How to control Sony NSP-100

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Scope

Sony NSP-100 can play back content based on schedule automatically. But also there are several ways to control NSP-100 by GPI, RS-232C, Telnet or Infra-red. This document describes how to control Sony NSP-100.

This document is described based on NSP-100 / BZNP-100 version 3.00. In order to update NSP-100 or BZNP-100, please refer to a release note of version 3.00 at www.sony.com/nsp100.

The latest revision of this document is available at www.sony.com/nsp100. Please contact "The Product Operations Support Center (POSC)" at (800) 883-6817 (option 2, 3) about product related questions.

1. 9-pin connector at the rear panel

There is one 9-pin connector (male) at the rear panel of NSP-100. This connector is utilized for multi-purpose. When you control NSP-100 with GPI or RS-232C, you must select the function for the connector.

1.1 How to select a function

Remote controller
> MENU / Setup / System Administrator Setup / RS232C Setup Menu

BZNP-100 software
> NSP-100 Setup / System Administrator Setup / RS232C Setup

Web browser
> 1. Type IP address of the NSP100 in the URL window of a web browser
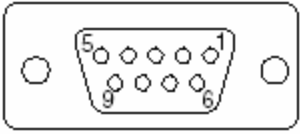> 2. Setup and Configure / Login (user: nsp100, password: kiss) / System Setup / "RS-232C/GPI"

1.2 Selection of a function

Select the corresponding item in the row A or B for GPI control or RS232C control respectively.

	Description	Remote controller	BZNP-100	Web browser
A	Control NSP by GPI	External (GPI)	External (GPI)	GPI
B	Controls NSP by RS232C	RS-232C Protocol	RS-232C Protocol	Protocol Control
C	Maintenance purpose	Maintenance	Maintenance	Maintenance
D	NSP controls external device	Plasma Display	Plasma Display	External(PDP) Control

1.3 Pin assign

Pin Number	GPI	RS-232C
1	OUT-0	NC
2	OUT-1	RXD
3	OUT-2	TXD
4	IN-0	NC
5	GND	GND
6	OUT-3	NC
7	IN-1	NC
8	IN-2	NC
9	IN-3	NC

External View of D-Sub 9-pin Male connector

2. GPI

2.1 Abstract

NSP-100 has two mode for GPI, Basic and Extended mode. In Basic mode, you con control (PLAY, STOP or PAUSE) one playlist or video. In Extended mode, more flexible controls are available.

2.2 Electrical specification

Input: TTL level, +5V pull up (10 Kohm)

2.3 Signal timing

Input signal is sampled at each 10msec. After successive two same levels, NSP100 recognize them as an input command. Command process is ASAP basis, but you can specify fixed delay time in Extended mode.

2.4 How to define controls

GPI controls are defined by describing a file "gpicfg.txt" by the following procedure with BZNP-100.
    1. NSP-100 Setup / Control File Editing / File: External (GPI) Control (GpiCfg.txt)/ Edit
    2. Edit and save it
    3. Click "Send Control File".

2.5 Basic mode

Controls

You can execute following controls to a playlist corresponding to each input pin.

Control	Description
PLAY	Start the playback or resume from PAUSE
STOP	Cancel the playback and display a default graphic
PAUSE	PAUSE the playback

How to assign a playlist [#1] to be controlled by GPI

- Remote Controller
    MENU / Setup / Playout Mode Setup / Select a playlist / Select "PLAY Button"
- BZNP-100
    Material Management / Playlist tab / Select a playlist and right click / Stat by PLAY Button / Send

Command description for Basic mode

Command	Option -1	Option -2	Description
#			Comment line
CH	IN	0...3	Select input channel (pin)
CMD	PLAY0		Start the playback or resume from PAUSE
	STOP		Cancel the playback and display a default graphic
	PAUSE		PAUSE the playback

Sample of GpiCfg.txt

```
# Select Input Channel 0
CH IN 0
# PLAY
CMD PLAY0
# Select Input Channel 1
CH IN 1
# STOP
CMD STOP
# Select Input Channel 2
CH IN 2
# PAUSE
CMD PAUSE
```

[#1] In case you need to control a video, create a playlist that includes the video and assign the playlist.

2.6 Extended mode

Here are differences between Basic mode
- Up to 15 controls by using 4 input pins simultaneously
- Any content (playlist, video, graphic, text) can be controlled
- Content is specified in the GpiCfg.txt
- Fixed delay is available

Command description for Extended mode

Command	Option-1	Option -2	Description
#			Comment line
EXTEND	[Time]		This command must be put in the first line for Extended mode.
			[Time] describes minimum duration between commands. The unit is msec. The default is 600. The minimum value is 600.
FIXDLY	[Time]		Define fixed delay time to play from an input.
			The unit is frame. The minimum value is 60 (= 2sec).
CH	IN	1,2,…,15	Define input value encoded by [IN3, IN2, IN1, IN0] in decimal.
VSPCP	PLPL	PlaylistID	Play a playlist. PlaylistID is described as "P" + 7 digit number
	SPPL		Stop play back a playlist
	PLCL	VideoID	Play a video. VideoID is described as "M" + 7 digit number
	SPCL		Stop play back a video
	PLGR	GraphicID	Play a graphic. GraphicID is described as "S" + 7 digit number
	SPGR		Stop play back a graphic
	PLTX	TextID	Play a text. TextID is described as "T" + 7 digit number
	SPTX		Stop play back a text
CMD	PAUSE		PAUSE

Sample of GpiCfg.txt

```
EXTEND 1000
# EXTEND must be described in the first line
# Set fixed delay time as 120 frames (= 4 sec)
FIXDLY 120
#
# With input-1, play back a playlist P000001
# With input-2, play back a playlist P000002
# With input-3, play back a playlist P000003
# With input-4, stop play back a playlist
#
# PLAY playlist P000001 with inputs "0001"
CH IN1
VSPCP PLPL P0000001
# PLAY playlist P000002 with inputs "0010"
CH IN2
VSPCP PLPL P0000002
# PLAY playlist P000003 with inputs "0100"
CH IN4
VSPCP PLPL P0000003
# STOP play back a playlist with inputs "1000"
CH IN8
VSPCP SPPL
#
```

3. RS-232C

3.1 Setup for serial port

Item	Setup
Baud rate	115200
Data	8 bit
Parity	none
Stop	1 bit
Flow control	none

3.2 Command

Please refer to Chapter 5 Socket Command

4. Telnet

You can control NSP-100 via Ethernet network with the same way as RS-232C using Socket Command that is described in Chapter 5.

5. Socket Command

Here is a brief explanation of socket commands. Please contact Sony if you need more information.

5.1 Command List

Command	Option	Description	Sample
PLCL	VideoID	Play a video	PLCL M0000001
SPCL		Stop play back a video	SPCL
PLPL	PlaylistID	Play a playlist	PLPL P0000001
SPPL		Stop play back a playlist	SPPL
PLGR	GraphicID	Play a graphic	PLGR S0000001
SPGR		Stop play back a graphic	SPGR
PLTX	TextID	Play a text	PLTX T0000001
SPTX		Stop play back a text	SPTX
NJPL		Jump to the next event in the playlist	NJPL
BJPL		Jump to the previous event in the playlist	BJPL
LIST	PLIST	Request a list of playlist content	LIST PLIST
	MPEG	Request a list of video content	LIST MPEG
	IMAG	Request a list of graphic content	LIST IMAG
	TEXT	Request a list of text content	LIST TEXT
RSET		Reset	RSET
IRTR	IR_Code	Emulation of a remote controller	IRTR 63

Return data by LIST PLIST
Sample

```
1
411
2
1 P0000002 NTSC-AVI Title1 2002/09/10 19:50:29 2002/09/10 17:39:42 2002/10/01 0 0 3 1 0
2002/06/28 04:59:50 2002/06/28 05:00:00 2002/09/30 05:45:57 0
2 P0000171 NTSC-AVI Title2 2002/09/10 19:50:28 2002/09/10 17:39:46 2002/10/01 0 0 3 1 0
2002/06/28 03:59:50 2002/06/28 04:00:00 2002/09/30 04:45:56 0
```

Explanation

Line #	Item #	Value	Explanation
3		2	Total number of playlist
4			Information about playlist P0000002
4	1	1	Sequential number
4	2	P0000002	PlaylistID
4	3	NTSC-AVI	Type
4	4	Title1	Title
5			Information about playlist P0000171
5	1	2	Sequential number
5	2	P0000171	PlaylistID
5	3	NTSC-AVI	Type
5	4	Title2	Title

IR_Code table

IR_Code	Description	IR_Code	Description
D	DISPLAY	18	STOP
68	LIST	80	1
63	MENU	81	2
64	<UP ARROW>	82	3
66	<LEFT ARROW>	83	4
69	ENTER	84	5
67	<RIGHT ARROW>	85	6
65	<DOWN ARROW>	86	7
19	PAUSE	87	8
25	REV	88	9
1A	PLAY	89	0
34	FWD		

6. Content ID

Content ID such as PlaylistID, VideoID, GraphicID and TextID can be seen as "Code" in the material management window of BZNP-100. It is assigned by the BZNP-100 automatically. This might be inconvenient for video or graphic playout with GPI trigger if update of content is required, because new VideoID or GraphicID will be assigned, and then the GpiCfg.txt needs to be modified.

Here is a way to resolve this issue.
In case of graphic content, prepare a file as **Sxxxxxxx.bmp** or **Sxxxxxxx.jpg** (xxxxxxx is 7 digit number). Ingest it with BZNP-100, and then the material Code will be **Sxxxxxxx** and you can use the same code as GraphicID.
In case of video content, prepare a file as **Mxxxxxxx.avi** or **Mxxxxxxx.m2p** (xxxxxxx is 7 digit number). Ingest it with BZNP-100, and then the material Code will be **Mxxxxxxx** and you can use the same code as VideoID.

7. Synchronized play back

NSP-100 can not guarantee the exact accuracy for synchronized play back by multiple units of NSP-100 because of lack of "Gen Lock" function, but good enough performance is available for most application.

Condition
- Duration of content is about or less than 10 minutes or so.
- There might be few frames of difference at the end of content.

Setup
Assign one NSP-100 as a Master and others are as a Controlled.
One GPI OUT of the Master is connected to GPI IN of each Controlled.
At the beginning of a playlist for a Master, output GPI trigger.
There is two second of black or still graphic at the beginning in the playlist for the Master.
The Master plays the playlist as loop.
Controlled starts play back content by the GPI trigger with two seconds of delay.

With this setup, every time at the beginning of content, each NSP100 is synchronized.