

PlayStation®Vita Development Kit

Instruction Manual

PDEL-1001



4-411-848-11(1)

WARNINGS

For customers in the U.S.A

NOTE:
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

About the lithium coin memory back-up battery

The lithium coin memory back-up battery inside this product contains Perchlorate. The following statement is required by the State of California, USA: Perchlorate Material - special handling may apply, See <http://www.dtsc.ca.gov/hazardouswaste/perchlorate>

For customers in the U.S.A. and Canada

This Class A digital apparatus complies with Canadian ICES-003. This device complies with Part 15 of the FCC Rules and RSS-Gen of IC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation of this device.

This equipment complies with FCC/IC radiation exposure limits set forth for uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines in Supplement C to OET65 and RSS-102 of the IC radio frequency (RF) Exposure rules. This equipment has very low levels of RF energy that are deemed to comply without testing of specific absorption ratio (SAR).

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

Pour les utilisateurs aux États-Unis et au Canada

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada. Cet appareil est conforme aux stipulations de l'article 15 des règlements de la FCC et RSS-Gen des règles IC. Son opération est sous réserve des deux conditions suivantes :
(1) cet appareil ne peut pas causer de brouillage préjudiciable et (2) cet appareil doit accepter le brouillage préjudiciable reçu, y compris un brouillage qui pourrait causer son fonctionnement irrégulier.

Cet équipement est conforme aux limites d'exposition aux radiofréquences FCC/IC établies pour un environnement non contrôlé et se conforme aux exigences de conformité pour l'exposition aux RF FCC, Supplément C à OET65 et CNR-102 des exigences d'exposition aux RF IC. Cet environnement possède des niveaux d'énergie RF très bas se conformant sans tests nécessaires aux taux d'absorption spécifique (SAR). Ce transmetteur ne doit pas être utilisé conjointement ou placé avec tout autre transmetteur ou antenne.

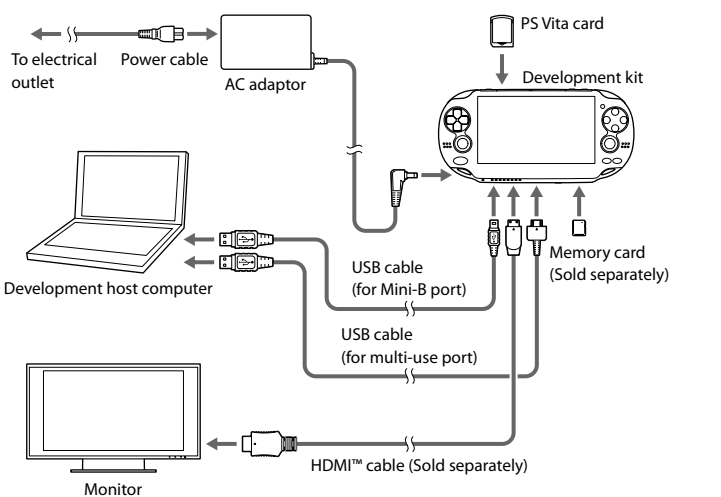
For customers in Europe



Where you see this symbol on any of our electrical products/packaging in Europe, it means that at end of life the product/battery must be disposed of in accordance with any applicable laws or requirements for the separate disposal of electrical equipment/batteries. This symbol may be used on batteries in combination with additional chemical symbols. The chemical symbols for mercury (Hg) or lead (Pb) will appear if the battery contains more than 0.0005% mercury or more than 0.004% lead. Accordingly at end of life we will arrange for separate disposal of our loan equipment including without limitation development kits which remain at all times the property of

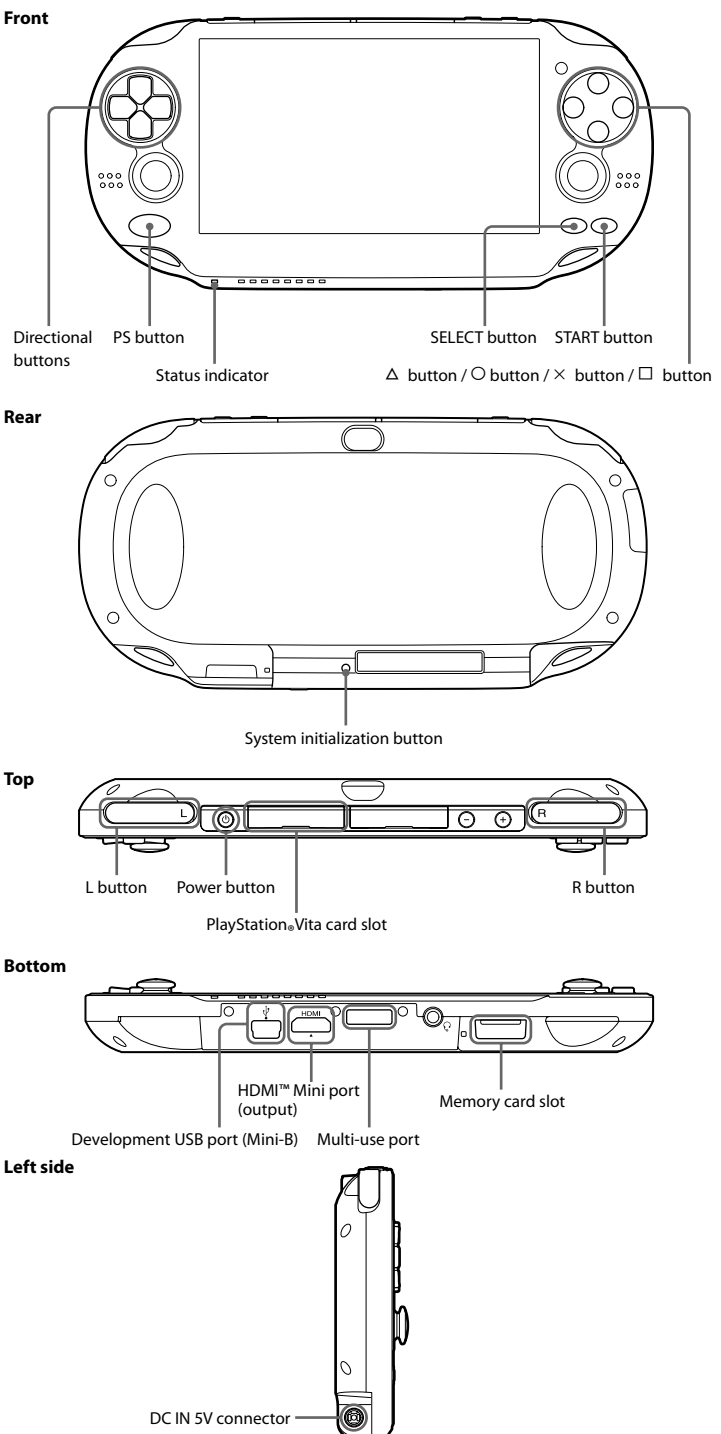
System configuration overview

The system configuration is illustrated below.



The PlayStation®Vita development kit is equipped with a Communication Processor for communicating with the development host computer.

Part names



This product contains a battery which is permanently built-in for safety, performance or data integrity reasons. The battery should not need to be replaced during the lifetime of the product and should only be removed by skilled service personnel. To ensure the correct waste treatment of the battery, please dispose of this product as electrical waste.

The nameplate is located behind the product.
 • This equipment has been tested and found to comply with the limits set out in the R&TTE Directive using a connection cable shorter than 3 meters.
 • This equipment complies with EN55022 Class A and EN55024 for use in following areas: residential, commercial and light-industrial.



The manufacturer of this product is Sony Computer Entertainment Inc., 1-7-1 Konan, Minato-ku, Tokyo 108-0075 Japan. The Authorised Representative for EMC and product safety in Europe is Sony Deutschland GmbH, Hedelfinger Strasse 61, 70327 Stuttgart, Germany. Distributed in Europe by Sony Computer Entertainment Europe Ltd, 10 Great Marlborough Street, London, W1F 7LP, United Kingdom.

Headphones

Adjust your headphone volume so that surrounding sounds can be heard. If you experience ringing or any discomfort in your ears, discontinue use of your Headphones.

Radio waves

Radio waves may affect electronic equipment or medical devices (for example, pacemakers), which may cause malfunctions and possible injuries.
 • If you use a pacemaker or other medical device, consult your doctor or the manufacturer of your medical device before using the wireless networking feature (Bluetooth® and wireless LAN).
 • Keep the development kit at least 22 cm away from a pacemaker or other medical devices when using the wireless networking feature.
 • Do not carry the development kit in a breast pocket if you use a pacemaker.
 • Turn off the development kit immediately, if you have any reason to suspect that interference is occurring with your pacemaker.
 • Do not use the wireless networking feature in the following locations:
 – Areas where wireless network use is prohibited, such as in airplanes and hospitals. Abide by medical institution regulations when using the system on their premises.
 – Areas near fire alarms, automatic doors and other types of automated equipment.
 • Use caution when using the the wireless networking feature in a vehicle, as radio waves may affect electronic equipment in some vehicles.

About national export control

This product may fall within the scope of national export control legislation. You must comply fully with the requirements of such legislation and of all other applicable laws of any jurisdiction in relation to this product.

Precautions

Safety

This product has been designed with the highest concern for safety. However, any electrical device, if used improperly, has the potential for causing fire, electrical shock or personal injury. To help ensure accident-free operation, follow these guidelines:

- Observe all warnings, precautions and instructions.
- Regularly inspect the AC adaptor, AC power cord and USB cable.
- If the development kit is damaged, do not use it. Unplug the AC power cord from the electrical outlet and disconnect any other cables immediately.
- Stop use, unplug the AC power cord from the electrical outlet and disconnect any other cables immediately if the development kit functions in an abnormal manner, produces unusual sounds or smells or if it or the AC adaptor becomes too hot to touch.

Use and handling

- Do not place the development kit in fire or apply heat to it. Do not place the development kit in fire or apply heat to it using cooking equipment such as a microwave oven or a gas or electric oven.
- Do not use any AC adaptor, power cord, or USB cable other than those supplied with the development kit. The AC adaptor, power cord, and USB cable provided with the development kit are special equipment that can be used only with the development kit. Do not use any other adaptor, cord, or cable with the development kit.
- Do not allow water or small particles to get into the development kit. If water or small particles get into the development kit, immediately turn off the power, disconnect the power cord, and contact customer services. If you leave the development kit connected to other equipment in this condition, it could cause equipment failure.
- Do not disassemble or modify the development kit.
- Do not damage the AC adaptor, AC power cord, or USB cable: Using a damaged AC adaptor, AC power cord, or USB cable could cause fire or electric shock.
 - Do not modify the AC adaptor, AC power cord, or USB cable.
 - Do not place the AC adaptor, AC power cord, or USB cable near a heat source or allow them to get hot.
 - Do not put heavy objects on AC adaptor, AC power cord, or USB cable.
 - Do not subject the AC power cord to tension.
- When disconnecting the AC power cord, hold it by the plug and pull straight out from the electrical socket.
 - Never pull by the cord and do not pull at an angle.
 - Do not wrap the AC power cord or USB cable around the development kit or around the AC adaptor.

Preparations for setup

The following are required to use the SDK provided by SCE.

Development host computer

Although you can use an ordinary PC with Microsoft® Windows® installed, it must have a USB port and be able to connect to the Internet.

Visual Studio®

To use the SDK for program development, Visual Studio® must be installed on the development host computer.

Note
Install Visual Studio® before installing the SDK. Visual Studio® must be started at least one time before installing the SDK.

Development website (DevNet) account

A DevNet account is required to download and activate the SDK package. For details concerning a DevNet account, contact your DevNet administrator.

Memory card

When you cannot establish a USB connection between the development host computer and the development kit, you can use a memory card for the PS Vita system for activation or to update the system software.

Setup procedure

For details concerning setup, refer to "Getting Started" on the DevNet website.

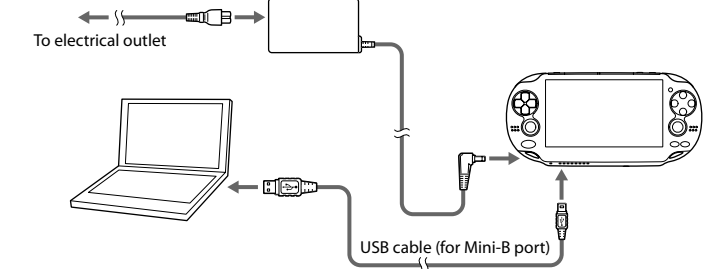
1. Install the required software on the development host computer.

Use SDK Manager (*1) to install software required for development on the development host computer, such as the SDK, drivers, and documentation.

Note
Do not connect the host computer and development kit using a USB cable before completing setup of the development host computer. The USB driver may not be installed properly if they are connected too soon.

2. Connect the development kit and development host computer with a USB cable.

Use the USB cable (for Mini-B port) and AC adaptor to connect the development kit and development host computer as shown in the figure.



3. Set the development kit expiration date (activation).

When the expiration message is displayed on the home screen of the development kit, activate it as follows. (*2)

- ① Get the activation file from DevNet.
- ② Use Neighborhood for PlayStation®Vita (*3) to apply the activation file to the development kit.

You can use Neighborhood for PlayStation®Vita to write the activation file onto a memory card and apply it to multiple development kits. You can update the expiration data using Neighborhood for PlayStation®Vita or a memory card.

4. Verify operation of the development environment (execute and verify a sample program).

You can verify operation of the development environment by executing a sample program. The sample program can be executed from the Sample Browser application. (*4)

*1 You can download SDK Manager from "Install SDK" on the DevNet website.
 *2 For details concerning activation, refer to the "Development Kit Setup Guide" and "Development Kit Activation Guide" included in the SDK package.
 *3 Neighborhood for PlayStation®Vita is an add-on that can control the development kit from Windows Explorer on the development host computer.
 *4 For details concerning sample program execution, refer to the "Development Kit Setup Guide" included in the SDK package.

Shortcuts related to various types of SDKs are registered under [Start] ⇒ [All Programs] ⇒ [SCE].

- Do not expose the development kit or accessories to dust, smoke or steam.
- Do not touch the AC power cord, AC adaptor, USB cable or the development kit, if connected to an electrical outlet, during an electrical storm.
- Do not touch the plug of the AC power cord with wet hands.
- When the development kit will not be used for an extended period of time, or when cleaning the development kit, unplug the power cord and any other cables.
- Do not use this development kit when the development kit or the AC adaptor is covered by a cloth or the development kit is inside its case.
- Do not expose the development kit or accessories to high temperatures, high humidity, or direct sunlight. Do not leave the development kit or accessories in a car with the windows closed (particularly in summer).
- Before plugging in a cable, check that the connectors of the development kit (such as the USB connector), the AC adaptor and USB cable connectors are clean. If not, wipe the connectors with a soft, dry cloth.
- Do not use the development kit in places where the use of wireless communication devices is prohibited, such as in hospitals or on aircraft. The radio waves the development kit emits can affect electronic devices and cause them to malfunction, which can lead to accidents. When using the development kit in a medical facility, be sure to follow all of the rules of that facility. When using the development kit on an aircraft, go to [Settings] ⇒ [Network] and set the system to [Flight Mode] before using it. Turn off the development kit when taking off and landing. If you use the development kit on aircraft where using it is prohibited, you will be liable to legal punishment.
- Make sure that the development kit is at least 22 cm away from pacemakers when using the Wi-Fi feature. Radio waves could affect the operation of the pacemaker.
- Do not use the wireless communication feature where use is prohibited such as in a hospital or near electronic equipment* Radio waves could affect the electronic equipment* or cause an accident due to a malfunction.
 - * Pacemakers, other medical electronic equipment, fire alarms, automatic doors, other automatic control devices, etc.
- Do not use the network feature in a crowded location. Do not use it in a crowded location since people with pacemakers may be nearby. Radio waves may affect the operation of pacemakers or medical electronic equipment.
- Do not wave the development kit or accessories around. Bumping into someone or getting caught in a door could cause injury or an accident. Be particularly careful when using the strap.
- Do not place the development kit or accessories on surfaces that are tilted, unstable or subject to vibration. If placed on top of an unstable surface, the development kit or accessories could fall and cause injury or malfunction.
- Do not subject the development kit to strong physical shock. Do not throw, drop or step on the development kit or accessories, and do not subject the development kit to strong physical shock. Sitting down with the development kit in a pocket or placing the development kit in the bottom of a backpack along with heavy objects may cause damage to the development kit.
- Depending on the conditions of use, the development kit or AC adaptor may reach temperatures of 40 °C/104 °F or more. Do not touch the development kit or AC adaptor for an extended period of time under these conditions. Extended contact under these conditions may cause low-temperature burns*.
 - * Low-temperature burns are burns that occur when the skin is in contact with objects of relatively low temperatures (40°C or more/104°F or more) for an extended period of time.
- Do not connect the AC power cord to a voltage transformer or inverter. Connecting the AC power cord to a voltage transformer for overseas travel or an inverter for use in an automobile may cause heat to build up in the AC adaptor and may cause burns or a malfunction.
- Do not place the development kit close to items with a magnetic strip, such as credit cards. This development kit has internal parts that use magnets, which may affect magnetic recording devices.

Use in other countries

Depending on the country, there are limitations on the use of certain types of radio waves. In some cases, use of the development kit may lead to a fine or other penalty.

Using Wi-Fi access points

When connecting to the Internet, access points nearby will be detected automatically. An access point that you are not authorized to use may be included among the detected devices. Only connect to a personal access point that you are authorized to use, or one that is available through a commercial Wi-Fi service. The user is responsible for all fees associated with Wi-Fi access

Screen

The internal parts of the screen (touchscreen) are made of glass and may crack if subjected to excessive force.

When moisture condensation occurs

If the development kit is brought directly from a cold location to a warm one, moisture may condense inside the development kit and cause it to operate improperly. Should this occur, turn off and unplug the development kit. Do not use the development kit until the moisture evaporates (this may take several hours).If the development kit does not operate properly after several hours, contact your customer service representative.

Recorded data

Do not use the PlayStation®Vita card or the memory card for the PS Vita system (sold separately) (collectively referred to as "memory card" below) in the following ways, as doing so may result in data loss or corruption:
 • Removing the PS Vita card or turning off the development kit while it is saving or loading data.
 • Removing the memory card while the development kit is turned on.
 • Using it in a location that is exposed to static electricity or electrical interference.

If, for any reason, software or data loss or corruption occurs, it is usually not possible to recover the software or data. It is recommended that you regularly back up software and data. Sony Computer Entertainment Inc. and its subsidiaries and affiliates will not be held liable for any damages or injury in the case of software or data loss or corruption.

Specifications

Design and specifications are subject to change without notice.

Development kit

Screen	5 inches (16:9), 960 × 544, OLED, multitouch capacitive touchscreen Approximately 16,770,000 colors displayed
Rear touch pad	Capacitive multi-touch pad
Cameras	Front camera, rear camera Frame rate: 120fps @ 320 × 240 (QVGA), 60fps @ 640 × 480 (VGA) Maximum resolution: 640 × 480 (VGA)
Sensors	Six-axis motion sensing system (threeaxis gyroscope, three-axis accelerometer), three-axis electronic compass
Location	Supports Wi-Fi location service
Main slots and connectors	PlayStation®Vita card slot Memory card slot Multi-use port (USB data communication [USB 2.0 compliant], etc.) Headset jack Accessory port Microphone HDMI™ Mini port (output) Development USB port (Mini-B) DC IN 5V port
Power source	AC adaptor: DC 5.0 V
Maximum power consumption	Approx. 7.5 W
External dimensions	Approx. 182.0 × 18.6 × 86.5 mm / 7.2 × 0.7 × 3.4 in (width × height × depth) (excluding largest projection)
Weight	Approx. 280 g / 9.9 oz
Operating environment temperature	5°C - 35°C / 41°F - 95°F

Network features

Wi-Fi	IEEE 802.11b/g/n-compliant (n=1×1)
Bluetooth®	Bluetooth® 2.1+EDR compliant

AC adaptor

Input	AC 100-240 V, 50/60 Hz
Output	DC 5V 2000 mA (2A)
External dimensions	Approx. 46 × 22 × 76 mm / 1.8 × 0.9 × 3.0 in (width × height × depth) (excludes largest projection)
Weight	Approx. 100g / 3.5 oz

Contents

- Development kit × 1
- AC adaptor × 1
- Power cord × 4
- USB cable (for multi-use port) × 1
- USB cable (for Mini-B port) × 1
- Instruction manual × 1

Troubleshooting

The development kit does not turn on

- ➔ Check that the DC plug or power cord is properly connected.

The development kit is not recognized from the development host computer

- ➔ The USB driver may not be installed correctly. Unplug the USB cable (for Mini-B port) and install the USB driver again.

For details concerning USB driver installation, refer to the "Development Kit Setup Guide" included in the SDK package.

The program fails to start up

- ➔ Check the expiration date of the development kit. The program cannot start up if the development kit has passed the expiration date. Activate the development kit.

You can check the development kit expiration date as follows.

- After turning on the development kit, from [Debug Settings] ⇒ [Activation] under [Settings] on the home screen.
- When the SDK has already been installed from an application such as Neighborhood for PlayStation®Vita.

For details concerning activation, refer to the "Development Kit Activation Guide" included in the SDK package.

- ➔ Verify the release check mode of the development kit boot parameters.

If release check mode is enabled, the program cannot be started from the development host computer. You can verify release check mode as follows.

- From [Settings] of Neighborhood for PlayStation®Vita.
- After turning on the development kit, from [Debug Settings] ⇒ [Boot Parameters] under [Settings] (Settings) on the home screen.

For details concerning release check mode, refer to the "Development Kit Setup Guide" included in the SDK package.

The development kit cannot be controlled from the development host computer

You can start up the development kit on the Communication Processor side in the factory-shipped state by pressing the system initialization button on the rear. After starting in the factory-shipped state, you can update to the latest system software so that the system can be restarted with the latest version.

Nothing is displayed when the power is turned on

- ➔ If nothing is displayed on the development kit screen after the development kit power button is pressed, unplug the AC adaptor and USB cable. Then connect the AC adaptor again and hold down the PS button, the power button and the R button simultaneously for at least 5 seconds to start up in safe mode.

For details concerning safe mode, refer to the "System Software Overview" included in the SDK package.

- ➔ When the status indicator is blinking yellow, a system fault may have occurred. Unplug the AC adaptor and USB cable and wait awhile. Then connect the AC adaptor and USB cable and try again.

- ➔ When the status indicator is lit or blinking red, a fault may have occurred inside the development kit. Contact customer services.

The most current version of this instruction manual also is available on DevNet.

Contact information

For information concerning the development kit, go to technical support or sales for the developer website (DevNet) for your region.

Disclaimer

SCE shall bear no responsibility for any damage or loss due to the failure of this product except for those explicitly recognized by SCE or for which disclaimers are not recognized because of legal regulations.

