

Access™ Controller for PlayStation®5 Expansion Port Specifications

Version 1.00

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Update History

Version	Date of Revision	Main Changes
1.00	August 2023	Initial version

1 Document Overview

1.1 Document Scope

This document defines the specifications for peripheral devices that connect to the expansion ports of the Access™ controller for PlayStation®5 ("Access controller").

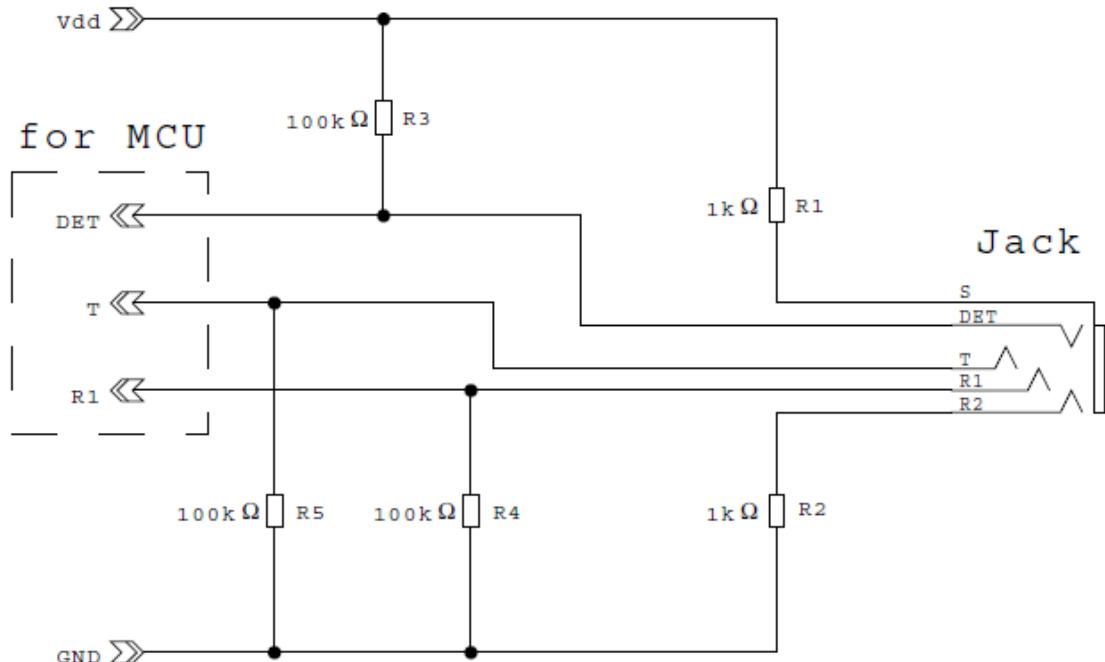
2 Specifications

2.1 Specifications for Access Controller Expansion Ports

2.1.1 Expansion Port Circuit

An equivalent circuit of an expansion port on an Access controller is shown in Figure 1.

Figure 1 Expansion Port Equivalent Circuit



Note

Expansion ports do not support peripherals that need power supply.

2.1.2 Expansion Port Jack Specifications

The pin assignments for an Access controller expansion port jack are shown in Figure 2.

The signals for the different types of devices that are expected to be connected to the expansion ports are provided in Table 1.

Figure 2 Expansion Port Jack Pin Assignments

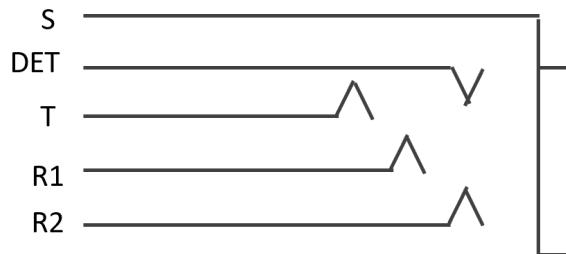


Table 1 Signals for Different Types of Devices

Expansion Port Jack	Button Device	Trigger Device	Stick Device	Note
T (Tip)	Button Input	Trigger Input (*3)	Stick X (*3)	-
R1 (Ring1)	-	NC (*4)	Stick Y (*3)	-
R2 (Ring2)	-	GND	GND	-
S (Sleeve)	Vdd/2 (*2)	Vdd	Vdd	Vdd=1.8 V
DET (*1)	DET	DET	DET	-

(*1) DET is a signal for detecting and identifying the connection of a device connected to an expansion port.

(*2) Because the R1 terminal, R2 terminal, and S terminal are connected on the two-contact plug, the voltage value is Vdd/2.

(*3) Do not use parts with capacitance components, such as capacitors or Zener diodes, with the T terminal or R1 terminal of a trigger device or stick device.

(*4) Make the R1 terminal of a trigger device NC (non connection).

Please refer to 2.3 Specifications for Each Type of Device for the specification requirements for devices.

2.1.3 Specifications for Device Detection

An Access controller detects different types of devices using various electrical potentials on the DET terminal and R1 terminal of an expansion port jack.

Adhere to the device specifications provided in this specification document so that different types of devices can be detected correctly by the Access controller.

2.2 Connector Specifications

2.2.1 Compatible Plugs

The Access controller comes equipped with expansion ports (input ports) for button devices, trigger devices, and stick devices. The compatible plugs for each of these are shown in Figure 3 and Figure 4.

Figure 3 shows a \varnothing 3.5 mm two-contact single miniature plug. Design the external shape of the plug so that it meets the requirements of IEC 60603-11:1992. This plug is used with button devices. The outer diameter of the outer mold must be no larger than \varnothing 10 mm.

Figure 4 shows a \varnothing 3.5 mm four-contact single miniature plug. Design the external shape of the plug so that it meets the requirements of IEC 60603-11:1992. This plug is used with trigger devices and stick devices. The outer diameter of the outer mold must be no larger than \varnothing 10 mm.

Figure 3 Plug (Two-Contact) for Button Devices

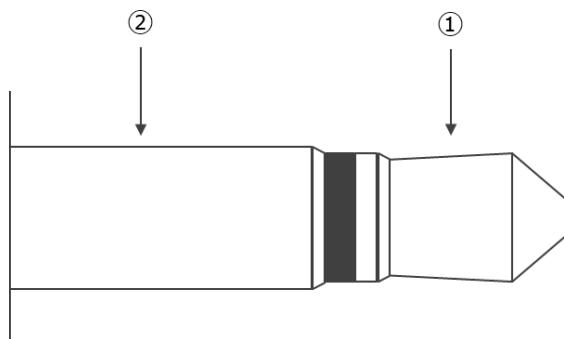
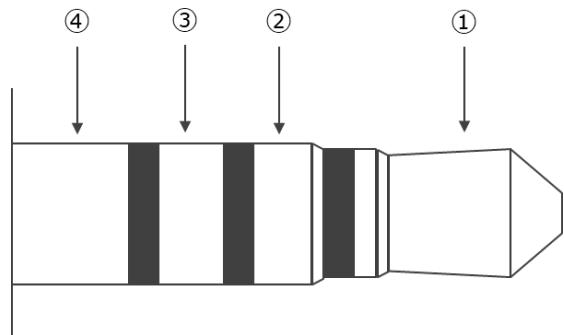


Figure 4 Plug (Four-Contact) for Trigger Devices and Stick Devices



2.2.2 Pin Assignments

The pin assignments for each type of device are shown in Table 2, Table 3, and Table 4.

The coordinates for stick devices are shown in Figure 5.

Table 2 Pin Assignments for Plugs (Two-Contact) for Button Devices

No.	Plug Terminal	I/O	Functionality
1	T (Tip)	I	Button input
2	S (Sleeve)	-	Vdd/2 (*5)

(*5) Because the R1 terminal, R2 terminal, and S terminal of the jack are connected to the S terminal of a plug, the voltage value is Vdd/2.

Table 3 Pin Assignments for Plugs (Four-Contact) for Trigger Devices

No.	Signal Name	I/O	Functionality
1	T (Tip)	I (*6)	Trigger input
2	R1 (Ring1)	NC (*7)	NC
3	R2 (Ring2)	-	GND
4	S (Sleeve)	I	Vdd

(*6) Do not use parts with capacitance components, such as capacitors or Zener diodes, with the T terminal or R1 terminal of a trigger device.

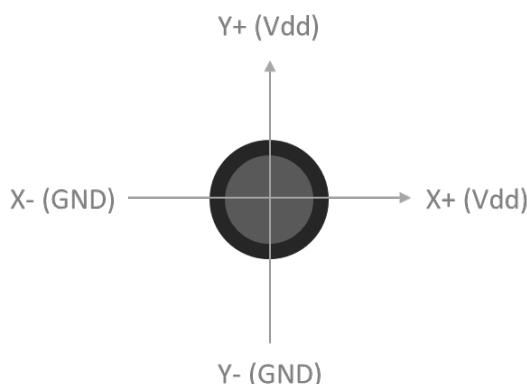
(*7) Make the R1 terminal of a trigger device NC (non connection).

Table 4 Pin Assignments for Plugs (Four-Contact) for Stick Devices

No.	Signal Name	I/O	Functionality
1	T (Tip)	I (*8)	Stick y-axis input
2	R1 (Ring1)	I (*8)	Stick x-axis input
3	R2 (Ring2)	-	GND
4	S (Sleeve)	I	Vdd

(*8) Do not use parts with capacitance components, such as capacitors or Zener diodes, with the T terminal or R1 terminal of a stick device.

Figure 5 Stick Device Coordinates



2.3 Specifications for Each Type of Device

2.3.1 Button Devices

Button devices are expected to have an ON/OFF digital input.

Within the Access controller, the T terminal is pulled down. When the switch is pressed, the MCU detects the change in voltage and determines that the device is ON.

Figure 6 provides an example of an equivalent circuit for a button device, and Table 5 provides the electrical specifications.

Figure 6 Example of an Equivalent Circuit for a Button Device

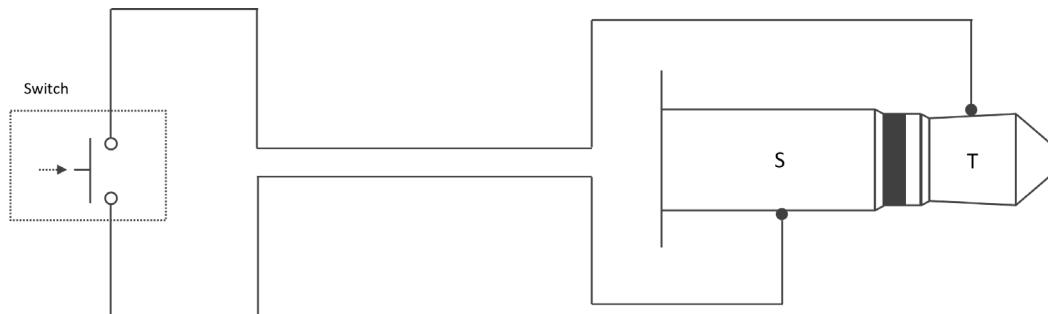


Table 5 Button Device Electrical Specifications

Item	Specification	Note
Switch contact resistance	$< 10 \Omega$	When ON
Switch insulation resistance	$> 1 M\Omega$	When OFF
Vdd/2 maximum input voltage	$\leq 0.9 \text{ V}$	-
HIGH output voltage	$> 0.75 \text{ V}$	When ON
LOW output voltage	$< 0.3 \text{ V}$	When OFF

2.3.2 Trigger Devices

Trigger devices are expected to have a one-axis analog input.

The change in voltage when there is a trigger operation is input to the MCU.

Figure 7 provides an example of an equivalent circuit for a trigger device, and Table 6 provides the electrical specifications.

Figure 7 Example of an Equivalent Circuit for a Trigger Device

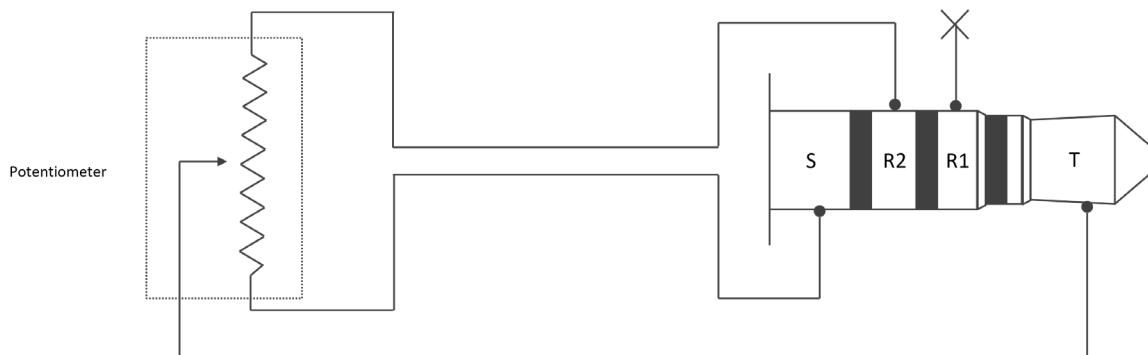


Table 6 Trigger Device Electrical Specifications

Item	Specification	Note
Potentiometer resistance value	$10k \pm 3k \Omega$	-
Vdd maximum input voltage	$\leq 1.8 \text{ V}$	-
Maximum output voltage threshold (when pressed)	$\geq 0.8 \text{ V}$	When the trigger is pressed
Minimum output voltage threshold (when released)	$\leq 0.5 \text{ V}$	When the trigger is released

2.3.3 Stick Devices

Stick devices are expected to have a two-axis analog input.

The change in voltage when there is a stick operation is input to the MCU.

Figure 8 provides an example of an equivalent circuit for a stick device, Table 7 provides the electrical specifications, and Figure 9 provides the coordinates for stick devices.

Figure 8 Example of an Equivalent Circuit for a Stick Device

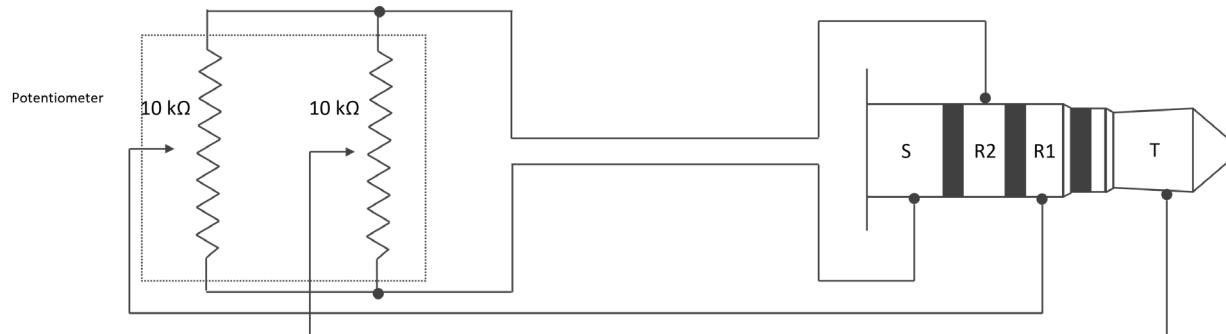
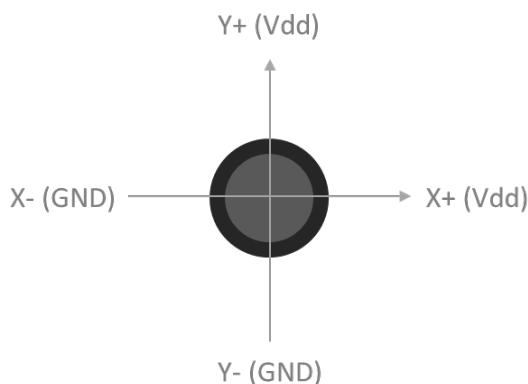


Table 7 Stick Device Electrical Specifications

Item	Specification	Note
Potentiometer resistance value	$10k \pm 3k \Omega$	-
Vdd maximum input voltage	$\leq 1.8 \text{ V}$	-
Minimum output voltage threshold (negative axis)	$\leq 0.6 \text{ V}$	When the stick shaft is inclined to the negative side
Maximum output voltage threshold (positive axis)	$\geq 1.2 \text{ V}$	When the stick shaft is inclined to the positive side
Midpoint output voltage range (*9)	$0.8 \leq \text{midpoint voltage} \leq 1.0 \text{ V}$	When no stick operation has occurred

(*9) The voltage range at the center position when no stick operation has occurred

Figure 9 Stick Device Coordinates



3 Line Drawing of an Access Controller

3.1 Positions of Expansion Ports

The positions of the four expansion ports on an Access controller are shown in the line drawing in Figure 10.

Figure 10 Positions of the Expansion Ports on an Access Controller

