iVeriPHY Mil1394 Handheld Test Module
Expandable IEEE-1394b Bus/Node Monitor and Tester System

Applications

Testing of point-to-point IEEE-1394b wire harness cable connections

Testing of IEEE-1394b network (wire harness and devices) connectivity

Testing of point-to-point bit error rate and network bus error rate

Verification of IEEE-1394 bus topology with node ID number and initiated bus reset support

Testing in space-constrained areas using handheld tester vs test cart

Benefits

Standalone IEEE-1394 network tester; No external PC required

Scalable Application support: Monitor, Topology Viewer, Bus Error Rate Tester, with more apps planned for the future

Quickly determine wire harness and LRU connectivity issues through monitoring of port connectivity, bit error, bus error and topology information enabling fault-isolation in the network

Monitoring of IEEE-1394b bus topology, traffic activity and bus resets to help diagnose network level issues

Features

Integrated touchscreen provides standalone IEEE-1394 network tester with no external PC required

Monitor application provides low-level point-to-point connectivity diagnostic information and bus-level node count, bus reset count, and activity indicator

Topology Viewer application provides 1394 bus topology with parent/child and port connection information along with Self-IDs, Node ID, Link Active and Initiate last bus reset

Available standalone or kitted with two iVeriPHYs

Using the Bus Error Rate Tester (BERT) application, two VeriPHYs can verify the bus error rate between point-to-point connections or through a multi-node topology and log the test results

Three (3) S200β and S400β capable transformer isolated ports.

Three 1 meter Lemo to 9-Pin 1394b cables

Overview

Designed to provide both point-to-point and network diagnostic information, the iVeriPHY Tester is a single node (channel) standalone IEEE-1394 bus tester with three (3) transformer-coupled S200β and S400β beta-only ports. Each port connects to the 1394 bus through a 4-pin latching Lemo connector. Test and Diagnostic applications are accessed through the integrated 7-inch back-lit touchscreen.

The iVeriPHY is a scalable platform, available as a standalone unit or as a two iVeriPHY kit. The platform base configuration includes the "Monitor" application that provides the user both wire harness and 1394 network diagnostic information. These provide the user with both wire harness diagnostics and 1394 network data.

In addition to the "Monitor" application, the iVeriPHY's scalable platform supports optional applications such as the "Bus Error Rate Tester" (BERT) or "Topology Viewer" to provide additional test and diagnostic capability to meet our customers' needs. The customer may purchase these additional software applications.

These and future-planned applications provide customer-specific features and user experience enhancements to abstract low-level IEEE-1394/AS5643 data and allow users to view diagnostic and test data information from an air vehicle point of view.

Each iVeriPHY comes with carrying case, 5V AC adapter, three 1 meter Lemo to 9-pin cables, an Ethernet cable and User's Guide.

> iVeriPHY Handheld Test Module

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| Monitor | B.E.R.T | Topology | About |

Activity

Bus Reset Count: 17

Node Count: 1

	Port 0	Port 1	Port 2
Low Speed Connected	🟢	🟢	🟢
High Speed Connected	🟢	⚪	⚪
Failed Speed/Sync	⚪	⚪	⚪
Loop Disabled	⚪	🟢	🟢
RX Error Count	333	0	236

Clear Counters

Serial Number: dc:a6:32:7f:5a:24

> **iVeriPHY Monitor Application**

Base Configuration

The iVeriPHY Base Configuration includes both the iVeriPHY hardware and Monitor software application that provide both wire harness diagnostics and 1394 network information. The tester displays the following diagnostic information:

Cable Connection Information:
- Low Speed Connection (Toning)
- High Speed Connection (8b10b)
- Speed negotiation or Synchronization failed
- Loop Disabled
- Rx Error Count

1394 Network Information:
- Activity
- Bus Reset Count
- Node Count

Optional software applications are offered that increase the utility of iVeriPHY beyond the base configuration. The first two released applications are the Bus Error Rate Tester (FW-FC1-BERT) and Topology Viewer (FW-FC1-TOP).

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## Expandable IEEE-1394b Bus/Node Monitor and Tester System
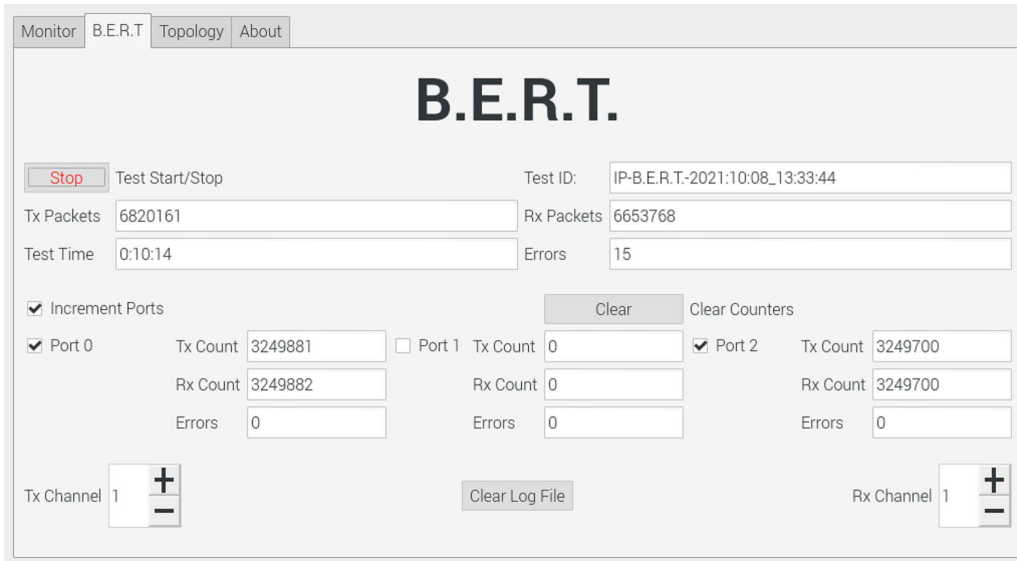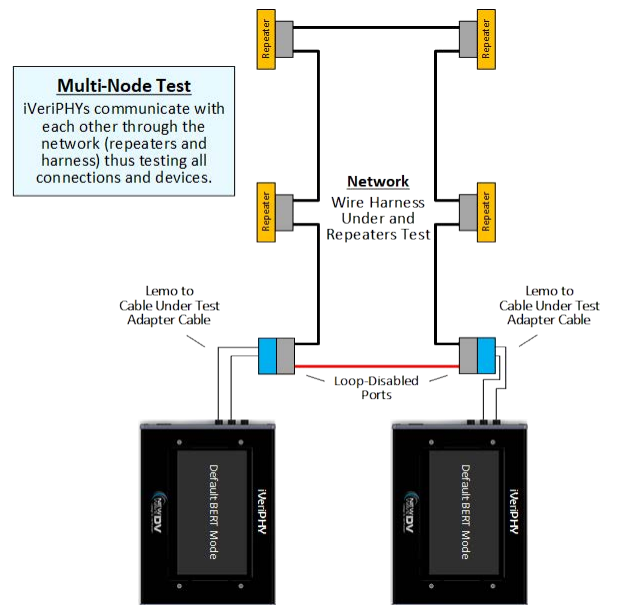

> **iVeriPHY BERT Application**

BERT Application (Add-on)

The "Bus" Error Rate Tester's (BERT) primary purpose is validation of a wire harness and any intermediate repeating nodes (devices) ability to transmit and receive IEEE-1394b (Beta) communications. There are two primary use cases for the BERT; 1) Point-to-Point 2) Network.

1) In the Point-to-Point case often all 1394 ports implemented in the wire harness cable need to be tested. Because 1394b only allows a single active port between two nodes, the other ports transition to the loop disabled state. Being able to disable and enable each iVeriPHY port (Increment Ports) mode is required to test each of up to three (3) ports with only two VeriPHYs and without manually moving the port-to-port connection.
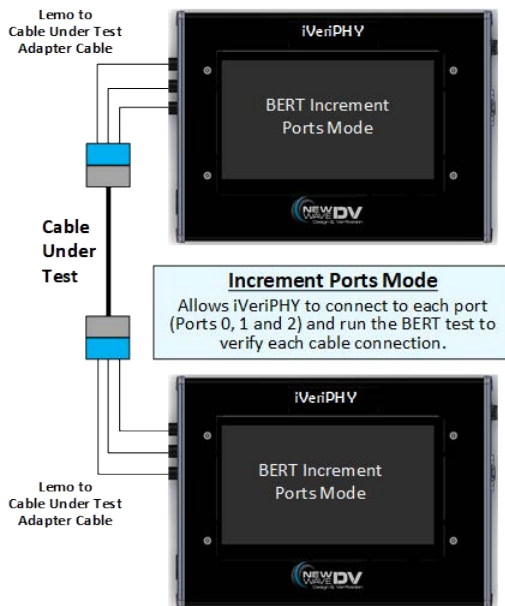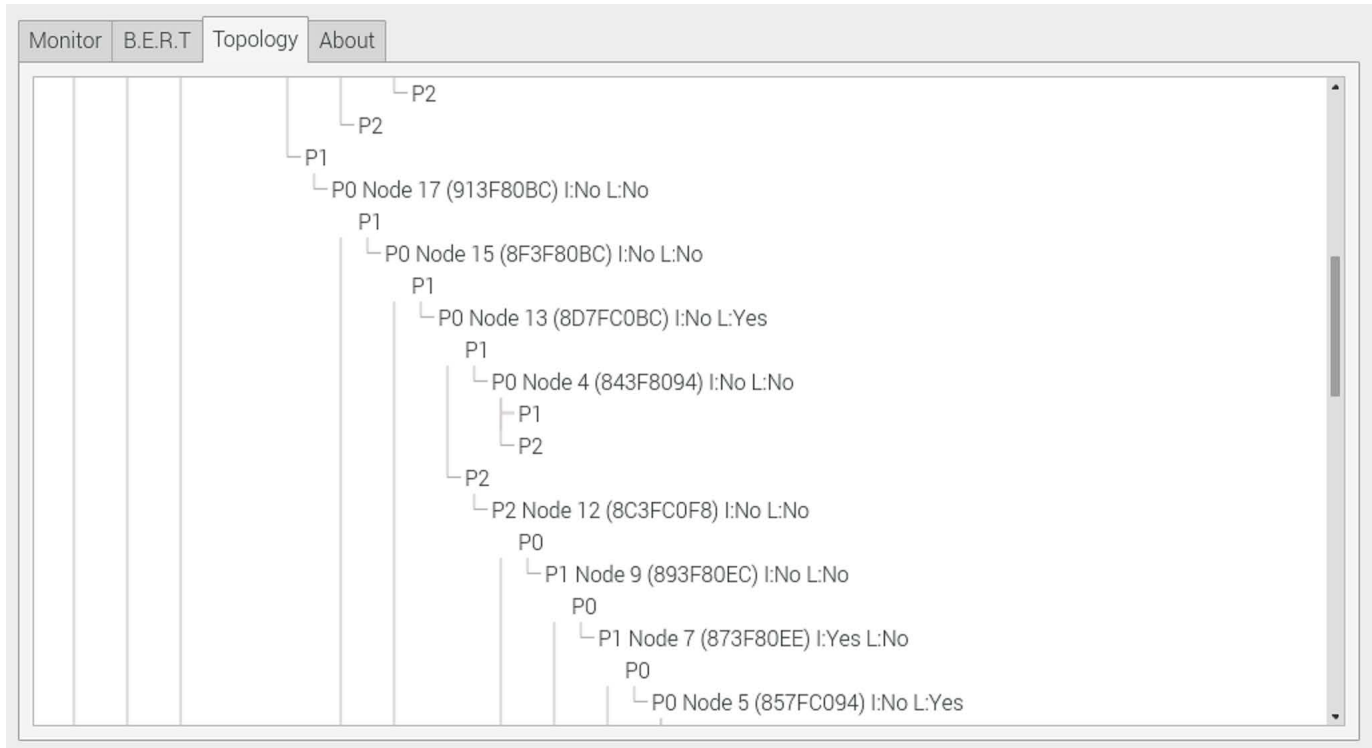
2) In the Network case often a complete 1394b bus path is being validated. In this case a iVeriPHY is placed at each end of the bus path being validated. If there are multiple bus paths additional iVeriPHYs could be used to test each path simultaneously. Additional repeating nodes (iVeriPHYs/iRepeaters or actual/simulated air vehicle modules) are used to repeat the packets throughout the topology being tested.

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| Monitor | B.E.R.T | Topology | About |

```
                          └─P2
                    └─P2
              └─P1
                └─P0 Node 17 (913F80BC) I:No L:No
          └─P1
              └─P0 Node 15 (8F3F80BC) I:No L:No
            └─P1
                └─P0 Node 13 (8D7FC0BC) I:No L:Yes
              └─P1
                  └─P0 Node 4 (843F8094) I:No L:No
                    ├─P1
                    └─P2
            └─P2
                └─P2 Node 12 (8C3FC0F8) I:No L:No
              └─P0
                  └─P1 Node 9 (893F80EC) I:No L:No
                └─P0
                    └─P1 Node 7 (873F80EE) I:Yes L:No
                  └─P0
                      └─P0 Node 5 (857FC094) I:No L:Yes
```

> **iVeriPHY Topology Viewer Application**

Topology Viewer Application (Add-on)

The Topology Viewer Application provides the user a graphical representation of the 1394 bus (network) the iVeriPHY is connected to. IEEE-1394 is a tree architecture bus with each node (device) having a parent/child relationship with the other nodes on the bus.
The Topology Viewer displays the following information for the current 1394 bus topology:

- Port Connection/Parent-Child relationship is be used to create the topology structure.
    - The largest Physical ID node (Root) is on the top of the topology structure.
    - The Parent is always indented less (more to the left) than Child (more to the right)

- Each node in the topology is separately displayed with the following information:
    - Node - Physical ID
    - First quadlet of the self-ID packet for that node
    - I: Did this node Initiate the last Bus Reset (Yes or No)
    - L: Is Link Active (Yes or No)
    - Pn: Port [0,1,2] the node is connected to

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Complete Product Support Program

New Wave DV prides itself on its excellent customer support, a fact that is echoed by our customers. New Wave DV provides industry standard warranty on its products, but it is the human factor that makes our support so valuable to our customers. Our team takes the time and effort to ensure that the customer experience with our products is a positive one.

Our Commitment

New Wave DV is committed to providing the latest innovations in technology, architectures, and techniques to keep our customers one step ahead of the rest. Our products, complete with the Development Framework, are intended to offer our customers an entirely unique out-of-the-box experience.

Optional Accessories

The iVeriPHY comes with three (3) 1 meter Lemo to 9-pin cables (490-00015).
Lemo to flying leads cables:
- Male Lemo to 4-22D pin flying lead 8ft cable (490-FW-LMFL-8-22-P)
- Male Lemo to 4-22D socket flying lead 8ft cable (490-FW-LMFL-8-22-S)

Ordering Information

iVeriPHY (FW-FC1-400T)
x2 iVeriPHY w/ Carrying Case (FW-FC1-400T-KIT)
Bus Error Rate Tester Software Application (FW-FC1-BERT)
Topology Viewer Software Application (FW-FC1-TOP)

Technical Specifications

CONNECTORS
Three (3) 4-pin Lemo connectors providing three (3) transformer-isolated IEEE-1394 Beta ports.

RJ-45 Ethernet Connector

5 VDC Power Connector

DATA RATE SUPPORT
IEEE-1394 S200β and S400β

100Mb/1Gb Ethernet

WEIGHT
2.25 lbs (1kg)

DIMENSIONS
8.66" x 6.51" x 2" (220mm x 165mm x 55mm)

TEMPERATURE
Operating: 32°F (0°C) to 104°F (40°C)

Storage: -4°F (0°C) to 158°F (70°C)

NEW WAVE DV
Design & Verification