PGY-I3C Electrical Validation Software

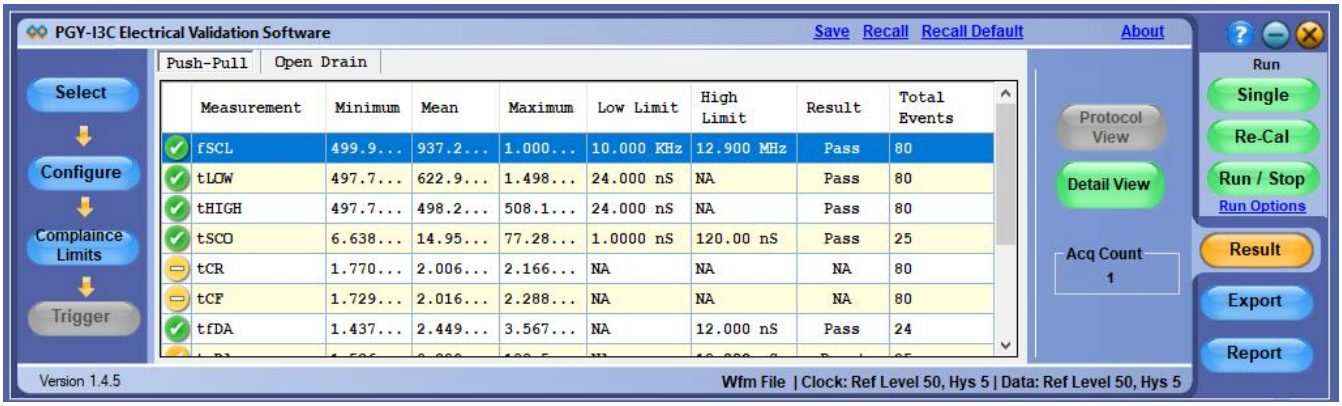
I3C Electrical Validation Software

I3C Electrical Validation Software offers electrical measurements compliance testing as specified in I3C specification. PGY-I3C Electrical validation software runs in Tektronix Oscilloscope provides electrical measurements at click of button. This software provides the flexibility to set reference levels for electrical measurement and customized limits makes it most versatile solution to meet different needs of characterizing I3C Signals. Now design and test engineers can automatically make accurate and reliable electrical measurements and decode protocols in PGY-I3C software using data acquired by Tektronix DPO5000, TDS7000, DPO/DSA/MSO7000, MSO5/6 series oscilloscope to reduce the development and test cycle.

Key Features

- Supports electrical measurement for Fast, Fast plus, Push-Pull and Open Drain with limit comparison.
- Links the content to the electrical signal in the oscilloscope for easy understanding of the electrical characteristics of the protocol.
- Zooms the selected I3C packet content in the decode table in the waveform plot waveform window for easy analysis of electrical characteristics of the I3C frame.
- Detail view correlates physical layer waveform with I3C packet data.
- Utility features like zoom, undo, and fit screen for easy debugging while correlating the electrical data to the waveform.
- Ability to store the I3C electrical data in CSV and txt format.
- Report Generation
- Supports WFM file format for offline analysis

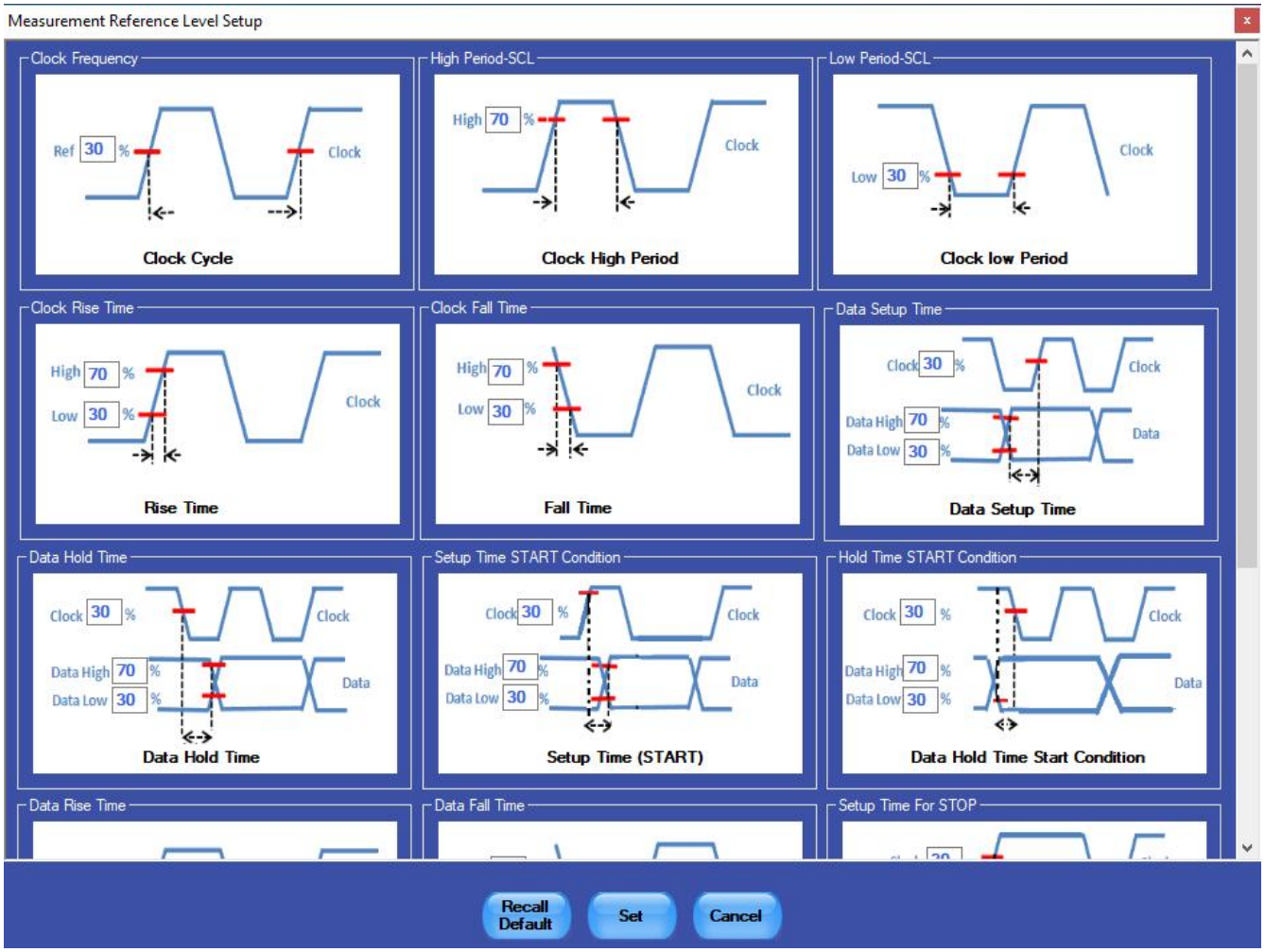
Seamless Integration with Oscilloscope



PGY-I3C runs inside the Tektronix oscilloscopes and makes the electrical measurements, and displays the decoded data in a bus diagram, a table, and links the decoded data to electrical signal in the bus diagram.

Reference Level Setup

PGY-I3C-EV is not just for standard electrical compliance testing, you can also vary the limits and test your device with custom limits. The intuitive limits and reference level setup allow you to configure the limits and reference levels for your custom testing needs. This enables you to test your device beyond the specification and characterize it.



Characteristics

I3C Timing Requirements When Communicating With I2C Legacy Device

S.No	Electrical parameter	Symbol
1	SCL(High-speed serial clock) Clock Frequency	f_{SCL}
2	SCL Clock Low Period	t_{LOW}
3	SCL Clock High Period	t_{HIGH}
4	SCL Signal Rise Time	t_{rCL}
5	SCL Signal Fall Time	t_{FCL}
6	Pulse Width of Spikes that the Spike Filter Must Suppress	t_{SPIKE}
7	Bus Free Time Between a STOP Condition and a START Condition	t_{BUF}
8	SDA Signal Rise Time	t_{rDA}
9	SDA Signal Fall Time	t_{FDA}
10	Data Setup Time	t_{SU_DAT}
11	Data Hold Time	t_{HD_DAT}
12	Setup Time for a Repeated START	t_{SU_STA}
13	Hold Time for a Repeated START	t_{HD_STA}
14	Setup Time for STOP	t_{SU_STO}

Table 1.I2C Legacy Compliance Timing Requirements

I3C Open Drain Timing Parameters

S.No	Electrical parameter	Symbol
1	Fall time of SDA Signal	t_{FDA_OD}
2	Low Period of SCL Clock	t_{LOW_OD}
3	SDA Signal Rise Time	t_{RDA_OD}
4	High Period of SCL Clock	t_{HIGH}
5	Data Hold on SDA Signal in Open Drain Mode	t_{HD_OD}
6	Data Setup on SDA Signal in Open Drain Mode	t_{SU_OD}
7	SCL Signal Rise Time	tcr
8	SCL Signal Fall time	tcf
9	Bus Available Condition	t_{AVAL}
10	Bus Idle Condition	t_{idle}
11	Clock After Start Condition	t_{CAS}

12	Clock Before Start Condition	t_{CBP}
13	Current Master to Secondary Master Overlap time during handoff	$t_{MMOverlap}$
14	Time Interval where new Master Not Driving SDA Low	t_{MMLock}

Table 2.I3C Open-Drain Timing Parameters

I3C Push-Pull Timing Parameters for SDR and HDR-DDR Modes

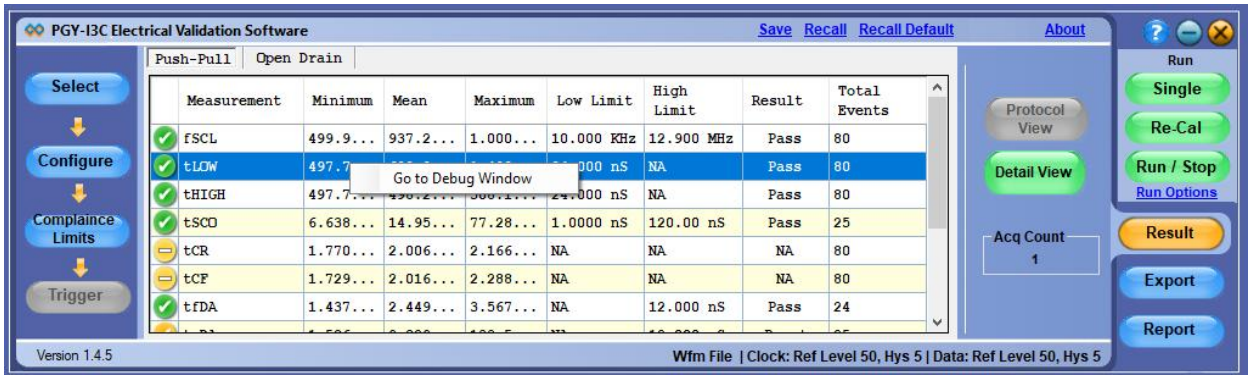
S.No	Electrical parameter	Symbol
1	SCL Clock Frequency	t_{FDA_OD}
2	SCL Clock Low Period	t_{LOW_OD}
3	SCL Clock High Period	t_{RDA_OD}
4	SCL Clock Rise Time	t_{HIGH}
5	SCL Clock Fall Time	t_{HD_OD}
6	SDA Signal Data Hold in Push-Pull Mode	t_{SU_OD}
7	SDA Signal Data Setup in Push-Pull Mode	tcr
8	Clock After Repeated START (Sr) Condition	tcf
9	Clock Before Repeated START (Sr) Condition	t_{AVAL}
10	Clock in to Data Out for Slave	t_{idle}
11	SDA Signal Fall Time	t_{CAS}
12	SDA Signal Rise Time	t_{CBP}

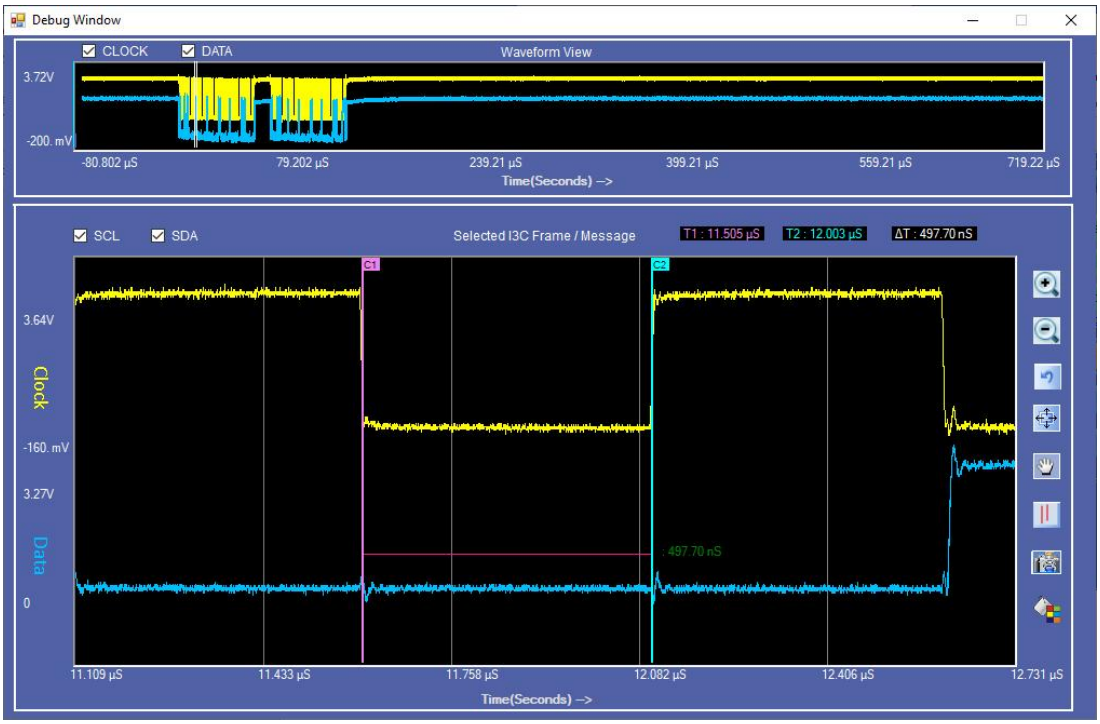
Table 3.I3C Push-Pull Timing Parameters for SDR and HDR-DDR Modes

Powerful Debug Environment:

Debug Window

PGY-I3C Software provides two types of debugging capabilities. In one of them, the worst-case result can be selected and linked directly to the waveform as shown here. Software provides the flexibility to define the number of acquisitions and the results will include worst case results for all these acquisitions. Software can link the worst-case results to corresponding waveform acquisition using simple right click of mouse.





Detail view

In Detail View, engineers can view the analog waveform, details of electrical measurements in single view. If there is any failure in electrical measurement, designers can quickly correlate with the analog waveforms. User can select any row in the detail view; corresponding analog waveform will be zoomed and displayed. In the same row, engineers can view all the electrical measurements corresponding to the selected row. Utility features such as zoom, cursors, and markers make custom measurement while debugging.

Oscilloscopes Supported

DPO/MSO5000 series
DPO7000 series
DPO/MSO/DSA 70000 series
MSO 5 series MSO MSO54, MSO56, MSO58, MSO58LP
MSO 6 series MSO64, MSO64B, MSO66B, MSO68B series.

Ordering Information

PGY-I3C-EV (shipment includes CD with PGY-I3C Electrical Validation Software) License is locked to oscilloscope.

Contact Information

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 that span the serial data, telecommunications, automotive, and defense electronics sectors worldwide.