



**SYCARD**  
TECHNOLOGY

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# ***SD Extend 300 Secure Digital Extender User's Manual***

*Preliminary*

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## 1.0 Introduction

Sycard Technology's SD extend 300 Secure Digital (SD) Extender card is a debug tool for Secure Digital development and test. SD extend offers the following features:

- All signal and power pins brought out to test points
- Any signal can be isolated with jumper block
- Power and ground can be isolated for power measurements
- LED indicates power status
- Multiple layer board design
- VDD bypassed for clean power
- Supports both normal and thin SD Memory cards
- High quality connectors for long service life

## 2.0 Using the SD Extend 300

The SD Extend 300 is a passive extender card designed to allow access to the signals for debug and test use. The SD Extend is inserted between the host SD slot and the SD memory card. Signals may be examined with an oscilloscope or analyzer via a test header. Signals may also be isolated by removing jumper blocks. Current measurements may also be made via the same jumper blocks.

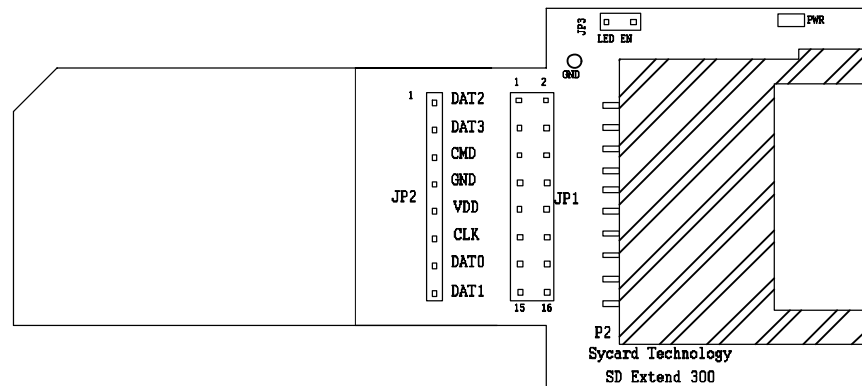


Figure 2.0-1 The SD Extend 300

## 2.1 Using the SD Extend

Use of the SD Extend 300 is fairly straightforward. The SD Extend is inserted into the host socket with the connector pattern in the correct orientation. In most cases, the gold connector fingers are inserted face down. The SD card is then inserted, with the connector pattern facing down, into SD Extend's socket.

***Caution:** Insertion and removal of the extender and SD card should be done with care. The SD connector's fragile pins may be broken or bent if improper force is used. Both card and extender should be inserted straight without any lateral movement or force. Proper care and use of the extender card will insure years of trouble free operation.*

## 2.2 Test points

All 9 pins of the interface are available to probe through clearly marked headers at JP2. The header is a standard 0.1" single row type with 0.025" posts designed to accept a wide variety of test probes and cable assemblies.

***Note:** The pin numbering on header JP2 is not the same as the SD connector. See the table in Appendix A for pin mapping*

An additional ground test point at TP1 can be used to ground test equipment.

## 2.3 Power Indicator

The LED power indicator display the status of the host socket's VDD. The PWR LED indicates that power is applied to the socket and the SD card.

***Note:** The power LED is designed to indicate the presence of power on the VDD supply pin. The LED does not provide an accurate measurement of VDD. Use a voltmeter to determine the actual operating voltage.*

In some low power applications, the current drawn by the power LEDs (10-20mA) may cause problems. The SD Extend is capable of disabling the LED voltage indication by removing the jumper labeled LED EN at JP3.

## 2.4 Current Measurements

The VDD power bus may be isolated from the SD Card socket through the VDD jumper block at JP1. A current meter can be inserted to measure card current consumption.

***Caution:** Care must be taken to insure that the current measuring device is inserted before turning on power to the host socket. Improper power sequencing may cause a damaging latchup condition.*

For accurate current measurements the current drawn by the PWR LED can be eliminated by removing the jumper on JP3.

## 2.5 Jumper Block at JP1

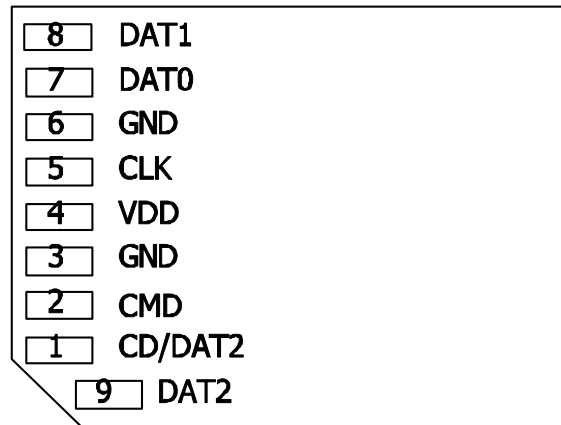
When shipped from the factory, all signals at JP1 are shorted with jumper blocks. In order to isolate a signal, remove the appropriate jumper block(s). Silkscreen designations to the left of jumper block JP1 indicate the signal name.

## *Appendix*

### *A. Secure Digital Pin Description*

SD Conn Pin	Name	Description	JP2 Pin
1	CD/DAT3	Card Detect / Data Bit 3	2
2	CMD	Command/Response	3
3	VSS1	Supply Voltage Ground	4
4	VDD	Supply Voltage	5
5	CLK	Clock	6
6	VSS2	Supply Voltage Ground	4
7	DAT0	Data Bit 0	7
8	DAT1	Data Bit 1	8
9	DAT2	Data Bit 2	1

**Table A.1 – SD Extend Signal Description**



**Table A.2 – SD Card Pinout**

***B. SD Extend 300 Schematic***

