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PGY-100BASE-T1-PA 100BASE-T1

Automotive Ethernet Protocol Analyzer

Prodigy Technovations PGY-100BASE-T1 Automotive Ethernet Protocol Analyzer provides passive tapping of 100BASE-T1 Bus. Powerful layer 2 to layer 7 protocol layer trigger capabilities with flexibility to capture protocol activity over long period of time makes it easy to debug 100BASE-T1 designs.

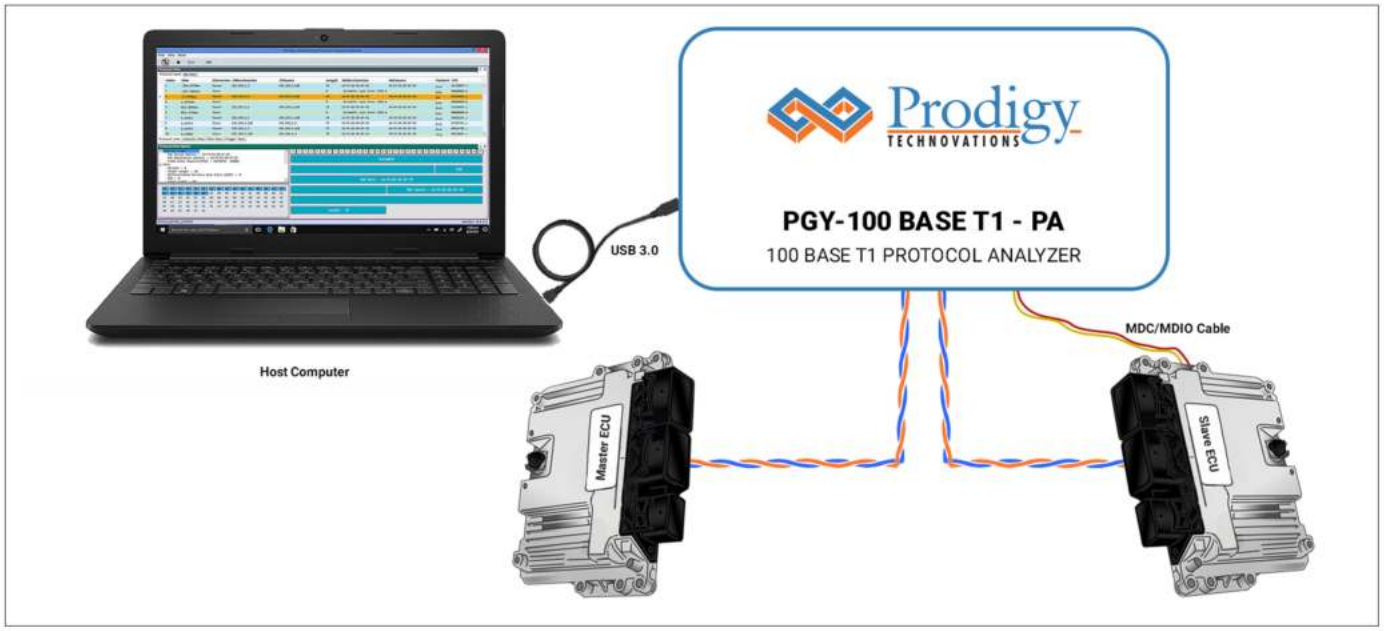
Automotive Ethernet interface scales up to address current and future needs of in-vehicle bus speed requirement. Need for higher speed in-vehicle bus is increasing to support feature-rich ADAS and connected vehicle needs. Two wire full duplex 100BASE-T1 PAM3 signaling is the choice of interface bus to address these needs. But 100BASE-T1 bus is difficult to non-intrusively access at physical layer for protocol analysis. Active tapping of 100BASE-T1 adds Latency and buffering limitation and may not provide real world timing and protocol layer information to debug the design problems. Oscilloscope based Protocol decode solutions has limitations in buffer size and makes it difficult to use in real world applications due to the low 100BASE-T1 bus utilizations.

Prodigy Technovations 100BASE-T1 Automotive Ethernet Protocol Analyzer provides industry first solution for non-intrusively passive tap the 100BASE-T1 bus at physical layer and ensure no latency and accurate capturing of protocol data. Powerful basic and multi-level layer 2 to layer 7 protocol trigger capabilities enables design engineer capture protocol activity at specific event. PGY-100BASE-T1-PA supports continuous streaming of captured protocol data to host computer SSD/HDD enabling long duration capture.

Features

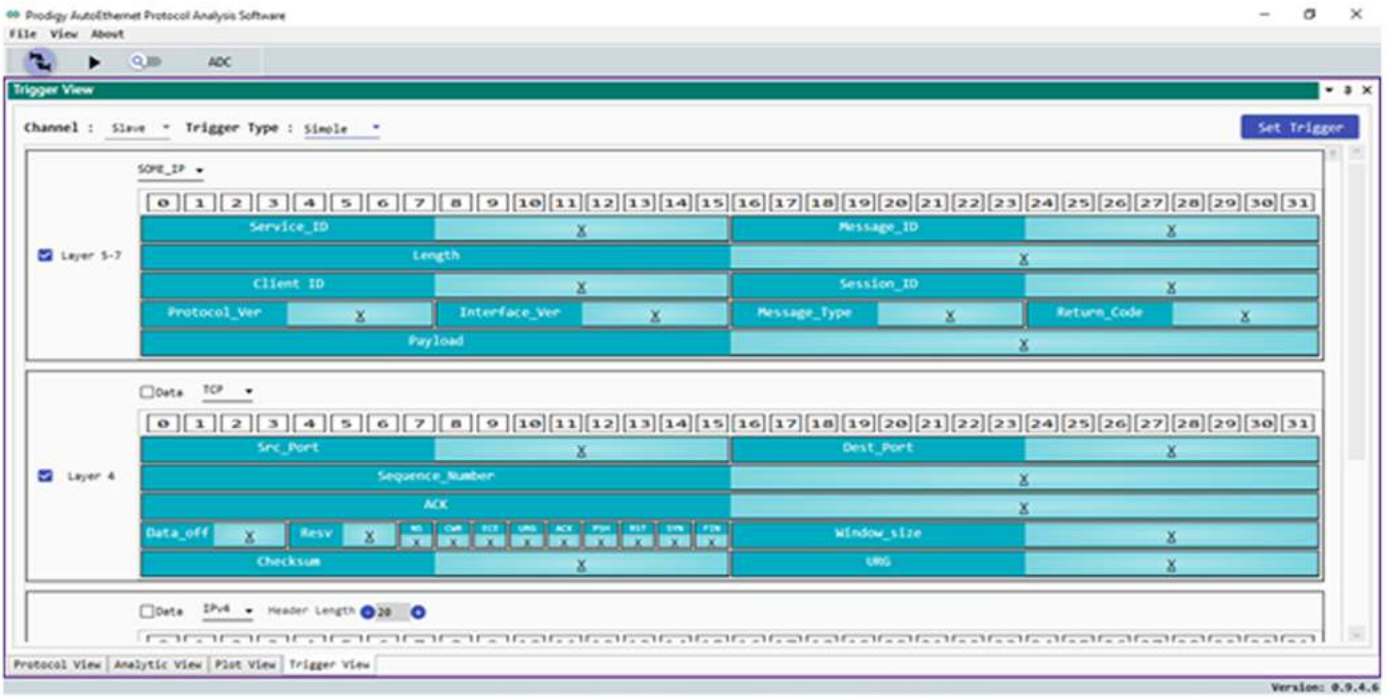
- **Protocol decode and Analysis of 100BASE-T1 Bus**
- **Passive Tapping allows non-intrusive method of monitoring 100BASE-T1 Bus**
- **Powerful multi-layer protocol layer trigger capabilities enable capturing data at specific events**
- **Decoding of TC10 Sleep and Wakeup events of master and slave**
- **Continuous streaming of protocol activity SSD/HDD enables long duration capture of protocol data**
- **Simultaneously monitoring of 100BASE-T1 and MDIO/MDC protocol Activity**
- **Live protocol decode capabilities allows you to view the protocol information while test case actively running in DUT**
- **Analytics feature provides statistical information of Protocol packets**
- **FCS error report helps in monitoring the protocol errors**
- **Simplified Protocol listing view with search and filter capabilities is easy to use**
- **Software and firmware is field upgradable**
- **Report Generation.**

Automotive Ethernet Analyzer Test Setup



PGY-100BASE-T1-PA sniffs the automotive Ethernet bus and monitors the protocol activity between the Master and Slave ECU. Simultaneously monitoring of MDIO and MDC lines and correlating with 100BASE-T1 protocol activity helps easy debugging the design problems. Automotive Ethernet Analyzer unit will extract bit values from full duplex PAM3 signal using Prodigy's patent pending solution. Host computer manages the operation of analyzer unit, stores and analyzes the acquired data. Passive tapping of 100BASE-T1 bus ensures least latency in acquiring the data making this solution is an industry first Passive TAP patent pending solution.

Powerful Trigger capabilities

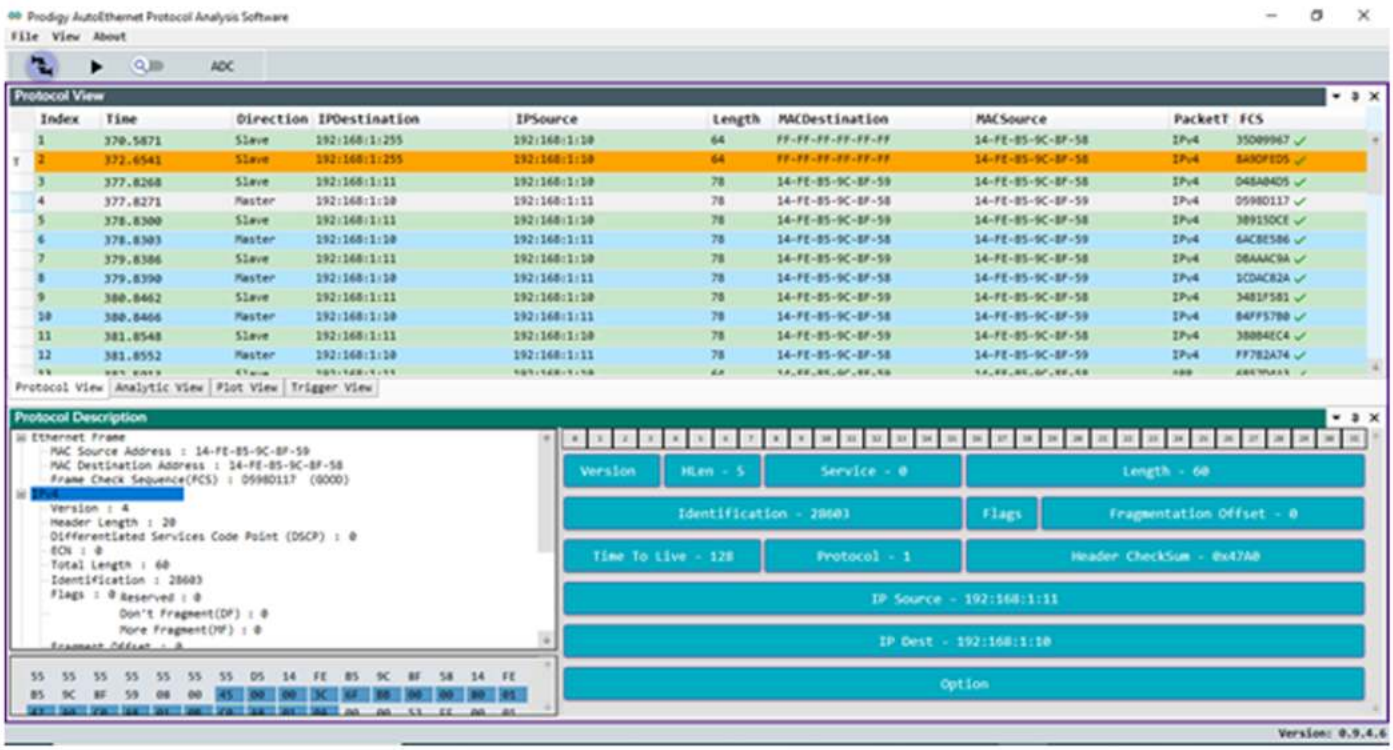


PGY-100BASE-T1-PA supports industry best protocol layer trigger capabilities. User can define trigger condition at Layer 2 to layer 7. Advanced multilayer trigger featured with If-then-else if allows design engineer to monitor more than one trigger condition at same time.

Trigger Conditions

Protocol Layer	Packet Type	Description
Layer 2	Ethernet Type	MAC Destination Address
		MAC Source Address
Layer 3	IPv4	Source IP Address
		Destination IP Address
		TTL
		Checksum
		Fragment offset
		DF
		MF
		Total Length
		Identification
		TOS
	IPv6	Destination IP Address
		Source IP Address
		Payload length
		HOP Limit
		Traffic Class
		Flow label
	ARP	Target Protocol Address
		Source Protocol Address
		Target Hardware Address
		Source Hardware Address
		Operation
Layer 4	TCP	Source Port
		Destination Port
		Sequence Number
		ACK
		Data off
		Window Size
		Check Sum
		URG
	UDP	Source Port
		Destination Port
		Length
		Checksum
	ICMP	Rest of header
		Type
		Code
		Checksum
Layer 5-7	SOME IP	Service ID
		Length
		Client ID
		Session ID
		Message ID
		Protocol Version
		Interface
		Version
		Message Type
		Return Code
		Payload

Protocol Analysis



Ethernet is one of the oldest protocol widely used protocol for many applications. Design engineers are used to view and analyze the protocol data in specific format. PGY-100BASE-T1-PA Protocol Analyzer software maintains the traditional views and provides advanced analysis capabilities. Live decoding capability provides decoding with any FCS error packets.

Analytics of Protocol data

Analyzing Protocol data to identifying the design issues is a challenging task in millions of protocol packets. PGY-100BASE-T1-PA provides statistical information about each layer packet count and error packets.
This simplifies process of isolating the errors to specific protocol packets or protocol layer. Powerful expression based search capabilities quickly helps in locating packet of interest in the acquired entire protocol data for further analysis.

Hardware Features

Product Specifications	
Ports (Input)	Four 100BASE-T1 Ports Upgrade Two additional 100BASE-T1 Port MDIO/MDC Port Two CAN Ports
Protocol Analysis	Layer 2 to Layer 7 Automotive Ethernet Protocol Analysis MDIO/MDC Protocol Decode Upgradable to CAN Protocol Analysis
Protocol Views	Protocol Listing of Layer 2 Decoding of Protocol layer packet view Tree View Line Training View Analytics
Event Monitoring	FCS Errors
Search and Filter	Boolean Expression based search and Filter Capabilities
Capabilities Export of Results	CSV or TXT Report Generation
Host Computer System requirements	Windows 7/8.0/8.1/10 64bit operating System. It requires RAM of 16GB but the product would give a faster response for a 32GB.The minimum storage capacity of 1GB should be available in the hard disk drive. User can use more storage based on trace storage requirement. Display resolution of the monitor is 1024X768. Host computer should support USB3.0 interface.

Ordering Information

- **PGY-100BASE-T1-PA 100BASE-T1 Automotive Ethernet Protocol Analyzer**
- **Monitors One link**
- **MDIO/MDC links**
- **Option Port1: Additional one Master/Slave Monitor**
- **Option Port 2: Additional Two master/ Slave Monitor**
- **Option AdvTrg: Advanced trigger Capabilities**
- **Option Layer3-7 Protocol Decoding of layer 3 to 7**

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- REDEFINING PROTOCOL ANALYSIS -

About Prodigy Technovations Pvt Ltd

Prodigy Technovations Pvt Ltd (www.prodigytechno.com) is a leading global technology provider of Protocol Decode, and Physical layer testing solutions on test and measurement equipment. The company's ongoing efforts include successful implementation of innovative and comprehensive protocol decode and physical Layer testing solutions