



USB2.0 busXplorer™-USB

USB2.0 Compliance Test Solution

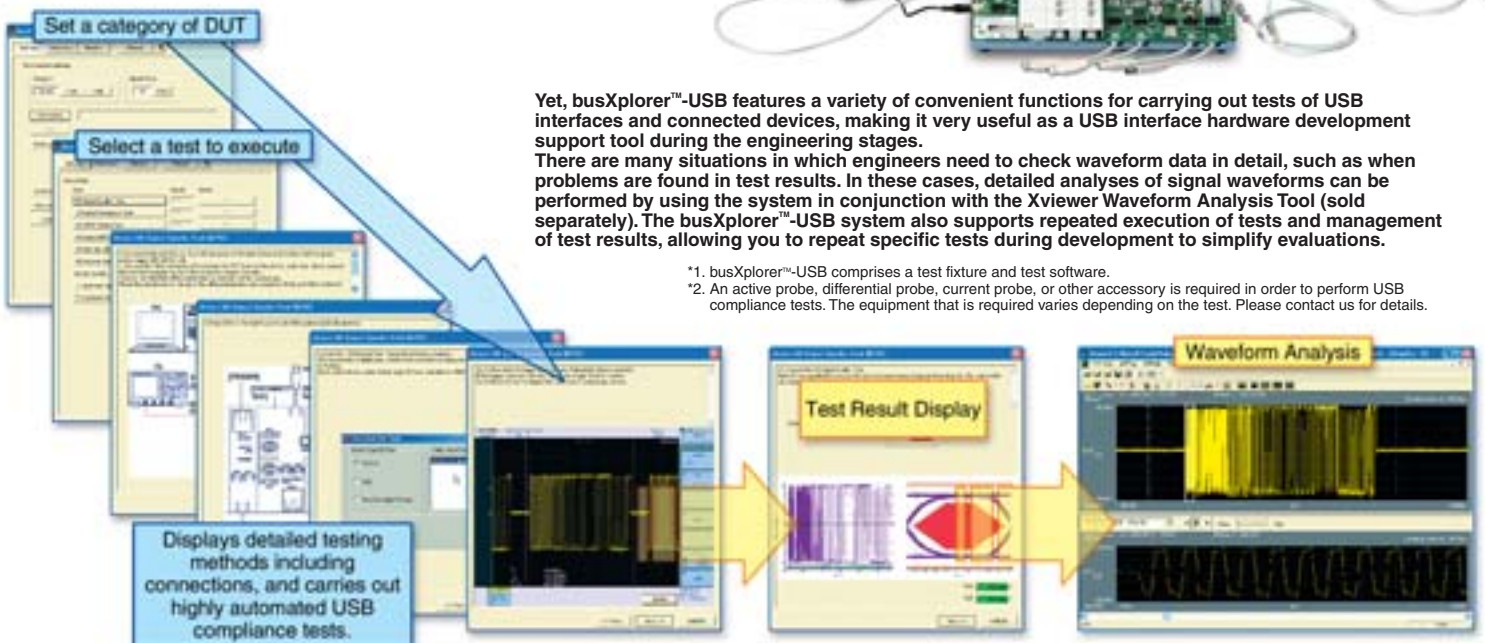
The USB compliance test solution*1*2 busXplorer™-USB takes advantage of the wide variety of DL9000 trigger and analysis functions to offer a system for carrying out highly automated USB compliance tests. In addition to facilitating execution of the various tests from a PC via Ethernet, the newly developed test software displays detailed test procedures including the wiring method. This allows even inexperienced operators to easily perform the tests.



Yet, busXplorer™-USB features a variety of convenient functions for carrying out tests of USB interfaces and connected devices, making it very useful as a USB interface hardware development support tool during the engineering stages. There are many situations in which engineers need to check waveform data in detail, such as when problems are found in test results. In these cases, detailed analyses of signal waveforms can be performed by using the system in conjunction with the Xviewer Waveform Analysis Tool (sold separately). The busXplorer™-USB system also supports repeated execution of tests and management of test results, allowing you to repeat specific tests during development to simplify evaluations.

*1. busXplorer™-USB comprises a test fixture and test software.

*2. An active probe, differential probe, current probe, or other accessory is required in order to perform USB compliance tests. The equipment that is required varies depending on the test. Please contact us for details.



USB2.0 busXplorer™-USB USB2.0 Compliance Test Solution

Test Equipments (for Hi-Speed Device Test)

- Digital Oscilloscope DL9240 or DL9240L (with Ethernet interface) 1 unit
- Differential Probe PBD2000 1 unit
- Active Probe PBA2500 2 units
- Current Probe Type 701933 1 unit
(Requires the DL9240 current probe power supply option or an external power supply.)
- 3.5 digits Digital Multi Meter 1 unit
- Test Fixture 1 unit
- Test Bed Computer
- Pulse Pattern Generator 1 unit



USB Test Fixture Specifications

Standard operating conditions	
Ambient temperature	23±5°C
Ambient humidity	55±10%RH
Error in supply voltage and frequency	Within 1% of rating
Operating temperature/humidity range	5°C-40°C, 20%-80%RH (no condensation)
Rated supply voltage	100-240 VAC
Allowed supply voltage fluctuation range	90-264 VAC
Rated supply frequency	50/60 Hz
Allowable power supply frequency variation	45 Hz-66 Hz
Test Fixture DC power input	5 V±5%
Test Fixture DC power fuse	1.1 A time-lag, UL/CSA certified
Maximum power consumption	7 VA
External dimensions	317(W)×31(H)×75(D)mm (excluding protrusions)
Weight	430g (excluding AC adapter)
Standard Accessories	AC adapter 1unit Power Code 1unit Test Fixture User's manual (IM701985-01) 1copy Accessories Test Fixture socket: 6 units Pin attachment Pin attachment for PBD: 3 pairs (6 units) Pin attachment for PBA: 4 pairs (8 units) Carrying Case 1unit (If /F30 is specified) Software (CD-ROM) 1 unit Software User's manual (IM701985-61) 1 copy

Please note that if /MN1 is specified, the connectors for the fixture's DEVICE SQ TEST Block and RECEIVER SENSITIVITY TEST Block will be changed to mini B type connectors, and the standard B connectors will not be available.

USB Test Software Specifications

System Requirements	
PC Hardware:	Personal Computer (PC) with Pentium 4, 2 GHz or faster processor, and at least 512 MB of RAM or more.
Operating System	300 MB or more space available on HDD. Windows 2000(SP4 or later) or XP(SP1 or later)
Display	XGA monitor with at least 65536 colors
Drive	CD-ROM Drive
Communication Interface	Ethernet

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Supported Tests

- Hi-Speed Device Electrical Test**
 - Device Hi-Speed Signal Quality (EL_2, EL_4, EL_5, EL_6, EL_7)
 - Device Packet Parameters (EL_21, EL_22, EL_25)
 - Device CHIRP Timing (EL_28, EL_29, EL_31)
 - Device Suspend/Resume/Reset Timing (EL_27, EL_28, EL_38, EL_39, EL_40)
 - Device Test J/K, SE0_NAK (EL_8, EL_9)
 - Device Receiver Sensitivity (EL_16, EL_17, EL_19)
- Hi-Speed Host Electrical Test**
 - Host Hi-Speed Signal Quality (EL_2, EL_3, EL_6, EL_7)
 - Host Controller Packet Parameters (EL_21, EL_22, EL_23, EL_25, EL_55)
 - Host CHIRP Timing (EL_33, EL_34, EL_35)
 - Host Suspend/Resume Timing (EL_39, EL_41)
 - Host Test J/K, SE0_NAK (EL_8, EL_9)
- Hi-Speed Hub Electrical Test**
 - Hub High-Speed Signal Quality - Upstream Facing Port (EL_2, EL_46, EL_6, EL_7)
 - Hub High-Speed Signal Quality - Downstream Facing Ports (EL_2, EL_3, EL_6, EL_7)
 - Hub Jitter - Downstream Facing Ports (EL_47)
 - Hub Packet Parameters - Upstream Facing Port (EL_21, EL_22, EL_25)
 - Hub Receiver Sensitivity - Upstream Facing Port (EL_16, EL_17, EL_18)
 - Hub Repeater Test - Downstream Facing Ports (EL_42, EL_43, EL_44, EL_45, EL_48)
 - Hub Repeater Test - Upstream Facing Port (EL_42, EL_43, EL_44, EL_45)
 - Hub CHIRP Timing - Upstream Facing Port (EL_28, EL_29, EL_31)
 - Hub Suspend/Resume/Reset Timing - Upstream Facing Port (EL_27, EL_28, EL_38, EL_39, EL_40)
 - Hub Test J/K, SE0_NAK - Upstream Facing Port (EL_8, EL_9)
 - Hub Test J/K, SE0_NAK - Downstream Facing Ports (EL_8, EL_9)
- Legacy Tests**
 - Upstream Inrush Current Test
 - LS Downstream Signal Quality Test
 - FS Downstream Signal Quality Test
 - FS Upstream Signal Quality Test
 - Drop/Droop Test
 - Backdrive voltage Test

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USB2.0 Compliance Test Fixture and Software

busXplorer™-USB Model and Suffix Codes

Model	Suffix Codes	Description
701985		STD B type USB Test Fixture
Power	-D	UL/CSA standard
	-F	VDE standard
Cable	-Q	BS standard
	-R	AS standard
	-H	GB standard
Option	/F30	Add USB Compliance Test Software
	/MN1*	Change connector to mini B type (available in the near future)

* Please note that if /MN1 is specified, the connectors for the fixture's DEVICE SQ TEST Block and RECEIVER SENSITIVITY TEST Block will be changed to mini B type connectors, and the standard B connectors will not be available.

Related Products

DL9240/DL9240L Model and Suffix Codes

Model	Suffix Codes	Description
701312		DL9240: 4 ch 1.5 GHz, max. 10 GS/s(5GS/s/ch), 2.5 Mword/ch
701313		DL9240L: 4 ch 1.5 GHz, max. 10 GS/s(5GS/s/ch), 6.25 Mword/ch
Power	-D	UL/CSA
	-F	VDE standard
	-Q	BS standard
	-R	AS standard
Cable	-H	GB standard
Help Menu	-HE	English Help
Language		
	/B5	Built-in printer
	/P2*1	Probe power connections on rear panel (2 outputs for current probes, differential probes)
	/C8*2	Built-in HDD + Ethernet interface
	/C10*2	Ethernet interface
	/F5*3	FC + SPI bus analyzer
	/F7*3	CAN+SPI bus analyzer
/F8*3	FC+CAN+SPI bus analyzer	

*1: Please order /P2 option if you use either current probes or 701920/701922 differential probes from Yokogawa.

*2: Choose either one. Either one is required to connect with busXplorer-USB.

*3: Choose either one. FC, SPI and CAN bus triggers are standard.

Active Probe, Differential Probe, Current Probe Model and Suffix Codes

Model	Suffix Codes	Description
701913		PBA2500: 2.5 GHz Active Probe
701923		PBD2000: 2 GHz Differential Probe
701932		DC-100 MHz BW Current Probe
701933		DC-50 MHz BW Current Probe

Xviewer Accessory Software for DL series Model and Suffix Codes

Model	Suffix Codes	Description
701992	-SP01	Xviewer Standard Edition (1 license)
	-GP01	Xviewer Math Edition (1 license)

YOKOGAWA

YOKOGAWA ELECTRIC CORPORATION
Communication & Measurement Business Headquarters /Phone: (81)-422-52-6768, Fax: (81)-422-52-6624
E-mail: tm@cs.jp.yokogawa.com

YOKOGAWA CORPORATION OF AMERICA Phone: (1)-770-253-7000, Fax: (1)-770-251-6427
YOKOGAWA EUROPE B.V. Phone: (31)-33-4641858, Fax: (31)-33-4641859
YOKOGAWA ENGINEERING ASIA PTE. LTD. Phone: (65)-62419933, Fax: (65)-62412606

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