SONY

PROCESSING MODULE CONTROLLER

HKSP-300

⚠警告

このマニュアルは，サービス専用です。
お客様が，このマニュアルに記載された設置や保守，点検，修理などを行うと感電や火災，人身事故につながることがあります。
危険をさけるため，サービストレーニングを受けた技術者のみご使用ください。

設置や保守，点検，修理などを行う前に，本体（PFV-SPシリーズ）に付属のインストレーションマニュアルおよびオペレーションマニュアルの「安全のために」を必ずお読みください。

⚠WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

⚠WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

⚠AVERTISSEMENT

Ce manual est destiné uniquement aux personnes compétentes en charge de l’entretien. Afin de réduire les risques de décharge électrique, d’incendie ou de blessure n’effectuer que les réparations indiquées dans le mode d’emploi à moins d’être qualifié pour en effectuer d’autres. Pour toute réparation faire appel à une personne compétente uniquement.

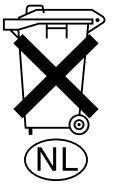
INSTALLATION MANUAL
1st Edition (Revised 1)
Serial No. 10001 and Higher

When using a LAN cable:
For safety,do not connect to the connector for peripheral device wiring that might have excessive voltage.

For the customers in the Netherlands
Voor de klanten in Nederland

Hoe u de batterijen moet verwijderen, leest u in de Onderhoudshandleiding.

Gooi de batterij niet weg maar lever deze in als klein chemisch afval (KCA).



Für Kunden in Deutschland

Entsorgungshinweis: Bitte werfen Sie nur entladene Batterien in die Sammelboxen beim Handel oder den Kommunen. Entladen sind Batterien in der Regel dann, wenn das Gerät abschaltet und signalisiert “Batterie leer” oder nach längerer Gebrauchsdauer der Batterien “nicht mehr einwandfrei funktioniert”. Um sicherzugehen, kleben Sie die Batteriepole z.B. mit einem Klebestreifen ab oder geben Sie die Batterien einzeln in einen Plastikbeutel.

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Purpose of this manual

This manual is an installation manual of Processing Module Controller HKSP-300.
This manual is intended for use by trained system and service engineers, and describes information regarding installation.

Related manuals

Besides this installation manual, the following manuals are available for the HKSP-300.

- Maintenance Manual (Available on request)
  This manual describes the information that premises the parts level service (adjustment, parts list, diagrams, etc.). If this manual is required, please contact your local Sony Sales Office/Service Center.
- "Semiconductor Pin Assignments" CD-ROM (Available on request)
  This "Semiconductor Pin Assignments" CD-ROM allows you to search for semiconductors used in B&P Company equipment.
  Part number: 9-968-546-XX

1. Installation

The HKSP-300 is composed of the following items.

- Main board (CPU-335 board)
- Connector board (CN-2177 board)
- Unit label (2)
- Floppy disk (USB software, 1)
- Operation guide
- Installation manual
- Blank panel (1)*
- Stud (4)*
- Screw for stud (8)*
- Screw for blank panel (4)*
- Accessory screw (2)*

*The parts are used in assembling a redundant CPU.

When the two sets of HKSP-300 are used in combination, one HKSP-300 operates as a main CPU, the other operates as a backup CPU. (Refer to "6. Redundant CPU".)

Attaching HKSP-300

The HKSP-300 is designed to be installed and operated in the signal processing unit PFV-SP series.
In accordance with the installation manual of the PFV-SP series, be sure to attach the main board and connector panel of the HKSP-300.

Install the boards in the following slots. If the boards are installed in the slots other than those below, they do not normally function as controller.

	PFV-SP3100	PFV-SP3300
Used as single CPU	No. 4 slot	No. 17 slot
Used as main/backup CPUs	No. 3 and 4 slots	No. 16 and 17 slots

Matching connector/cable

When external cables are connected to the connectors on the connector panel, the hardware listed below (or equivalents) must be used.

GPI

Matching connector: D-sub mini 15-pin, male

CONTROL, DATA

Matching connector/cable: 100BASE-TX standardized cable*1
10BASE-T standardized cable*1
(10BASE-T: Only DATA)

REMOTE

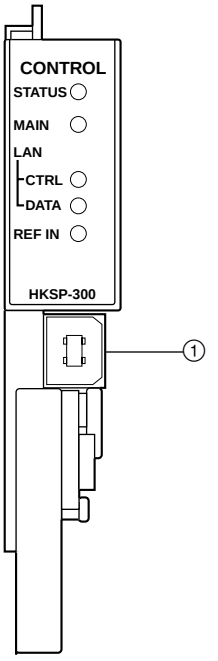
Matching connector: D-sub 9-pin, male
- 1-560-651-00*2 (connector)
- 1-561-749-00 (shell)

∗1: Use shield type.
∗2: The following solderless contacts are required for the plug.
AWG#18 to #22: 1-566-493-21
AWG#22 to #24: 1-564-774-11
AWG#24 to #30: 1-564-775-11

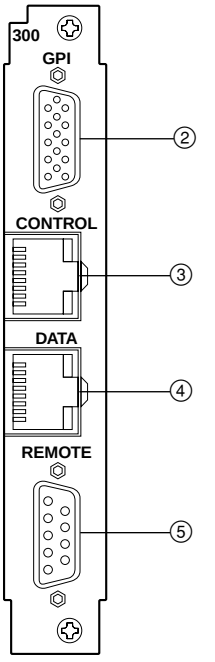
Note

USB (CPU-335 board front side)
Matching cable: USB cable available on the market

2. Name and Function of Connector



CPU-335 board front side



Connector panel

① USB connector (USB series B connector)

This connector is connected to the USB connector of the personal computer, etc. It is used for setting the HKSP-300 and the board that can be installed in the PFV-SP series, displaying the status, transferring the data files and so on by using the supplied software.

② GPI connector (D-sub mini 15-pin)

This connector is connected to the external equipment, and inputs and outputs the trigger signal. A 9-channel controlling input and 4-channel status output for external display are enabled.

The contents of input and output can be set by HKSP-300 and PFV-SP series. (For details on the setting, refer to “7. Settings”.)

③ CONTROL connector (conforming to RJ-45)

This connector is connected to the Ethernet switch. A network is formed among the devices connected to the Ethernet switch and used to communicate with each other. (Refer to Section 4.)

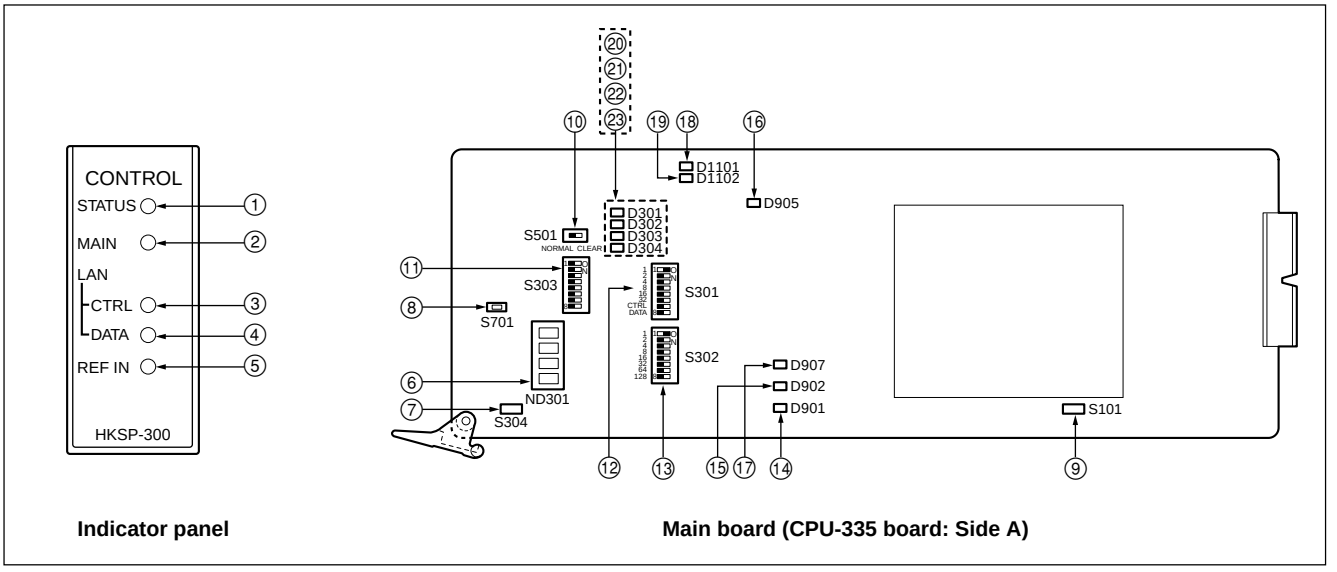
④ DATA connector (conforming to RJ-45)

This connector is connected to the Ethernet switch. A network is formed among the devices connected to the Ethernet switch and used to communicate with each other. (Refer to Section 4.)

⑤ REMOTE connector (D-sub 9-pin, conforming to RS-422A)

This connector cannot be used currently.

3. Name and Function of Switch and Indicator



Indicator panel

No.	Name	Function
①	STATUS	Lights in green: Under normal operation Blinks in green: Setup data is being transferred to other board. (Blinking in short intervals) A warning occurs. (Normal blinking) Blinks in red: When an error occurs. Off: The power is not turned on or the power of the CPU-335 board is abnormal. **Note** For details on error/warning, refer to Section 5.
②	MAIN	Lights in green: This board operates as a main CPU. OFF: This board operates as a backup CPU. (not operating as a main CPU.)
③	LAN-CTRL	Lights in green: CONTROL connector is in communication.
④	LAN-DATA	Lights in green: DATA connector is in communication.
⑤	REF IN	Lights in green: Selection of reference signal (REF IN A or REF IN B) is correct and a proper reference signal is input. OFF: No reference signal is input or a proper reference signal is not input.

Main board (CPU-335 board)

Display

No.	Ref. No. (Address)	Name	Function
⑥	ND301 (A-3)	–	Displays error/warning codes, setting values, etc. The displayed item is switched every time the DISP switch (S701) is pressed.

Item	Display
Error/warning code	Displays the code of the error/warning that has occured. When more than one error/warning occurs, the codes are displayed by turns. **Note** For details on error/warning, refer to Section 5. Under normal operation, " ", "<", "<<", "<<<" and "<<<<" are displayed in sequence. During initialization, "INIT" is displayed. **Note** Do not remove or insert the board while "INIT" is displayed. When the power is turned on, this item is displayed. (Home position)
IP address of CONTROL connector	Displays from the 1st byte to the 4th byte of the IP address by turns. Example) When the settings are 10.13.4.9 "CTRL", "10", "13", "4", and "9" are displayed by turns.
IP address of DATA connector	Displays from the 1st byte to the 4th byte of the IP address by turns. Example) When the settings are 10.141.4.9 "DATA", "10", "141", "4", and "9" are displayed by turns.
Selection state of reference signal	Displays the selected reference signal. REFA: REF IN A input connector of PFV-SP series REFB: REF IN B input connector of PFV-SP series
Display of version	Displays each version of the firmware (SOFT), PLD of the main board (MPLD), and PLD of the connector board (CPLD). Example) When each program version is Ver.1.01, Ver.2.01, and Ver.2.10 "SOFT", "1.01", "MPLD", "2.01", "CPLD", "2.10" are displayed by turns.

Switches (Factory default settings are indicated by a ■ mark.)

No.	Ref. No. (Address)	Name	Function
⑦	S304 (A-3)	RESET	The CPU-335 board operates in the same way as during the power-on sequence. **Note** Do not use this switch during normal operation.
⑧	S701 (A-2)	DISP	Switches the contents displayed on ND301. (Refer to ND301.)
⑨	S101 (E-3)	MON	Not used. **Note** Do not use this switch during normal operation.
⑩	S501 (A-2)	STARTUP	Sets the operating mode when this board and the connector board are activated. (Refer to Section 10.) CLEAR: Clears the setting data stored in this board and the connector board and does not transfer the data to each optional board. ■ NORMAL: Transfers the setting data stored in this board and the connector board to each optional board.

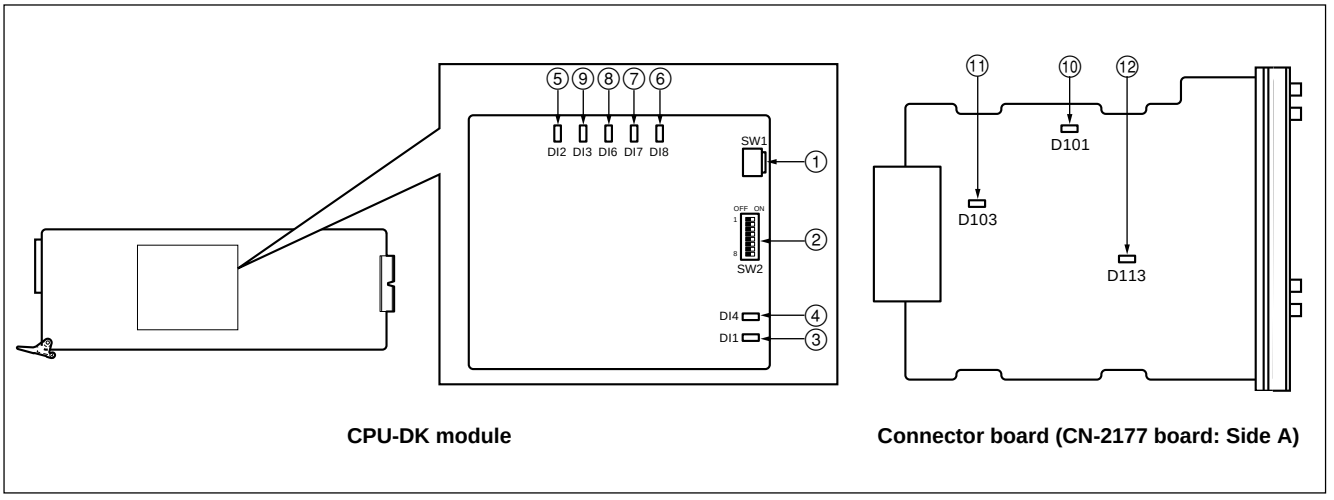
No.	Ref. No. (Address)	Name	Function
⑪	S303 (A-2)	–	Sets each operating mode.
	S303-1	LOCAL ENABLE	Enables the setting of each switch when the power is turned on. ON: Enables the setting of each switch. ■ OFF: The setting stored in the memory (IC106) is enabled. (The setting immediately before the power is turned off is enabled).
	S303-2	FACTORY SETTING	Returns all the settings except the IP address of the PFV-SP mode to the factory settings when the power is turned on. (Valid only when S303-1 is set to ON) ON: Returns to the factory setting. ■ OFF: Under normal operation
	S303-3	REFERENCE SELECT	Selects the reference signal. (Valid only when S303-1 is set to ON) ON: REF IN B of PFV-SP series ■ OFF: REF IN A of PFV-SP series
	S303-4	IP ADDRESS MODE SELECT	Selects the setting mode of IP address. When this HKSP-300 is not used in the MVS-8000 series system, select the PFV-SP mode. ON: PFV-SP mode • The IP address is set by using the personal computer. • Arbitrary IP address can be set. ■ OFF: MVS mode (10.∗∗∗, 4.∗∗∗) • The IP address is set by using the DIP switch. (S301 and S302 are enabled.) • The addresses of the 1st byte and the 3rd byte of the IP address are fixed. • The group ID (the 2nd byte address) and unit ID (the 4th byte address) are set.
	S303-5	MMStation MODE	Selects whether or not to connect Sony MMStation to the CONTROL connector. ON: MMStation mode Connected with MMStation. **Note** In this case, the HKSP-300 cannot be connected with the MVS-8000 series. ■ OFF: Normal mode
	S303-6 to S303-8		Not used. (■ OFF)
⑫	S301 (A-2)	GROUP ID	Sets the group ID in the MVS mode. (Valid only when S303-4 is set to OFF) (■ S301-1: ON, S301-2 to S301-8: OFF) **Note** For setting procedure, refer to Section 7-2.
⑬	S302 (A-3)	UNIT ID	Sets the unit ID in the MVS mode. (Valid only when S303-4 is set to OFF) (■ S302-1: ON, S302-2 to S302-8: OFF) **Note** For setting procedure, refer to Section 7-2.

MMStation is a trademark of Sony Corporation.

Indicators

No.	Ref. No. (Address)	LED name	Status during ON
⑭	D901 (B-3)	12 V	Power supply of + 12 V is normal.
⑮	D902 (B-3)	5 V	Power supply of + 5 V is normal.
⑯	D905 (B-1)	3.3 V	Power supply of + 3.3 V is normal.
⑰	D907 (B-3)	2.5 V	Power supply of + 2.5 V is normal.
⑱	D1101(B-1)	–	For maintenance (OFF under normal operation)
⑲	D1102 (B-1)	–	For maintenance (OFF under normal operation)
⑳	D301 (A-2)	–	Blinks in a cycle of 1 second during normal operation.
㉑	D302 (A-2)	–	Factory use only
㉒	D303 (A-2)	–	Factory use only
㉓	D304 (A-2)	–	Factory use only

CPU-DK module/Connector board (CN-2177 board)



CPU-DK module **Connector board (CN-2177 board: Side A)**

CPU-DK module

Switches (Factory default settings are indicated by a ■ mark.)

No.	Ref. No.	Name	Function
①	SW1	RESET	The CPU-DK module operates as during the power-on sequence. **Note** Do not use this switch during normal operation. Be careful not to press the switch accidentally.
②	SW2	MODE	For maintenance (■ OFF) **Note** Do not change the settings.

Indicators

No.	Ref. No.	LED name	Status during ON
③	DI1	CARD DETECT	The CPU-DK module is correctly attached to the CPU-335 board.
④	DI4	+3.3 V	Power supply of +3.3 V supplied to the CPU-DK module is normal.
⑤	DI2	RUN	The CPU-DK module is under operating conditions.
⑥	DI8	STATUS1	For maintenance (ON during normal operation)
⑦	DI7	STATUS2	For maintenance (OFF during normal operation)
⑧	DI6	STATUS3	For maintenance (OFF during normal operation)
⑨	DI3	STATUS4	For maintenance (OFF during normal operation)

Connector board (CN-2177 board)

Indicators

No.	Ref. No.(Address)	LED name	Status during ON
⑩	D101 (B-1)	5 V	Power supply of +5 V is normal.
⑪	D103 (A-2)	3.3 V	Power supply of +3.3 V is normal.
⑫	D113 (B-2)	2.5 V	Power supply of +2.5 V is normal.

4. System Connection

4-1. Outline of Connection

The PFV-SP series equipped with HKSP-300 can be used in the system as follows:

Note

In the actual connection, connect each device to the Ethernet switch.
Connect each LAN (Control, Data) to the Ethernet switch respectively.

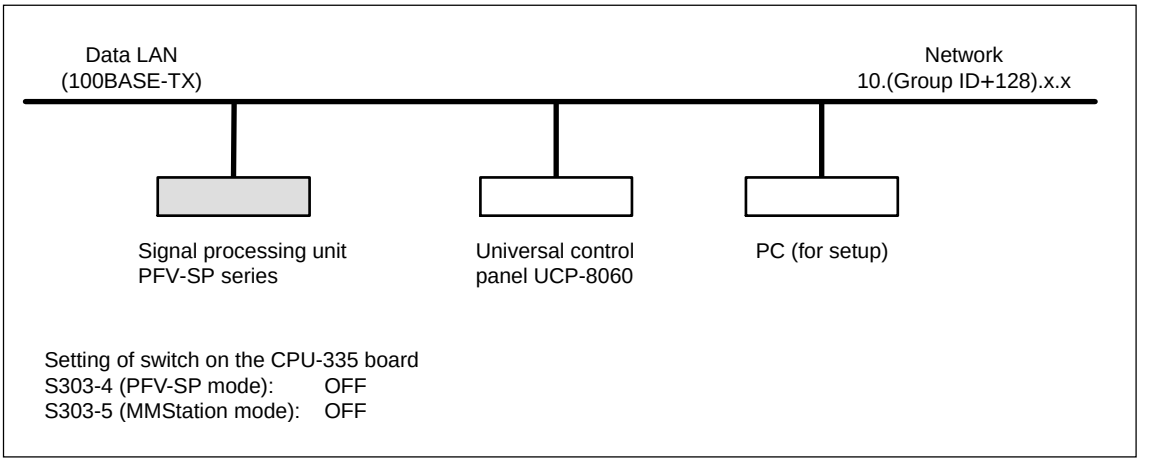
Example) Connection with the universal control panel UCP-8060

Note

To connect with the UCP-8060, upgrade the firmware of the HKSP-300 to version 2.00 and later.
(For the details on the firmware version upgrade, refer to the maintenance manual.)

Main devices

- UCP-8060: Used to control the optional boards.
- PC: Used to display the setup and status of the HKSP-300 (via telnet).



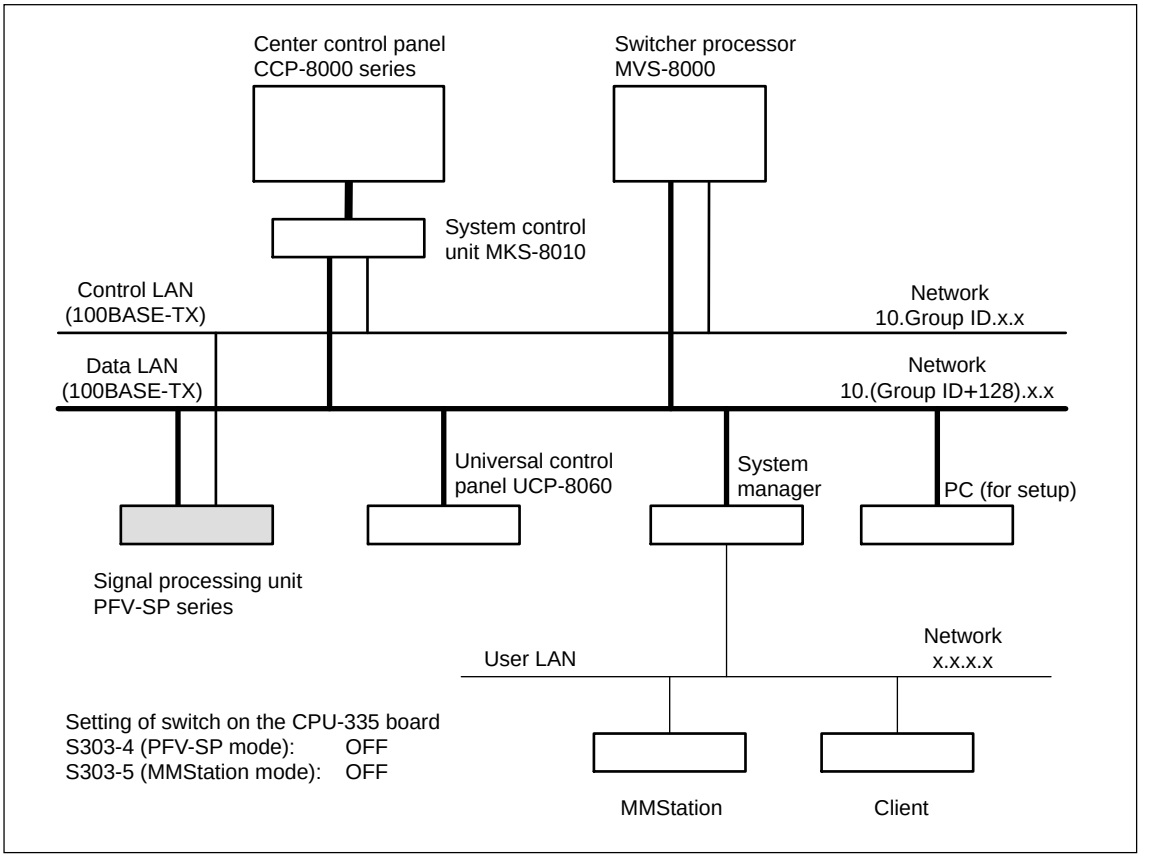
Example) Connection with MMStation via system manager (Also connected to the MVS-8000 series)

Notes

- To connect with the universal control panel UCP-8060 or system manager, upgrade the firmware of the HKSP-300 to version 2.00 and later.
- To connect with MMStation via system manager, upgrade the firmware of the HKSP-300 to version 2.10 and later.

Main devices

- UCP-8060: Used to control the optional boards.
- PC: Used to display the setup and status of HKSP-300 (via telnet).
- System manager: Used to transfer the setup data and to relay with MMStation.
- MMStation: Used to display the optional board information and to monitor an error/warning. Control LAN is used as user LAN. (An arbitrary IP address can be set.) (For details on the setting at connection, refer to the maintenance manual.)
- MVS-8000 series: Used to control the optional boards.



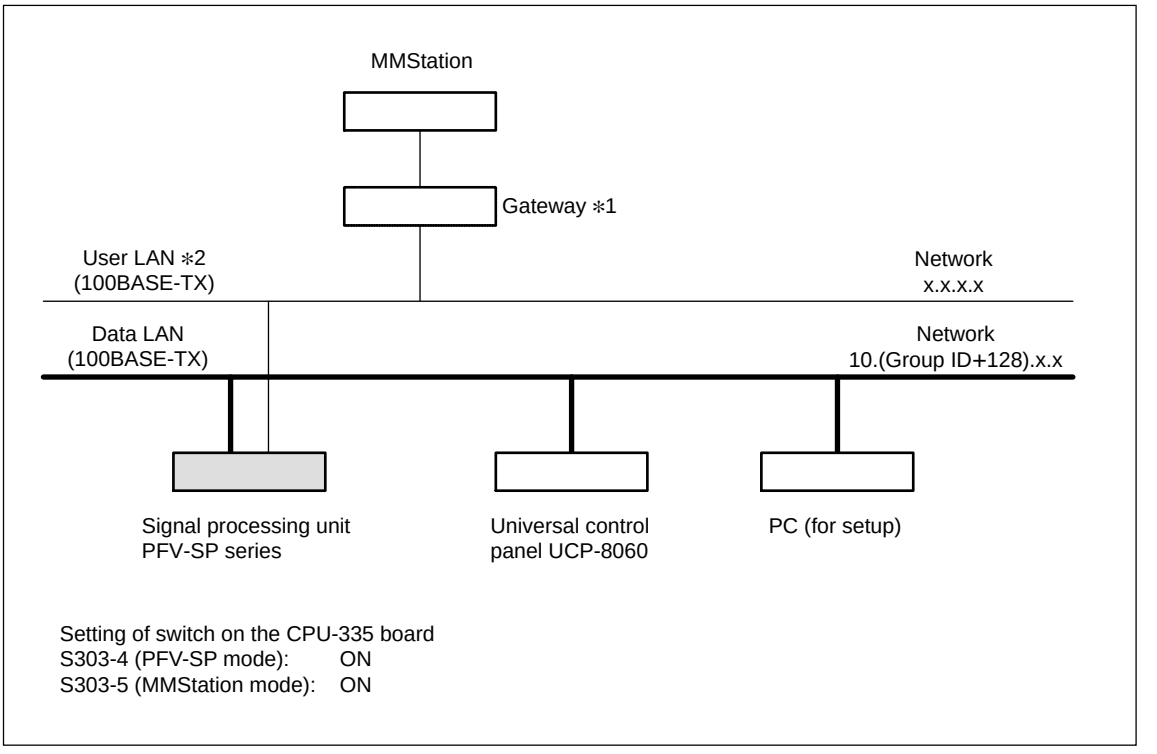
Example) Connection with MMStation using user LAN

Notes

- In this connection, it is impossible to connect the HKSP-300 to the MVS-8000 series or system manager.
- To connect with MMStation, upgrade the firmware of HKSP-300 to version 2.10 and later.
- Although the HKSP-300 supports SNMP (Simple Network Management Protocol), use MMStation as the SNMP server. In case that the SNMP server other than MMStation is used, normal operation cannot be assured.

Main devices

- UCP-8060: Used to control the optional board.
- PC: Used to display the setup and status of HKSP-300 (via telnet).
- MMStation: Used to display the optional board information and to monitor an error/warning. Control LAN is used as user LAN. (An arbitrary IP address can be set.) (For details on the setting at connection, refer to the maintenance manual.)

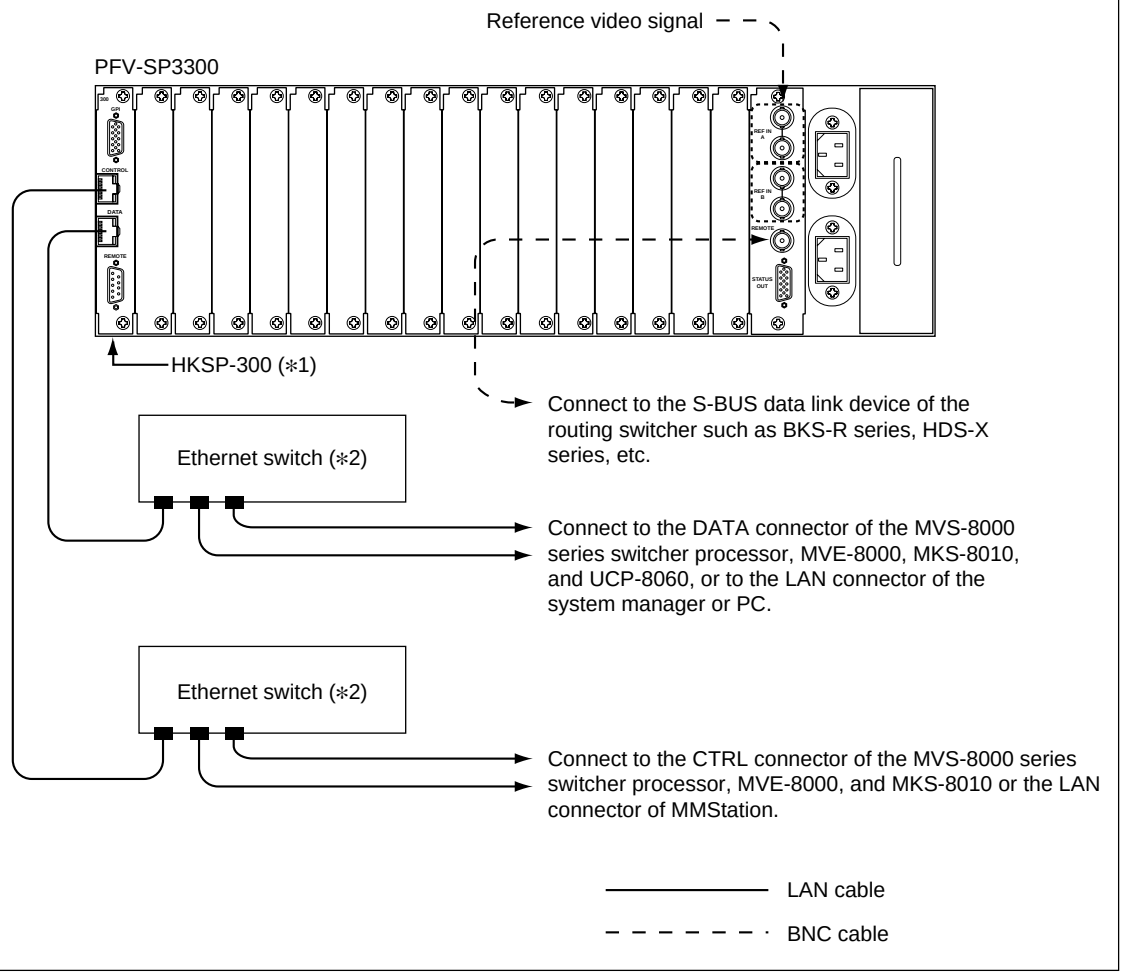


∗1: There are some systems that do not have gateway.
∗2: Connected to the CONTROL connector of the HKSP-300.

4-2. Connection Example

Refer to the following diagram for the connection with the PFV-SP series.

In the case of PFV-SP3300



∗1: Only the connector panel in No. 17 slot is used for connection even if the two sets of HKSP-300 are installed (redundant CPU). Therefore, the connection will be the same as the above diagram.

∗2: For the usable Ethernet switch, contact your local Sony Sales Office/Service Center.

5. Error/Warning Indications

When an error or warning occurs, PFV-SP series and HKSP-300 operate as follows.

- The output of 4-pin (BOARD ERROR OUT) or 5-pin (BOARD WARNING OUT) of the STATUS OUT connector on the connector panel of signal processing unit PFV-SP series becomes active state (low in level) respectively.
- The STATUS indicator on the indicator panel of the CPU-335 board blinks in red (error) or in green (warning).
- 1-pin (error status) or 2-pin (warning status) of the GPI connector on the connector panel becomes active state (low in level). (Factory settings)

  Note

  The contents that are set are output from each pin of the GPI connector depending on the setting of this board. (Refer to Section 7.)
- The error code or warning code is displayed on the display (ND301) on the CPU-335 board.
  The errors concerning the PFV-SP series are also displayed only on the display (ND301).

  Note

  To display the error code or warning code, switch the display (ND301) to the status (home position) that indicates the error or warning code. The status is switched by using S701.

Error code

(■ mark indicates the error displayed only on the display.)

Error code	Description of error
E101	SDRAM (U2 and U3 on the CPU-DK module board) error
E102	SRAM (IC602)*1 error
E103	EEPROM (IC101)*2 error of the main board (CPU-335)
E104	RTC (IC603)*3 error of the main board (CPU-335)
E111	EEPROM (IC102)*2 error of the connector board (CN-2177)
E112	EEPROM (IC106)*4 error of the connector board (CN-2177)
E120	■ EEPROM (IC404)*2 error of the IF board of the PFV-SP series
E130	I^2C bus error
E201	The board is not installed in correct slot.
E202	Model information of the main board (CPU-335) is not correct.
E203	Mismatch between hardware and software
E204	Software version of the main CPU does not match with that of the backup CPU.
E205*5	Communication processing with the universal control panel UCP-8060 is stopped.
E206*5	Communication processing with the optional board is stopped.
E207*5	Communication processing between the main CPU and backup CPU is stopped.
E208*5	Field interrupt processing is stopped.
E210	Connector board (CN-2177) is not installed.
E211	Connector board of a different model is installed.
E212	Power supply of the connector board (CN-2177) is abnormal.
E213	Flexible flat cable is not correctly connected to the connector board (CN-2177).
E214	EEPROM (IC106)*4 data of the connector board (CN-2177) is not correct.
E220	■ IF board of the PFV-SP series is not installed.
E221	■ Model information of the IF board of the PFV-SP series is not correct.
E222	■ The electric current exceeds the permissible level of the PFV-SP series.
E301	Communications error with the backup board (when the redundant CPU is installed)
E302	Communications error with the optional board (serial bus)
E303	Communications error with the optional board (parallel bus)

∗1: Setting data, etc. of the optional board are stored and backed up by battery.
∗2: Model information of each board is stored.
∗3: Clock data is stored.
∗4: Setting data of HKSP-300 is stored.
∗5: Displayed in version 2.00 and later.

Warning code

Warning code	Description of warning
W101	Clock data is not correct. (Oscillation is stopped.)
W102	Battery voltage is lower than the specified level. (Should be replaced)
W103	SRAM (IC602)*1 data is not correct.
W201	Selected reference signal is not input.
W210	Setting of group ID (S301) is not correct.
W211	Setting of unit ID (S302) is not correct.
W212	Mode setting of IP address (S303-4) of the main CPU does not match with that of the backup CPU.
W220	Due to the occurrence of an error, the setting data is automatically reset to the factory setting data.

*1: Setting data, etc. of the optional board are stored and backed up by battery.

6. Redundant

When the two sets of HKSP-300 are used in combination, one HKSP-300 operates as a main CPU, the other operates as a backup CPU.
When a trouble occurs in the main CPU, the backup CPU automatically functions as the main CPU.

6-1. Definition of Terms

The following terms are used in order to distinguish the two HKSP-300 units.

Main CPU
The main CPU is the HKSP-300 (CPU-335 board) that actually performs processing.
It communicates with the external devices via the connector panel, with each optional board in the PFV-SP series, and so on.
It transfers information required to function as a main CPU to the backup CPU periodically.

Backup CPU
The backup CPU is the HKSP-300 (CPU-335 board) that waits in standby state without performing control.
It is not activated during regular communication processing and performs only copying of the information transferred from the main CPU.

Master slot
The master slot is the slot in which HKSP-300 (CPU-335 board) functions as a main CPU when the power is turned on.
The No. 4 slot is the master slot in PFV-SP3100 and No. 17 in PFV-SP3300.
The CPU communicates with the external devices via the connector panel in the master slot.

Sub-slot
The sub-slot is the slot in which HKSP-300 (CPU-335 board) functions as a backup CPU when the power is turned on.
The No. 3 slot is the sub-slot in PFV-SP3100 and No. 16 in PFV-SP3300.
In the sub-slot, each connector on the connector panel is not used.

When the power is turned on, the CPU-335 board installed in the master slot always operates as a main CPU.
The CPU communicates with the external devices using the connector panel in the master slot even if the CPU-335 board is switched from the main CPU to the backup CPU.

6-2. Connection (Assembly of Connector Board)

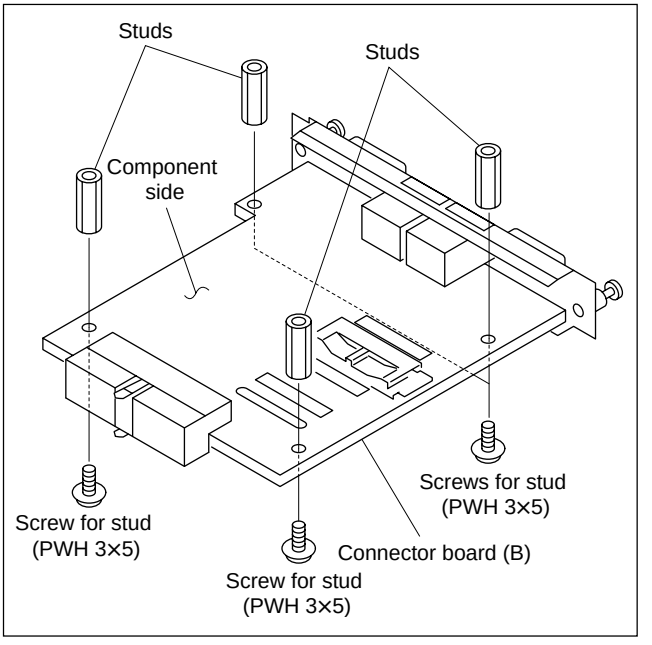
Use the following parts supplied with HKSP-300.

- Blank panel (1)
- Stud (4)
- Screw for stud (PWH 3×5)(8)
- Screw for blank panel (B2.6×4)(4)
- Accessory screw (M2.6×8)(2)

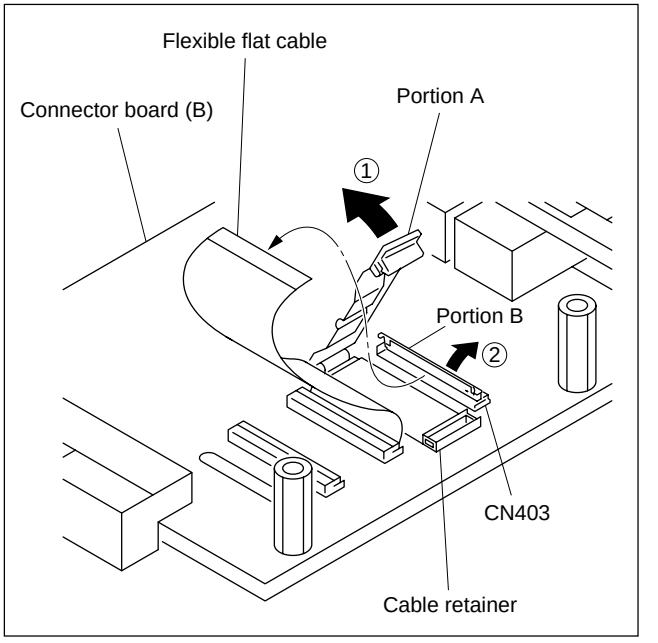
Note

In this Section, the connector board installed in the master slot is described as “connector board (A)” and the connector board installed in the sub-slot is described as “connector board (B)”.

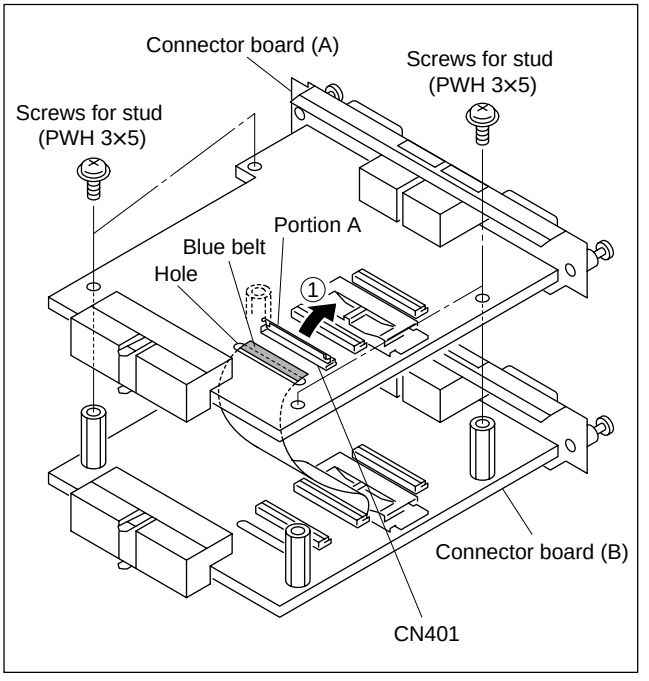
1. Attach the studs to the component side (side A) of the connector board (B) with the four screws.



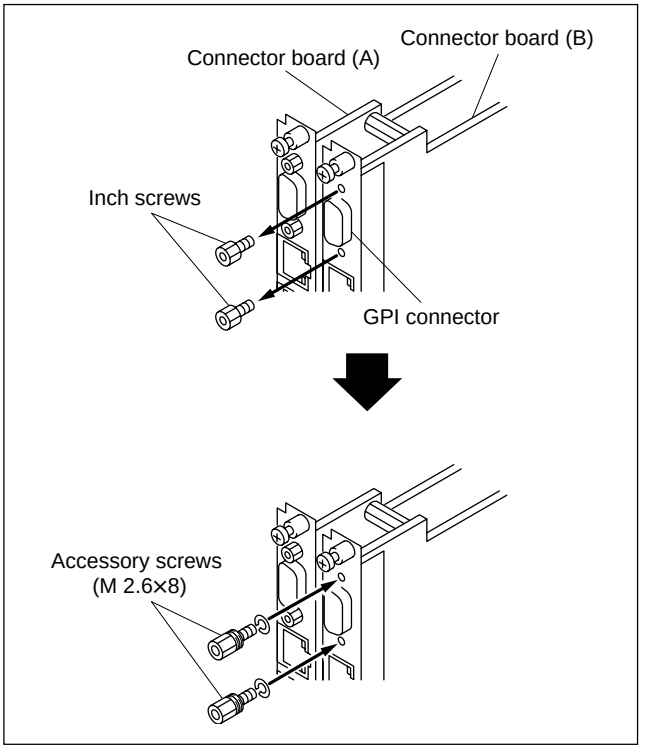
2. To release the lock of the cable retainer, raise the portion A in the direction indicated by the arrow ①.
3. To release the lock of the connector (CN403), raise the portion B in the direction indicated by the arrow ②, then disconnect the flexible flat cable.



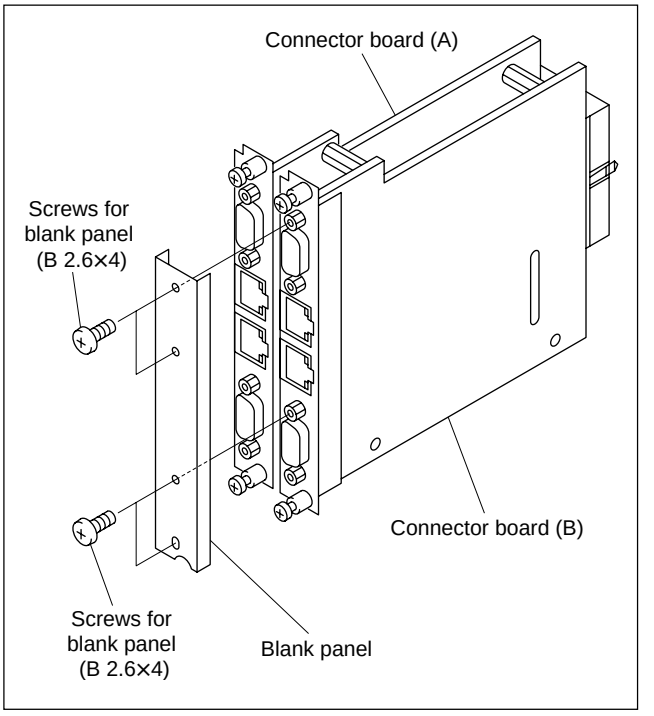
4. Return the cable retainer and portion B of CN403 to their original positions.
5. Run the flexible flat cable disconnected in step 3 through the hole of the connector board (A).
6. Attach the connector board (A) with the four screws for stud.
7. To release the lock of the connector (CN401) on the connector board (A), raise the portion A in the direction indicated by the arrow ①, then connect the flexible flat cable.



8. Remove the two inch screws from the GPI connector on the connector board (B), then attach the accessory screws instead.



9. Attach the blank panel to the connector board (B) with the four screws for blank panel.



10. Install the connector board in the master slot and sub-slot. (Refer to the installation manual of the PFV-SP series.)

6-3. Installation of CPU-335 Board

Intstall the CPU-335 board in the master slot and sub-slot. If it is installed in the slots other than those above, it does not normally function as a controller.
For installation procedure, refer to the installation manual of the PFV-SP series.

6-4. Switching of Main CPU and Backup CPU

Note

Do not remove the main CPU or backup CPU within 10 minutes after turning on the power, adding the backup CPU, or changing the settings of the optional board. Otherwise, the transfer of the latest information will not be completed and the data may not be backed up.

The CPU may not respond to the external control until the switching process is completed.

When the power is turned on, the CPU-335 board installed in the master slot always operates as a main CPU. Therefore, when replacing the CPU-335 board in the master slot, it is required to install the CPU-335 board of the sub-slot in the master slot and install a new CPU-335 board in the sub-slot.

Manual switching

The CPU switching can be done manually by either one of the following.

- Controlling from 5-pin (CPU SW) of the GPI connector.
- Pressing the reset switch (S304) on the CPU-335 board operating as a main CPU.

Note

The CPU may not respond to the external control until the switching process is completed.

Operation of indicator

When the power is turned on, the MAIN indicator of the CPU-335 board in the master slot lights up and the board starts operation as a main CPU. The MAIN indicator of the sub-slot remains OFF and you can see that it is in standby state as a backup CPU.

When a trouble occurs in the main CPU, the backup CPU automatically functions as a main CPU. At that time, the MAIN indicator of the master slot is turned off and the MAIN indicator of the sub-slot lights up. Same applies to the case when switching from the sub-slot to the master slot.

7. Settings

HKSP-300 can be set by using the DIP switches (S301, S302, S303, and S501) on the CPU-335 board or by using a personal computer (referred to as PC hereafter) (connection by USB or by Ethernet).
When using the PC, you can set the optional board installed in the PFV-SP series as well as HKSP-300.

Notes

- When connecting HKSP-300 to the network, be sure to confirm the IP address.
- There are some items that cannot be set by the PC depending on the settings of the DIP switch.
- For details on the settings of the optional board, refer to the manual of each optional board.
  The optional board cannot be set from the USB connector of the CPU-335 board operating as a backup CPU.

Be sure to set the following two items after installing the HKSP-300 to the PFV-SP series. As for other items, perform setting as required.

- Setting of clock (Refer to “X: Clock Preset” in the setup menu.)
- Setting of communication between the HKSP-300 and optional board (Version 2.00 and later. Refer to “N: CPU Communication Setting” in the setup menu.)

7-1. Setting Items

Setting Items	Description	DIP switch	PC (USB)	PC (LAN)
Transfer of setup data	Sets so that the optional boards’ data stored in HKSP-300 is not transferred.	○	×	×
DIP switch priority	Uses the DIP switch setting by priority.	○	×	×
Selection of reference signal	Selects the sync signal.	○∗1, ∗2	○	○
Setting of IP address	Selects the mode.	○	×	×
	Sets the IP address in the MVS mode.	○	×	×
	Sets the IP address in the PFV-SP mode.	×	○∗3	○∗3
GPI output	Sets the details of signal output from the GPI connector of the connector panel.	×	○	○
Setting of PFV-SP series STATUS OUT	Sets the details of signal output from the STATUS OUT connector of the PFV-SP series.	×	○	○
Communication setting with optional board (Version 2.00 and later)	Sets whether the HKSP-300 communicates with the optional board or not.	×	○	○
Setting of STATUS OUT output of communication error (Version 2.00 and later)	Sets whether or not to output the communication error with the optional board from the STATUS OUT connector of the PFV-SP series.	×	○	○
Unit name (Version 2.10 and later)	Sets arbitrary name to the PFV-SP series.	×	○	○
Slot name (Version 2.10 and later)	Sets arbitrary name to each slot.	×	○	○
Return to factory settings	Initializes the setting data.	○∗1, ∗2	○	○

∗1: Valid only when the DIP switch priority is set (S303-1 is set to ON).
∗2: DIP switch setting is loaded only when the power is turned on.
When the setting is externally changed after turning on the power, the new setting will take effect. Be sure that when turning the power off and on again later with S303-1 set to ON, the setting value of the switch takes effect again.
∗3: The IP address in the PFV-SP mode can be set even in the MVS mode (S303-4 is set to OFF). The IP address set here takes effect when S303-4 is set to ON.

7-2. Setting by Using DIP Switch

Note

When the DIP switch is given priority (S303-1: ON), the DIP switch setting has priority over externally changed setting at the next startup of the HKSP-300 and the external setting value is cleared.

For more details on each DIP switch, refer to Section 3. Here, the setting patterns using the DIP switch and the setting of IP address in the MVS mode are described.

Setting patterns using the DIP switch

The following are the setting patterns using the DIP switches (S301, S302, S303, and S501) on the CPU-335 board.

Pattern1: The items that can be set only by the DIP switch

- Setup data transfer setting: S501
- DIP switch priority setting: S303-1
- IP address mode setting: S303-4

Pattern2: The items that can be set only by the DIP switch (Valid when S303-4 is set to OFF)

- IP address setting in the MVS mode: S301, S302

Pattern3: The items that are set by the DIP switch when S303-1 is set to ON and can be also set by using a PC

- Reference signal setting: S303-3
- Return to factory setting: S303-2

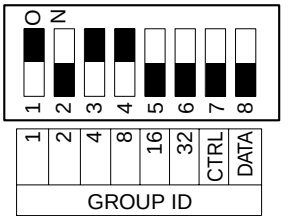
Note

The settings of switches used in the pattern 1 and 2 take effect every time the power is turned on.

IP address setting in MVS mode

In the MVS mode, IP address is set by using the two DIP switches (S301 and S302) in the same way as the MVS system.

1. Set S303-4 to OFF.
2. Set S301 for the group ID.
   Example) In the case of the following setting, the group ID is 13 based on the calculation below.
   (■ indicates the switch lever position.)

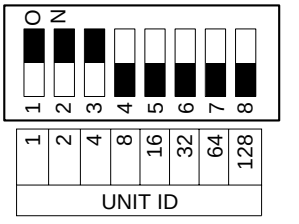


1+4+8 = 13

Note

Always set the bits (S301-7 and S301-8) of CTRL and DATA to OFF.

3. Set S302 for the unit ID.
   Example) In the case of the following setting, the unit ID is 7 based on the calculation below:



1+2+4 = 7

Note

Do not set all bits to ON. You cannot use 255 as the unit ID.

In the above setting, the following addresses are set.
Control LAN = 10.13.4.7
Data LAN = 10.141.4.7

Note

The 1st byte “10” and the 3rd byte “4” are fixed values. The 2nd value of the data LAN is determined by adding 128 to the group ID value (141 in the example).

7-3. Setting by Using PC (USB Connection)

Required equipment

- PC (including USB connector)
- USB software (supplied with HKSP-300)
- USB cable (available on market)

Preparations

1. Install the USB software in the PC.

   Note

   - For the installation and startup procedures of the USB software, refer to “7-5. USB Software”.
   - Once the USB software is installed in the PC, you do not have to install it again when you use the same PC next time.
2. Connect the USB connector on the front side of the CPU-335 board to the PC using the USB cable.

   Note

   When the USB cable has been connected, disconnect it, wait at least 3 seconds, then re-connect it. Otherwise, the PC may freeze (displayed blue screen).

Note

Although the commands (alphabet) in this manual are shown in the lowercase characters, it is no problem to use the uppercase characters.

Settings

1. Start the USB software.
   The main menu screen is displayed.

```
HKSP-300  PROCESSING MODULE CONTROLLER  Version 1.00 (Jun.11.2002 10:15)

[ MAIN MENU ]
    A:   Status Menu
    B:   Setup Menu
    Z:   Service Menu


>b
```

2. Enter “b” (: Setup Menu) from the main menu screen and press the Enter key.
   The setup menu screen appears and the current settings are displayed.

Display sample (Version 2.10 and later)

```
[SETUP MENU (MAIN)]

A:  Reference Select                    : A
B:  IP Address (Control)                : 192.168.0.1
C:  IP Address (Data)                   : 192.168.1.1
D:  Reference Input Warning             : ON

E:  GPI Out Setting                     : *=ON
 SLOT | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10| 11| 12| 13| 14| 15| 16| 17|
OUT-1 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | * |
OUT-2 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | * |
OUT-3 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
OUT-4 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

F:  Frame Status OUT-1 Setting          : Slot= 1& 2,       Error=ON,   Warning=ON
G:  Frame Status OUT-2 Setting          : Slot= 3& 4,       Error=ON,   Warning=ON
H:  Frame Status OUT-3 Setting          : Slot= 5& 6,       Error=ON,   Warning=ON
I:  Frame Status OUT-4 Setting          : Slot= 7& 8,       Error=ON,   Warning=ON
J:  Frame Status OUT-5 Setting          : Slot= 9&10,       Error=ON,   Warning=ON
K:  Frame Status OUT-6 Setting          : Slot=11&12,       Error=ON,   Warning=ON
L:  Frame Status OUT-7 Setting          : Slot=13&14,       Error=ON,   Warning=ON
M:  Frame Status OUT-8 Setting          : Slot=15&16&17,    Error=ON,   Warning=ON

N:  CPU Communication Setting : *=OFF

 SLOT | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10| 11| 12| 13| 14| 15| 16| 17|
        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | - |

O:  Communication Error Output Select : OFF

P:  Unit Name
R:  Slot Name

X:  Clock (RS5C62) Preset               : 2003/Jan/31(Fri)  18:59:13
Y:  Factory Setting
Z:  Option Board Setting Menu

Q:  Quit

>a
```

3. Select the setting items (“A” to “Z”) from the setup menu.

Note

When “q” is pressed in the setup menu screen, the settings are completed. At the same time, the system exits from the setup menu and returns to the main menu screen.

Setting of each item

A: Reference Select

Selects the reference signal.
The factory setting is “REFERENCE-A”.

1. Enter “a” from the setup menu, then press the Enter key.
2. Enter “a” or “b”, then press the Enter key.
3. Enter “q”, then press the Enter key.
   The display returns to the setup menu.

```
>a

REFERENCE SELECT : A
  A: Reference-A
  B: Reference-B

  Q: Quit

==>b

REFERENCE SELECT : B
  A: Reference-A
  B: Reference-B

  Q: Quit

==>q
```

B: IP Address (Control)

Sets the IP address of the control LAN in the PFV-SP mode.
Although you can set the IP address also in the MVS mode, the setting value cannot take effect before changing to the PFV-SP mode.
The factory setting is “192.168.0.1”.

1. Enter “b” from the setup menu, then press the Enter key.
2. Enter the IP address in the form of “aaa.bbb.ccc.ddd”, then press the Enter key.
3. Enter “q”, then press the Enter key.
   The display returns to the setup menu.

```
>b

IP ADDRESS (CONTROL)  : 192.168.0.1
  Input New Address(aaa.bbb.ccc.ddd), or Q To Quit

==>192.168.0.2

IP ADDRESS (CONTROL)  : 192.168.0.2
  Input New Address(aaa.bbb.ccc.ddd), or Q To Quit

==>q
```

Note

The netmask value in the PFV-SP mode is set to “FF.FF.FF.00” at the factory. This value can be changed in the service menu. For details on the service menu, refer to the maintenance manual.

C: IP Address (Data)

Sets the IP address of the data LAN in the PFV-SP mode.
The displayed screen and setting procedure are the same as “B: IP Address (Control)”.
Although you can set the IP address also in the MVS mode, the setting value cannot take effect before changing to the PFV-SP mode.
The factory setting is “192.168.1.1”.

1. Enter “c” from the setup menu, then press the Enter key.
2. Enter the IP address in the form of “aaa.bbb.ccc.ddd”, then press the Enter key.
3. Enter “q”, then press the Enter key.
   The display returns to the setup menu.

Note

The netmask value in the PFV-SP mode is set to “FF.FF.FF.00” at the factory. This value can be changed in the service menu. For details on the service menu, refer to the maintenance manual.

D: Reference Input Warning

Sets if the state of no reference input is regarded as warning or not.
The factory setting is ON.

1. Enter “d” from the setup menu, then press the Enter key.
2. Enter “a” or “b”, then press the Enter key.
3. Enter “q”, then press the Enter key.
   The display returns to the setup menu.

```
>d

REFERENCE INPUT WARNING : ON
  A: ON
  B: OFF

  Q: Quit

==>b

REFERENCE INPUT WARNING : OFF
  A: ON
  B: OFF

  Q: Quit

==>q
```

[A:ON]: When no reference signal is input, a warning signal is output.
(When no reference signal is input, the STATUS indicator blinks in green.)
[B:OFF]: When no reference signal is input, a warning signal is not output.

E: GPI Out Setting

Sets the slot numbers to be assigned to the four pins (1-pin to 4-pin) of the GPI connector on the connector panel.
The optional boards of the PFV-SP series can define a maximum of 4 GPI output signals respectively.
The output signal data from each slot is collected by HKSP-300 and output from the GPI connector.

Note

- Some optional boards do not have GPI output function or cannot define 4 output signals.
- More than one slot can be assigned to one output pin. In this case, when the condition specified by one of the slots is detected, a signal is output.

1. Enter “e” from the setup menu, then press the Enter key.
2. Enter one of the numbers from among “1” to “4” to select the GPI OUT pin you want to set, then press the Enter key.

```
>e

GPI OUT-1 SETTING : 17
GPI OUT-2 SETTING : 17
GPI OUT-3 SETTING :
GPI OUT-4 SETTING :
  Input Output Number(1-4), or Q To Quit

==>1
```

3. Enter the slot number you want to set to the pin, then press the Enter key.

   Note

   When HKSP-300 is installed in PFV-SP3100, valid slot numbers are only from 1 to 4. The settings of the slot numbers from 5 to 17 are invalid.

```
GPI OUT-1 SETTING : 17
  Select Slot Number(1-17), or Q To Quit

==>3
```

4. Enter “a” or “b”, then press the Enter key.

```
GPI OUT-1 SETTING FOR SLOT-3  : OFF
  A: ON
  B: OFF

  Q: Quit

==>a
```

[A:ON]: Allocates the slot.
[B:OFF]: Releases the allocation of slot.

5. Press the Enter key again.
   The first display (the screen displayed in step 1) appears. Confirm that the setting is changed.

```
GPI OUT-1   SETTING : 3, 17
GPI OUT-2   SETTING : 17
GPI OUT-3   SETTING :
GPI OUT-4   SETTING :
  Input Output Number(1-4), or Q To Quit

==>q
```

6. When allocating more than one slot to one pin, and when setting the next pin, repeat steps 2 to 5. In order to end the setting, enter “q” and press the Enter key.

F: Frame Status OUT-1 Setting
G: Frame Status OUT-2 Setting
H: Frame Status OUT-3 Setting
I: Frame Status OUT-4 Setting
J: Frame Status OUT-5 Setting
K: Frame Status OUT-6 Setting
L: Frame Status OUT-7 Setting
M: Frame Status OUT-8 Setting

Sets the contents of output from the STATUS OUT connector of the PFV-SP series.
Eight OUTPUT pins (6-pin to 13-pin) are allocated to each slot in PFV-SP series. Select the slot for output and the details (only error, only warning or both error and warning) for each pin.

Note

When HKSP-300 is installed in PFV-SP3100, only the setting of the menus F and G can take effect. The settings of the menus from H to M are invalid.

The OUTPUT pins are allocated as follows:

Pin No	Pin name	Allocation of slot
6	OUTPUT-1	1, 2
7	OUTPUT-2	3, 4
8	OUTPUT-3	5, 6*
9	OUTPUT-4	7, 8*
10	OUTPUT-5	9, 10*
11	OUTPUT-6	11, 12*
12	OUTPUT-7	13, 14*
13	OUTPUT-8	15, 16, 17*

* Valid only when HKSP-300 is installed in PFV-SP3300.

The factory settings are “Slot= (All slots allocated in the pin)”, “Error=ON”, and “Warning=ON”.

The following shows the example of the setting menu for OUTPUT-1.

1. Enter “f” from the setup menu, then press the Enter key.
2. Select the item you want to set to the OUTPUT-1 from among “a” to “j”, enter the alphabet, then press the Enter key.
3. Enter “q”, then press the Enter key.
   The display returns to the setup menu.

```
>f

FRAME STATUS OUT-1 SETTING : Slot=1&2, Error=ON, Warning=ON
  A : Slot=1&2      Error=ON      Warning=ON
  B : Slot=1&2      Error=ON      Warning=OFF
  C : Slot=1&2      Error=OFF     Warning=ON
  D : Slot=1        Error=ON      Warning=ON
  E : Slot=1        Error=ON      Warning=OFF
  F : Slot=1        Error=OFF     Warning=ON
  G : Slot=2        Error=ON      Warning=ON
  H : Slot=2        Error=ON      Warning=OFF
  I : Slot=2        Error=OFF     Warning=ON
  J : OFF

  Q : Quit

==>e

FRAME STATUS OUT-1 SETTING : Slot=1, Error=ON, Warning=OFF
  A : Slot=1&2      Error=ON      Warning=ON
  B : Slot=1&2      Error=ON      Warning=OFF
  C : Slot=1&2      Error=OFF     Warning=ON
  D : Slot=1        Error=ON      Warning=ON
  E : Slot=1        Error=ON      Warning=OFF
  F : Slot=1        Error=OFF     Warning=ON
  G : Slot=2        Error=ON      Warning=ON
  H : Slot=2        Error=ON      Warning=OFF
  I : Slot=2        Error=OFF     Warning=ON
  J : OFF

  Q : Quit

 ==>q
```

Note

The three slots (No. 15 to 17) are allocated in OUTPUT-8 pin.
When “M:Frame Status OUT-8 Setting” is selected in step 1, the selection items displayed in step 2 are from “a” to “w”.

N: CPU Communication Setting (Version 2.00 and later)

Sets whether or not to communicate with the optional board installed in each slot.
The factory setting is “A: NORMAL (communicates)” in all slots.

1. Enter “n” from the setup menu, then press the Enter key.
2. Enter the slot number to be set, then press the Enter key.

```
CPU COMMUNICATION SETTING (OFF) : 1
  Select Slot Number(1-16), or Q To Quit

 ==>1
```

3. Enter “a” or “b”, then press the Enter key.

```
CPU COMMUNICATION SETTING  SLOT-1 : OFF
  A: NORMAL
  B: OFF

  Q: Quit

==>b
```

“A: NORMAL”: Communicates
“B: OFF”: Does not communicate

4. To set the next slot, repeat steps 2 and 3. In order to end the setting, enter “q” and press the Enter key.

Notes

Set the slots in which the following boards are installed to “B: OFF (does not communicate)”. These boards do not communicate with the HKSP-300. If the slots are not set to “B: OFF”, the error code E302 (communications error with the optional board in serial bus) is displayed.

- HKPF-SP003
- HKPF-SP021
- HKPF-SP022
- HKSP-061M
- HKSP-R80

O: Communication Error Output Select (Version 2.00 and later)

Sets whether the signal is output from the STATUS OUT connector of the PFV-SP series or not when the communication error with the optional board (E302 or E303) has occurred. The contents of output from each slot are set in F to M of the setup menu. The factory setting is “B:OFF (does not output)”.

1. Enter “o” from the setup menu, then press the Enter key.
2. Enter “a” or “b”, then press the Enter key.

```
COMMUNICATION ERROR OUTPUT SELECT: OFF
  A: ON
  B: OFF

  Q: Quit

==>
```

“A: ON”: Outputs
“B: OFF”: Does not output

3. Enter “q”, then press the Enter key. The display returns to the setup menu.

P: Unit Name (Version 2.10 and later)

Sets arbitrary name to the PFV-SP series. The name that is set here is displayed on the universal control panel UCP-8060 and MMStation. The name is not set at the factory.

Notes

- Up to 16 characters can be entered.
- < , >, &, “, ‘, # cannot be used. If entered, they are replaced by space.
- Only the first 10 characters of the name are displayed on the UCP-8060.

1. Enter “p” from the setup menu, then press the Enter key.
2. Enter “a” or “b”, then press the Enter key.

```
UNIT NAME :
  A: Input
  B: Delete

  Q: Quit

==>a
```

“A: Input”: Inputs
“B: Delete”: Deletes

When “A: Input” is selected

3. Enter the name, then press the Enter key.

```
UNIT NAME INPUT :
  Input Name (max. 16 Characters except <, >, &, ”, ’, #)

==>PFV-SP-2
```

4. Enter “q”, then press the Enter key. The display returns to the setup menu.

When “B: Delete” is selected

3. After confirming the name to be deleted, enter “y”, then press the Enter key.
   When you do not want to delete the name, enter “n”, then press the Enter key.

```
UNIT NAME DELETE : PFV-SP-5

  Sure? [Y/N]

==>y
```

4. Enter “q”, then press the Enter key. The display returns to the setup menu.

R: Slot Name (Version 2.10 and later)

Sets arbitrary name to each slot. The name that is set here is displayed on the universal control panel UCP-8060 and MMStation. The name is not set at the factory.

Notes

- Up to 16 characters can be entered.
- < , >, &, “, ‘, # cannot be used. If entered, they are replaced by space.
- Only the first 4 characters of the name are displayed on the UCP-8060.

1. Enter “r” from the setup menu, then press the Enter key. The list of current setting value is displayed.
2. Enter one character from among “a” to “c”, then press the Enter key.

```
SLOT NAME

   SLOT     NAME
  ------------------------
     1        FS1
              |
    17        CPU1

  A: Input

  B: Delete
  C: All Delete

  Q: Quit

==>a
```

“A: Input”: Inputs
“B: Delete”: Deletes
“C: All Delete”: Deletes all

When “A: Input” is selected

3. Enter the slot number, then press the Enter key.

```
SLOT NAME INPUT
  Select Slot Number(1-17), or Q To Quit

==>3
```

4. Enter the name, then press the Enter key.
   To set the name to other slot, repeat steps 3 and 4.

```
SLOT-3 NAME :
  Input Name (max. 16 Characters except <,>,&, ”, ’, #)

==>FS-1
```

5. Enter “q”, then press the Enter key. The display returns to the setup menu.

When “B: Delete” is selected

3. Enter the slot number, then press the Enter key.
4. After confirming the name to be deleted, enter “y”, then press the Enter key.
   When you do not want to delete the name, enter “n”, then press the Enter key.

```
SLOT NAME DELETE
  Select Slot Number(1-17), or Q To Quit

==>3

  SLOT-3 NAME : FS3

  Sure? [Y/N]

==>y
```

5. Enter “q”, then press the Enter key. The display returns to the setup menu.

When “C: All Delete” is selected

3. After the message for confirmation is displayed, enter “y”, then press the Enter key.
   When you do not want to delete the name, enter “n”, then press the Enter key.

```
SLOT NAME ALL DELETE

  Sure? [Y/N]

==>y
```

4. Enter “q”, then press the Enter key. The display returns to the setup menu.

X: Clock Preset

Sets the date and time.

1. Enter “x” from the setup menu, then press the Enter key.
2. Enter in the order of the last two digits of the year (YY), month (MM), date (DD), hour (HH: 24-hour), and minute (MM), then press the Enter key.
3. Enter “q”, then press the Enter key.
   The display returns to the setup menu.

```
>x

CLOCK PRESET : 2002/JAN/02(Wed)  15:23:07
 Input Date & Time (YY,MM,DD,HH,MM), or Q To Quit

 ==>2,10,1,15,30

 ==> Real Time Clock: 2002/OCT/01(Tue)  15:30:00

CLOCK PRESET : 2002/OCT/01(Tue)  15:30:00
 Input Date & Time (YY,MM,DD,HH,MM), or Q To Quit

 ==>q
```

Y: Factory Setting

Returns all setting data to the factory setting except for the items that can be set only by the DIP switch.

1. Enter “y” from the setup menu, then press the Enter key.
2. Enter “a” or “b” , then press the Enter key.
3. After the message for confirmation is displayed, enter “y”, then press the Enter key.
   When you do not want to return the setting data to the factory setting, enter “n”, then press the Enter key.
4. Enter “q”, then press the Enter key.
   The display returns to the setup menu.

```
>y

FACTORY SETTING
  A  : Factory Setting (All Data)
  B  : Factory Setting (Except PFV-SP IP Address)

  Q  : Quit

==>a

  Sure? [Y/N]

==>y
==> !!! FACTORY SETTING (All Data)

FACTORY SETTING
  A  : Factory Setting (All Data)
  B  : Factory Setting (Except PFV-SP IP Address)

  Q  : Quit

==>q
```

Z: Option Board Setting Menu

Calls the setting menu of each optional board via HKSP-300.

1. Enter “z” from the setup menu, then press the Enter key.
2. Enter the slot number you want to call, then press the Enter key.
3. Enter “q”, then press the Enter key.
   The display returns to the setup menu.

```
>z

OPTION BOARD SETTING MENU
  Select Slot Number(1-17), or Q To Quit

==>1
```

Note

The menu screen of the selected optional board is displayed.
For setting procedure, refer to the manual supplied with each optional board since the contents of menu vary depending on the specification of each optional board.

Q: QUIT

Exits the setup menu.
After completion, the display returns to the main menu.

7-4. Setting by Using PC (Ethernet Connection)

Note

The setting of each item is the same as “7-3. Setting by Using PC (USB Connection)”. For the setting procedure, refer to Section 7-3.

Required equipment

- The PC (with network connector) in which the telnet client software is installed.
- Network cable

Preparations

1. Set the IP address of the PC to the same network as the data LAN of this board.
2. Connect the network cable to the hub connected to the DATA connector and data LAN.
3. Start the telnet client with the PC, and access the data LAN of this board and log in.
   Enter the following user name and password for logging in.
   User name: pfvsp
   Password: hksp-300

Setting

When you log in, the main menu screen is displayed.

```
HKSP-300  PROCESSING MODULE CONTROLLER  Version 1.00 (Jun.11.2002 10:15)

[ MAIN MENU ]
    A:   Status Menu
    B:   Setup Menu
    Z:   Service Menu


>b
```

For the subsequent setting, refer to “Setting of each item” in “7-3. Setting by Using PC (USB Connection)”.

Note

HKSP-300 can not accept the access from two or more PCs at the same time.

Quit

Enter “logout” from the main menu, then press the Enter key.

7-5. USB Software

A USB driver and USB terminal file of the PC application software are included in the floppy disk (USB software) supplied with HKSP-300.

USB driver file
PFVUSB.inf: Driver information file
PFVUSB.sys: Driver main file

USB terminal file
PfvspUsb.exe: Executable file of USB terminal software
VppUsb.dll: DLL file for USB terminal software

Note

When the USB cable has been connected, disconnect it, wait at least 3 seconds, then re-connect it. Otherwise, the PC may freeze (displayed blue screen).

Installation of USB driver

Note

The following steps are the setting procedure for Windows 98.
Make the settings in the same procedure when using other OS.

1. Turn on the power of the PC and PFV-SP series.
2. Insert the floppy disk into the PC drive.
3. Connect the PC to the USB connector on the CPU-335 board using USB cable.
   Installation screen of the driver is displayed.
4. Repeatedly click “Next” until the window to search for the driver is displayed.
   Check “Specify a location” and specify the floppy disk drive3 (A:¥ in general).
5. Repeatedly click “Next” until the screen for completion of installation is displayed.
6. After completion of installation, take out the floppy disk and disconnect the USB cable.

Installation of USB terminal

1. Insert the floppy disk into the PC drive.
2. Copy the following two files of the floppy disk to an appropriate directory, such as c:¥Program Files¥PFVSP.
   PfvspUsb.exe
   VppUsb.dll

Startup and operation procedures

1. Connect the PC to the USB connector of the CPU-335 board using USB cable and turn on the power.
2. Double-click “PfvspUsb.exe” in Explorer.
   Note
   If “USB Open” appears on the screen, it means that the connection is correct.
   If “USB Open Failed” appears on the display, select “Open USB” from “Transfer” from the menu bar.
3. Press the Enter key.
   The main menu is displayed.
   Note
   For the subsequent setting, refer to “Setting” in “7-3. Setting by Using PC (USB Connection)”.

File transfer

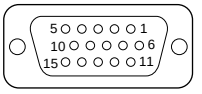
The text file of board information and the binary file of firmware can be transferred to the CPU-335 board using the USB software.

- Click “Transfer” icon of the tool bar and select the file in the dialog box.
- Select “File Transfer” from the “Transfer” menu and select the file in the dialog box.

8. Input and Output Signals of Connector

The input and output signals of the connector on the connector panel and on the front side of the board are as follows:

GPI: D-sub mini 15-pin, female



– EXT VIEW –

(■ indicates the item that can be changed by the setting of HKSP-300. For details on the setting, refer to Section 7-3.)

Pin No.	I/O	Name	Function	Factory setting/description
1	O	GPI OUT1	General purpose output	■ Error status of HKSP-300
2	O	GPI OUT2	General purpose output	■ Warning status of HKSP-300
3	O	GPI OUT3	General purpose output	■ Error status of PFV-SP series*1
4	O	GPI OUT4	General purpose output	■ Error status and warning status of overall optional boards*2
5	I	CPU SW	Input of main CPU switching	■ When forcefully and externally switching the main CPU, set the connector to the active state (low in level).*3
6	I	GPI IN1	General purpose input	Sends the externally input data to each optional board.*4
7	I	GPI IN2	General purpose input	
8	I	GPI IN3	General purpose input	
9	I	GPI IN4	General purpose input	
10	I	GPI IN5	General purpose input	
11	I	GPI IN6	General purpose input	
12	I	GPI IN7	General purpose input	
13	I	GPI IN8	General purpose input	
14	–	GND		
15	–	GND		

∗1: Becomes active state when an error occurs in any of the power unit, power fan, or frame fan.
∗2: Becomes active state when an error or warning occurs.
∗3: Valid only when the redundant CPU is in the slot. Maintain active state for more than 100 ms and set the interval between the two low level to 1 s or more.
∗4: Not used in HKSP-300. The usage and setting procedure of each optional board varies depending on the specification of each optional board.

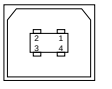
Electrical specification of input pin

Contact or open collector input

Electrical specification of output pin

Open collector output
Connector impressed voltage: 0 to 5 V
Connector pull-in current: 5 mA or less

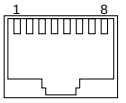
USB:USB series B connector, 4-pin



– EXT VIEW –

Pin No.	I/O	Name	Function
1	I	VBUS	No connection
2	I/O	USBD–	USB data (–)
3	I/O	USBD+	USB data (+)
4	–	GND	Ground

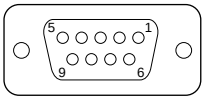
CONTROL/DATA (conforming to RJ-45): 10BASE-T/100BASE-TX (RJ-45, 8-pin)



– EXT VIEW –

Pin No.	I/O	Name	Function
1	O	TX+	Transmitted data (+)
2	O	TX–	Transmitted data (–)
3	I	RX+	Received data (+)
4	–	–	No connection
5	–	–	No connection
6	I	RX–	Received data (–)
7	–	–	No connection
8	–	–	No connection

REMOTE: RS-422A (D-sub 9-pin, female)

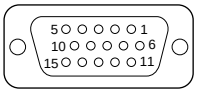


– EXT VIEW –

Pin No.	I/O	Name	Function
1	–	FG	Frame ground
2	O	TX–	Transmitted data (–)
3	I	RX+	Received data (+)
4	–	GND	Common ground
5	–	–	No connection
6	–	GND	Common ground
7	O	TX+	Transmitted data (+)
8	I	RX+	Received data (–)
9	–	–	No connection

Note

PFV-SP series STATUS OUT: D-sub mini 15-pin, female



– EXT VIEW –

(■ indicates the item that can be changed by the setting of HKSP-300. For details on the setting, refer to Section 7-3.)

Pin No.	I/O	Name	Factory setting/description
1	O	PS-A ERROR OUT	The output of power unit A of PFV-SP series is abnormal or the fan stopped.
2	O	PS-B ERROR OUT	The output of power unit B of PFV-SP series is abnormal or the fan stopped.
3	O	FAN ERROR OUT	The fan of PFV-SP series stopped.
4	O	BOARD ERROR OUT	Error status of overall optional boards and excessive consumption of total power
5	O	BOARD WARNING OUT	Warning status of overall optional boards
6	O	GPI-1	■ Error or warning status in slot No. 1 and 2
7	O	GPI-2	■ Error or warning status in slot No. 3 and 4
8	O	GPI-3	■ Error or warning status in slot No. 5 and 6
9	O	GPI-4	■ Error or warning status in slot No. 7 and 8
10	O	GPI-5	■ Error or warning status in slot No. 9 and 10
11	O	GPI-6	■ Error or warning status in slot No. 11 and 12
12	O	GPI-7	■ Error or warning status in slot No. 13 and 14
13	O	GPI-8	■ Error or warning status in slot No. 15, 16, and 17
14	–	GND	
15	–	GND	

Note

- GPI-1 to 8 signals are used exclusively for output. Do not input the signal.
  When input is required, use the input pins of the GPI connector on the HKSP-300 connector panel.
- 8-pin to 13-pin are valid only when HKSP-300 is installed in PFV-SP3300.

9. Battery for Data Backup

Note

Be sure that the stored data will be destroyed when the power is off for a long time with low battery amount left.

The CPU-335 board has a lithium battery for backup of SRAM during power off condition and for driving internal clock.
The duration of the SRAM backup is about 3 years when a new battery is used. Even if the power is on all the time, replace the battery before its life expires. When a warning (warning code: 1-02) is displayed by the self-diagnostic function indicating that the remaining battery amount is low, immediately replace the battery even before its life. For replacing procedure, refer to the maintenance manual of HKSP-300.

Ref. No.	Address	Product name
BT601	(A-1)	Lithium battery (CR2032)

Note

This board is equipped with a high-capacity capacitor besides a battery. If this capacitor is fully charged, the data is backed up while the battery is being replaced.
The available backup time by the capacitor is about a half of the charged (power on) time and approximately up to 8 hours.

10. Backup of Optional Board Data

After completion of the processing during startup, HKSP-300 periodically communicates with each optional board installed in PFV-SP series and updates the backup data. When a backup CPU (redundant CPU) is in the slot, the latest data is stored also in the backup CPU by transferring from the main CPU to the backup CPU. The backup data varies depending on the specification of each optional board.

Note

If the power is turned off while HKSP-300 is writing the backup data to SRAM (IC602), the data of the slot may be destroyed. In this case, the data stored in the optional board takes effect at the next startup.

Relation between STARTUP switch and backup process

The backup operation including the data transfer during startup varies depending on the setting of STARTUP switches of HKSP-300 and optional board. Set the STARTUP switch as required.

Note

The name of the STARTUP switch may vary among the models. For details, refer to the manual of each optional board.

During normal operation

Use the STARTUP switches of HKSP-300 and optional board in NORMAL state.
The setting data of the optional board is stored in optimum condition both HKSP-300 and optional board.

When replacing the optional board

The setting of the STARTUP switches of HKSP-300 and optional board can remain NORMAL.
The data stored in HKSP-300 is transferred and the setting of the previous optional board can be reused.
(You do not have to set the new optional board again.)

When using the setting of optional board used in other PFV-SP series

Set the STARTUP switch of optional board to PROTECT (not NORMAL).
Although the data stored in HKSP-300 is transferred, it is ignored by the optional board and the setting data of the optional board takes effect.

When clearing the setting of HKSP-300

Set the STARTUP switch of HKSP-300 to CLEAR.
HKSP-300 performs various checks before transferring the data. Therefore usually it is not required to clear the data. However, if the stored data need to be erased such as when HKSP-300 installed in the same PFV-SP3300 is reused, clear the data.

When replacing HKSP-300 and optional board at the same time

The setting data cannot be restored as it is. Make the setting again.

Note

Be sure that if the switches of HKSP-300 and optional board are set to the setting other than NORMAL, they operate in the setting other than NORMAL when the power is turned on next time.

When the STARTUP switch is set other than NORMAL, wait for about 10 minutes until the data of HKSP-300 matches with that of optional board. After this, set the switch to NORMAL again and restart normal operation.

11. Specifications

General

Performance guaranteed temperature	+10˚C to +35˚C
Function guaranteed temperature	+5˚C to +40˚C
Storage temperature	−20˚C to +60˚C
Operating humidity (Non-condensing)	10% to 90%
Maximum outer dimensions (Width/height/depth)	Main board: 388.3×112.2×18 mm Connector panel: 152.5×130×19 mm
Mass	Main board: Approx. 400 g Connector panel: Approx. 130 g
Power requirements	+12 V DC, 0.70 A
Power consumption	8.4 W

Input/Output

GPI	Mini D-sub 15-pin, female Contact or open collector input (9) Open collector output (DC +5 V, 5 mA or less)(4)
CONTROL	RJ-45 modular jack Conforms to 100BASE-TX standard
DATA	RJ-45 modular jack Conforms to 100BASE-TX/ 10BASE-T standards
REMOTE	D-sub 9-pin, female Conforms to RS-422A signal standard Data transfer rate: 38.4 kbps (not used)
USB	USB series B connector Conforms to USB 1.1

Design and specifications are subject to change without notice.

HKSP-300 (SY) J, E
3-620-528-02 (1)

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B&P Company

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