benefit from our protocol expertise. We are active on IEC 60870-5, DNP3, and Modbus-IDA technical committees. Our communication protocol expertise will provide you with the highest quality products and technical support available.



Price: \$250 USD

Contact Triangle MicroWorks to obtain a quote or visit our website www.TriangleMicroWorks.com/downloads.htm to download a full **21-day evaluation** version of the product.



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