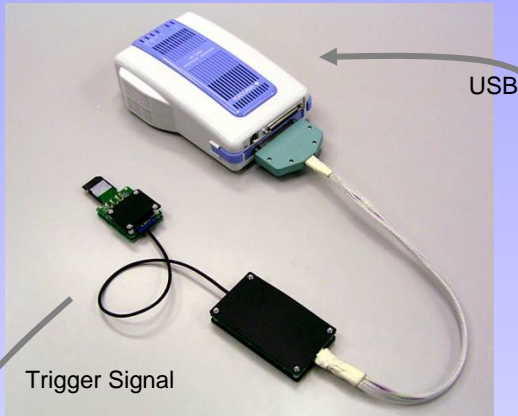


SD Card Protocol Analyzer AX220-S1

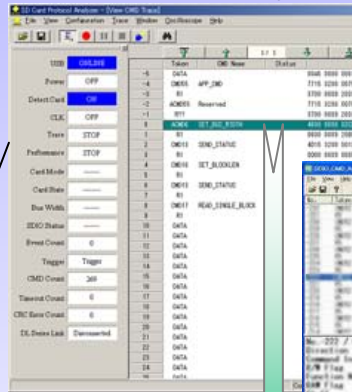
SD Card Protocol Analyzer supporting SD Card Ver.2.0 and SDIO Ver.2.0
The Best Protocol and Physical Layer Analyzing Tool
for the Development and Service of SD cards/SDIO devices/Host devices

SD Card Protocol Analyzer AX220-S1

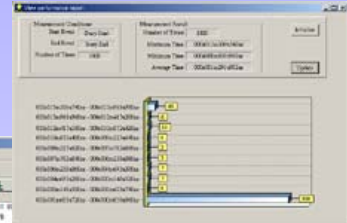


Supports SD Card Ver.2.0 and SDIO Ver.2.0
 Allows detailed analysis of SDIO Commands
 Measures performance by displaying time distribution between events
 Synchronizes with a Digital Oscilloscope for detailed signal analysis

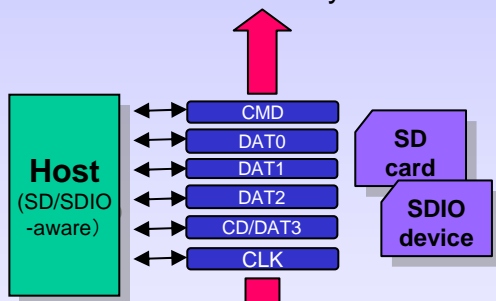
Screen of SD Card Protocol Analyzer



Performance measurement



Protocol Analysis



Waveform Monitoring



Digital Oscilloscope (Yokogawa Electric Corp.)

- DL9700/DL9500 series
- (DL9710L, DL9705L, DL9510L, DL9505L)
- DL9000 series
- (DL9040/DL9040L, DL9140/DL9140L, DL9240/DL9240L)
- DL7440/DL7480
- DL1700E series
- (DL1740E/DL1740EL)

Displays waveforms in just one click

SDIO command analysis



Screen of Digital Oscilloscope

The AX220-S1 SD Card Protocol Analyzer supports SD card ver.2.0 and SDIO ver.2.0. An efficient analyzing environment is provided to you by excellent trigger functions with selectable sequence conditions, up to 1M of sample trace buffer size, and effective data capturing using various trace conditions.

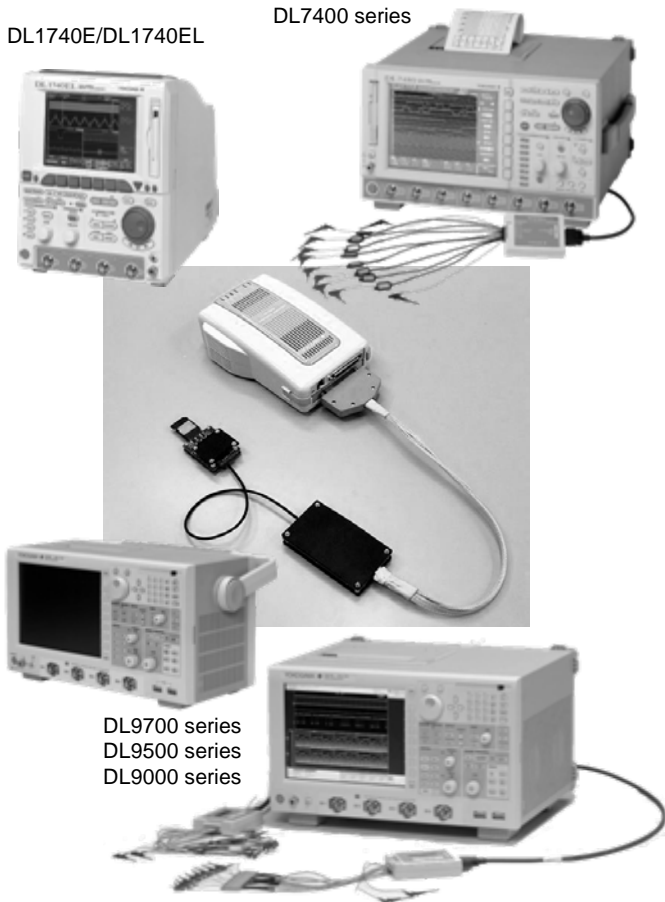
By synchronizing with a Digital Oscilloscope (DL series by Yokogawa Electric Corp.), the SD Card Protocol Analyzer also allows you to monitor waveforms of a SD card bus signal and correlate it to data on the analyzer, so that you can get superior analysis results.

You can also speed up development time and improve product quality by not only cutting down initial debugging time, but also quickly analyzing a problem which would arise when evaluating compatibility and performance between a SD card/SDIO device and a host device, and then finding its' cause.

SD CARD PROTOCOL ANALYZER AX220-S1

DL7400 series

DL1740E/DL1740EL



DL9700 series
DL9500 series
DL9000 series

Specification and Major Features

| | |
|--------------------------|--|
| Supporting version: | SD Memory Card(Ver1.10), SDIO Card(Ver1.00), MMC(Ver3.3), SD Memory Card(Ver2.0), SDIO(Ver2.0) *excl. Multiple Function SDIO Card |
| Sampling clock: | CLK: max. 50MHz |
| Signal sampled: | CMD, DAT0, DAT1, DAT2, CD/DAT3 |
| Trace function: | Trace buffer size: 1M sample (1 sample = CMD 8bit + DAT 8bit) Time stamp: 20nsec. Resolution Trace mode: Normal/Free run Store condition: All CMD/Specified CMD/Number of data block/ Top of data (16 bytes/32 bytes) |
| Performance measurement: | Sequential time measurement between 2 event points specified Event specified: 4 events (E0 to E3), Busy start/end, Data transfer start/end Result displayed: Number of times measured, Max/Min/Average value, Time histogram |
| Trigger function: | Trigger point: 4 events (E0 to E3) *A number of counts from 1 to 65535 can be specified for E0. Trigger condition: OR condition of CMD/ACMD/CMD and RESP, CRC error, External trigger, Read/Busy Timeout error Sequence: Max. 3 levels (with specifying a reset sequence event) Trigger I/O: Trigger input/output to an external measurement instrument |
| Register displayed: | OCR, CID, CSD, RCA, DSR, SCR, Card Status |
| Status monitoring: | Signal: Power supply (Vcc), SD card insertion (CD), Clock frequency (CLK) Mode: SPI/SD, 1BIT/4BIT Communication status: Number of times of CMD/CRC error/Time out |
| SDIO CMD Analyzer: | Analyzing and viewing tool for a trace data file of SD Card Protocol Analyzer - Load and save a trace data file (CSV format) - Show CMD52 packet in details - Show a response (R5) packet of CMD52 in details - Show CMD53 packet in details - Show a response (R5) packet of CMD53 in details |
| Interface for PC: | USB2.0 (Full-Speed) |
| Dimension: | 125(W) x 205(D) x 66(H) *unit: mm |
| OS supported: | Windows 2000, XP |
| Configuration: | AX220-S1 Analyzer main unit AC adapter and power cable AX220-S1 Probe module USB cable (for communication between AX220-S1 and PC) AX220-S1 Install Kit CD (AX220-S1 Software, USB Driver, Instruction manuals) |

Compatible Digital Oscilloscopes

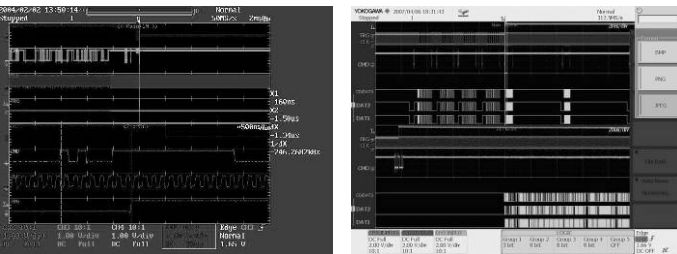
DL9700 series, DL9500 series, DL9000 series, DL7400 series, DL1740E, DL1740EL
(Yokogawa Electric Corporation)

| | |
|------------------------------------|---|
| Input channel: | Analog 4ch + Logic 32bit (DL9700 series) Analog 4ch + Logic 16bit (DL9500 series) Analog 8ch + Logic 16bit (DL7480) Analog 4ch + Logic 16bit (DL7440) Analog 4ch (DL1740L/DL1740EL/DL9000 series) |
| Sampling rate: | Max. 10GS/s (DL9240L) Max. 5GS/s (DL9700 series/DL9500 series/DL9240L/DL9140L/DL9040L) Max. 2GS/s (DL7480/DL7440) Max. 1GS/s (DL1740E/DL1740EL) |
| Record length: | Max. 16MW (DL7480/DL7440) Max. 2MW (DL1740E) Max. 8MW (DL1740EL) Max. 2.5MW (DL9240L/DL9140L/DL9040L) Max. 6.25MW (DL9700 series/DL9500 series/DL9240L/DL9140L/DL9040L) |
| Frequency band: | 1.5GHz (DL9240L) 1GHz (DL9710L/DL9510L/DL9140L) 500MHz (DL9705L/DL9505L/DL9040L/DL7480/DL7440/DL1740E/DL1740EL) |
| SPI bus signal analysis (optional) | I ² C, SPI, CAN, LIN (DL9700 series/DL9500 series/DL9000 series) I ² C, SPI, CAN (DL7480/DL7440) I ² C, SPI (DL1740E/DL1740EL) |

Product Model Code

| Order Code | Product Name |
|------------|---------------------------|
| AX220-S1 | SD Card Protocol Analyzer |

By synchronizing with a Yokogawa Electric DL Series Digital Oscilloscope, you can easily monitor and analyze SD card bus signals. Object data waveforms are automatically displayed on the screen of the Digital Oscilloscope, which is remotely controlled by the SD Card Protocol Analyzer software.



SD Association Members Only

The use of the AX220-S1 hardware and application software and their relevant user's manuals are limited to:

- The member companies of the SD Card Association ("SDA")
- The company that obtained the specifications of SD Card under the nondisclosure agreement

You must handle the AX220-S1 hardware and application software and the data including the screen shots and trace data, which are obtained through the use of the user's manuals and documentations of AX220-S1, as the confidential information of the same level as the SD Card specifications.

When you dispose AX220-S1 as you complete its use or withdraw from membership in the SDA, you must dispose it as the confidential information of the same level as the SD Card specifications. Also, in case you need to keep the data that are obtained through the use of AX220-S1, you must keep and maintain them as the confidential information.

It is strictly prohibited to resell AX220-S1 to general run of buyers, particularly to the used products market.

Yokogawa Digital Computer Corporation
info-mvi@yokogawa-digital.com
http://www.yokogawa-digital.com/en/