

OPERATION MANUAL

USF-1053DDA


Digital Distribution Amplifier

2nd Edition – Rev. 3



Precautions

Important Safety Warnings


[Power]

 Stop	Do not place or drop heavy or sharp-edged objects on the power cord. A damaged cord can cause fire or electrical shock hazards. Regularly check the power cord for excessive wear or damage to avoid possible fire / electrical hazards.
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[Circuitry Access]

 Stop	Do not touch any parts / circuitry with a high heat factor. Capacitors can retain enough electric charge to cause mild to serious shock, even after the power has been disconnected. Capacitors associated with the power supply are especially hazardous.
 Hazard	Unit should not be operated or stored with cover, panels, and / or casing removed. Operating the unit with circuitry exposed could result in electric shock / fire hazards or a unit malfunction.

[Potential Hazards]

 Caution	If abnormal odors or noises are noticed coming from the unit, immediately turn the power off and disconnect the power cord to avoid potentially hazardous conditions. If problems similar to the above occur, contact an authorized service representative before attempting to operate the unit again.
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[Consumables]

 Caution	Consumable items that are used in the unit must be periodically replaced. For further details on which parts are consumables and when they should be replaced, refer to the specifications at the end of the Operation Manual. Since the service life of the consumables varies greatly depending on the environment in which they are used, such items should be replaced at an early date. For details on replacing consumable items, contact your dealer.
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Upon Receipt

Congratulations! By purchasing a USF-1053DDA Digital Distribution Amplifier, you have entered the world of FOR-A and its many innovative products.

Check your received items against the packing list below. Check to ensure no damage has occurred during shipment. If damage has occurred, or items are missing, inform your supplier immediately.

◆ **USF-1053DDA**

ITEM	QTY	REMARKS
USF-1053DDA	1 set	USF-1053DDA Front Module USF-1053DDA Rear Module
DVD-ROM	1	Operation Manual (PDF)
Screw (for Rear Module Installation)	2	

- * This product can be installed into the following frames:
USF-212
USF-212S/AS
USF-105S/AS

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1. Product Overview

1-1. Overview

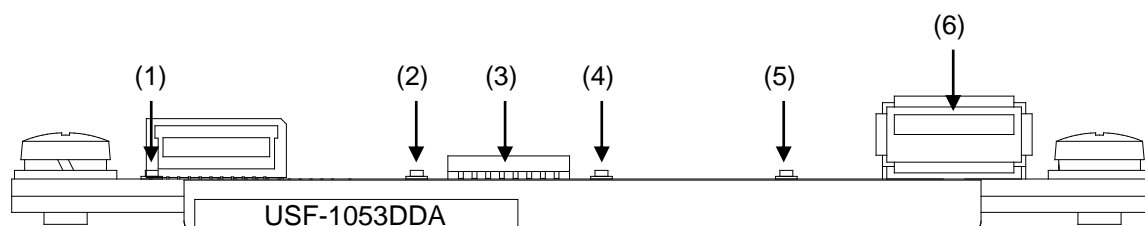
The USF-1053DDA is a multi-bit rate video distribution amplifier that can be installed in a USF frame. The USF-1053DDA supports 3G-SDI, HD-SDI, SD-SDI, and DVB-ASI, and is capable of producing up to 5 outputs from 1 input.

1-2. Features

- Installs into USF frames.
- 1 input 5 distribution outputs
- Supports SDI 3Gbps, 1.5Gbps, and 270Mbps. (Automatic)
- 3G/HD/SD-SDI equalizer and re-clock functions.
- Detection of input signal and identification of 3Gbps/1.5Gbps/270Mbps is possible.
- Supports DVB-ASI (270Mbps) signal.
- 1 input 10 distribution outputs available with two USF-1053DDA modules.
 - Limitation on installation methods may apply.

2. Panel Descriptions

2-1. Front Panel

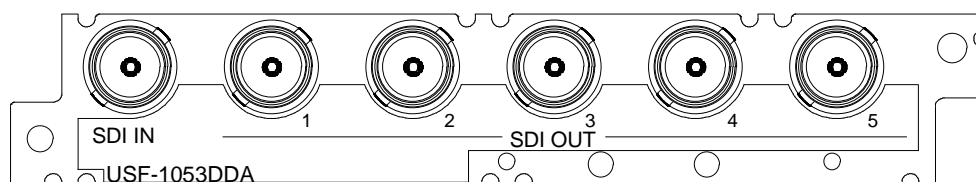


No.	Name	Description
(1)	OPERATE LED	Lights green when power is supplied by USF frame.
(2)	270Mb/s LED *1	Lights green when input SDI signal is 270M b/s.
(3)	DIP Switch	Sets input signal switching.
(4)	1.5Gb/s LED *1	Lights green when input SDI signal is 1.5G b/s.
(5)	3.0Gb/s LED *1	Lights green when input SDI signal is 3G b/s.
(6)	USB connector	Used to upgrade USF-1053DDA software. (Do not connect USB devices.)

*1 When video signals routed from USF frame internal bus are distributed, video signal bit rate detection is not available. All the LEDs; 270Mb/s, 1.5Gb/s, and 3.0Gb/s are turned off.

Refer to Sec. 4 "USF-1053DDA I/O via USF-212S/AS Internal Bus" for switching the video signal source.

2-2. Rear Panel



Name	Description
SDI IN	SDI signal input. Accepts an SD/HD/3G-SDI signal.
SDI OUT 1 - 5	SDI signal outputs. Distributes the SDI IN input to 5 outputs.

3. DIP Switch Settings

The front DIP switch settings allow you to set input signal switching, re-clock function settings, etc.

SW No.	Function	Setting		Factory Setting*1
		OFF	ON	
1	Input Signal Switching	Input Signal Switching (See Table1)	Input Signal Switching (See Table1)	When installed in USF-212: ON (Recommended) When installed in USF-212S/AS: OFF (Recommended) When only USF-1053DDA is shipped: OFF
2				OFF
3				OFF
4				OFF
5	(Factory use)	-	-	ON
6	(Factory use)	-	-	OFF
7	(Factory use)	-	-	OFF
8	(Factory use)	-	-	OFF

*1 The switch is set suitable for the main unit when shipped out from our factory.

IMPORTANT

SW Nos. 5 to 8 are factory use only. Do not change these settings.

Table 1: Input Signal Switch Settings

Slot: USF frame slot no. into which USF-1053DDA is installed.

Slot	SW1	SW2	SW3	SW4	Input signal for distribution
-	OFF	OFF	OFF	OFF	Set by Web GUI.
1	ON	OFF	OFF	OFF	Distributes Slot 1 input. (Rear input)
	OFF	ON	OFF	OFF	Distributes Slot 2 input. (Via frame internal bus)
	OFF	OFF	ON	OFF	Distributes Slot 3 input. (Via frame internal bus)
	OFF	OFF	OFF	ON	Distributes Slot 4 input. (Via frame internal bus)
2	ON	OFF	OFF	OFF	Distributes Slot 2 input. (Rear input).
	OFF	ON	OFF	OFF	Distributes Slot 1 input. (Via frame internal bus).
	OFF	OFF	ON	OFF	Distributes Slot 3 input. (Via frame internal bus)
	OFF	OFF	OFF	ON	Distributes Slot 4 input. (Via frame internal bus)
3	ON	OFF	OFF	OFF	Distributes Slot 3 input. (Rear input)
	OFF	ON	OFF	OFF	Distributes Slot 1 input. (Via frame internal bus)
	OFF	OFF	ON	OFF	Distributes Slot 2 input. (Via frame internal bus).
	OFF	OFF	OFF	ON	Distributes Slot 4 input. (Via frame internal bus)
4	ON	OFF	OFF	OFF	Distributes Slot 4 input. (Rear input)
	OFF	ON	OFF	OFF	Distributes Slot 1 input. (Via frame internal bus).
	OFF	OFF	ON	OFF	Distributes Slot 2 input. (Via frame internal bus)
	OFF	OFF	OFF	ON	Distributes Slot 3 input. (Via frame internal bus).
5	ON	OFF	OFF	OFF	Distributes Slot 5 input. (Rear input).
	OFF	ON	OFF	OFF	Distributes Slot 6 input. (Via frame internal bus)
	OFF	OFF	ON	OFF	Distributes Slot 7 input. (Via frame internal bus)
	OFF	OFF	OFF	ON	Distributes Slot 8 input. (Via frame internal bus)

Slot	SW1	SW2	SW3	SW4	Output Signal
6	ON	OFF	OFF	OFF	Distributes Slot 6 input. (Rear input)
	OFF	ON	OFF	OFF	Distributes Slot 5 input. (Via frame internal bus)
	OFF	OFF	ON	OFF	Distributes Slot 7 input. (Via frame internal bus)
	OFF	OFF	OFF	ON	Distributes Slot 8 input. (Via frame internal bus)
7	ON	OFF	OFF	OFF	Distributes Slot 7 input. (Rear input)
	OFF	ON	OFF	OFF	Distributes Slot 5 input. (Via frame internal bus)
	OFF	OFF	ON	OFF	Distributes Slot 6 input. (Via frame internal bus)
	OFF	OFF	OFF	ON	Distributes Slot 8 input. (Via frame internal bus).
8	ON	OFF	OFF	OFF	Distributes Slot 8 input. (Rear input)
	OFF	ON	OFF	OFF	Distributes Slot 5 input. (Via frame internal bus).
	OFF	OFF	ON	OFF	Distributes Slot 6 input. (Via frame internal bus)
	OFF	OFF	OFF	ON	Distributes Slot 7 input. (Via frame internal bus).
9	ON	OFF	OFF	OFF	Distributes Slot 9 input. (Rear input)
	OFF	ON	OFF	OFF	Distributes Slot 10 input. (Via frame internal bus)
	OFF	OFF	ON	OFF	Distributes Slot 11 input. (Via frame internal bus).
	OFF	OFF	OFF	ON	Distributes Slot 12 input. (Via frame internal bus).
10	ON	OFF	OFF	OFF	Distributes Slot 10 input. (Rear input)
	OFF	ON	OFF	OFF	Distributes Slot 9 input. (Via frame internal bus).
	OFF	OFF	ON	OFF	Distributes Slot 11 input. (Via frame internal bus).
	OFF	OFF	OFF	ON	Distributes Slot 12 input. (Via frame internal bus)
11	ON	OFF	OFF	OFF	Distributes Slot 11 input. (Rear input)
	OFF	ON	OFF	OFF	Distributes Slot 9 input. (Via frame internal bus)
	OFF	OFF	ON	OFF	Distributes Slot 10 input. (Via frame internal bus).
	OFF	OFF	OFF	ON	Distributes Slot 12 input. (Via frame internal bus)
12	ON	OFF	OFF	OFF	Distributes Slot 12 input. (Rear input).
	OFF	ON	OFF	OFF	Distributes Slot 9 input. (Via frame internal bus)
	OFF	OFF	ON	OFF	Distributes Slot 10 input. (Via frame internal bus)
	OFF	OFF	OFF	ON	Distributes Slot 11 input. (Via frame internal bus)

- In case SW1 to SW4 are set to other than those described in **Table 1: Input Signal Switching Settings**, USF-1053DDA will distribute its input.

4. USF-1053DDA I/O via USF-212S/AS Internal Bus

USF-1053DDA modules can input an SDI signal via USF-212S/AS frame internal bus.

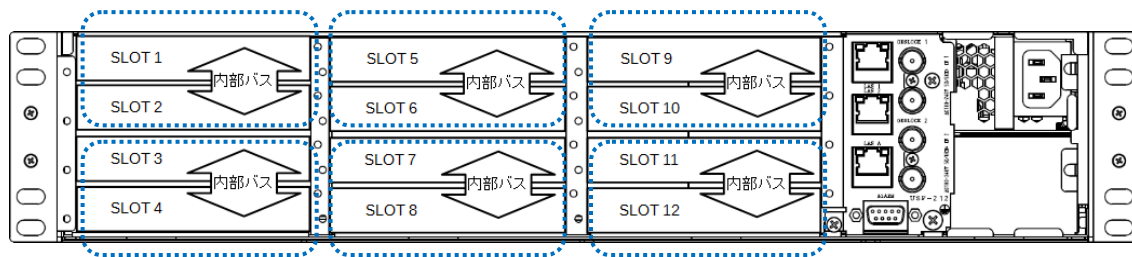
USF-1053DDA modules can output an SDI signal via USF-212S/AS frame internal bus.

To use frame internal buses for video signal distribution, change module settings using dip switches on USF-1053DDA front panels or Web GUI pages.

◆ Distributing another USF-1053DDA module input (1 x 10)

The number of outputs can be increased up to 10 by installing two USF-1053DDA modules into a USF frame and using internal bus lines. Install module pairs according to the figure shown above (e.g., into Slot 1 and Slot 2.). (See Sec. 4-1. “Distributing another USF-1053DDA module input (1 x 10).”)

USF-212S/AS Frame Rear Panel

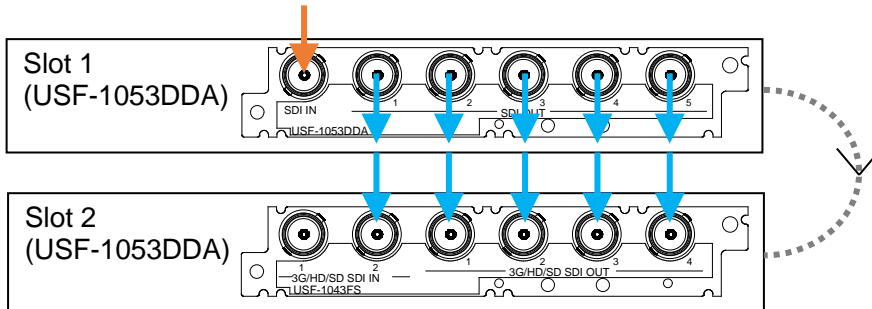


◆ Distributing another type module input

A USF-1053DDA module can be paired with another type of USF module, for instance a USF-1043FS. In such cases these two modules should be installed in any slots, from Slots 1 to 4. The same applies for Slots 5 to 8 and Slots 9 to 12. (Refer to Sec. 4-2. “Distributing another type module input.”)

4-1. Distributing another USF-1053DDA module input (1 x 10)

This section describes an example of how to distribute the Slot 1 input to 10 outputs when two USF-1053DDA modules are installed into Slots 1 and 2.



4-1-1. Input Settings via DIP Switch

Set the front panel DIP switches on USF-1053DDA modules to those shown in the tables below and install them into **Slot 1** and **Slot 2** on the USF frame.

USF-1053DDA	SW1	SW2	SW3	SW4	Uses the rear panel input.
Slot 1	ON	OFF	OFF	OFF	

USF-1053DDA	SW1	SW2	SW3	SW4	Uses the Slot 1 input.
Slot 2	OFF	ON	OFF	OFF	

See Sec. 3. "DIP Switch Settings" for other USF-1053 module pair settings.

4-1-2. Input Settings via Web GUI

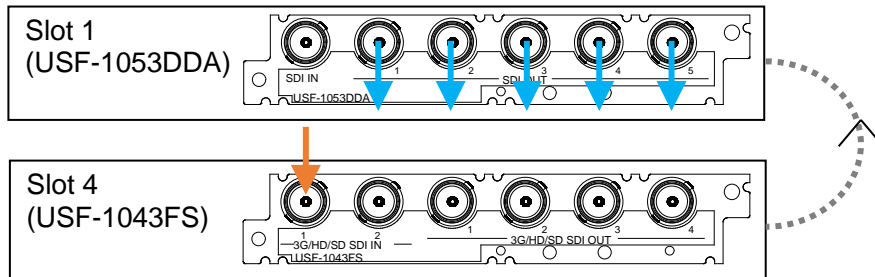
- (1) Install two USF-1053DDA modules into Slots 1 and 2.
- (2) Start the Web GUI and set as follows.

Set Slot 1 Input Source to **Rear In**.
Set Slot 2 Input Source to **Slot 1**.

- (3) Input a video signal into SDI IN of the USF-1053DDA in Slot 1.

4-2. Distributing another type module input

This section describes an example of how to route the Slot 4 input to Slot 1 output when USF-1053DDA is installed in **Slot 1** and USF-1043FS is installed in **Slot 4**.



4-2-1. Input Settings via DIP Switch

- (1) Set USF-1053DDA DIP switch settings to those shown in the table below and install the module into **Slot 1** on the USF Frame.

SW1	SW2	SW3	SW4
OFF	OFF	OFF	ON

- (2) Install a USF-1043FS into **Slot 4** of the USF frame.
- (3) Input a video signal into SDI IN1 of the USF-1043FS in Slot 4.

4-2-2. Input Settings via Web GUI

- (1) Install a USF-1053DDA into **Slot 1** and USF-1043FS into **Slot 4**.
- (2) Start the Web GUI and set as follows.

<USF-1053DDA>
Set **Slot 4** as the Slot 1 Input Source.

<USF-1043FS>
Go to VIDEO Tab > [Video System] > [System Settings] and set Primary Source as **SDI 1**.

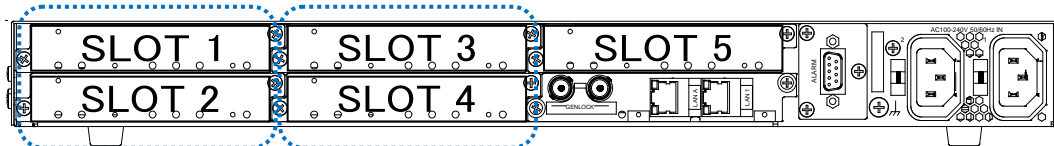
- (3) Input a video signal into SDI IN1 of the USF-1043FS in Slot 4.

5. USF-1053DDA I/O via USF-105S/AS Internal Bus

USF-1053DDA modules can input an SDI signal via USF-105S/AS frame internal bus.
 USF-1053DDA modules can output an SDI signal via USF-105S/AS frame internal bus.

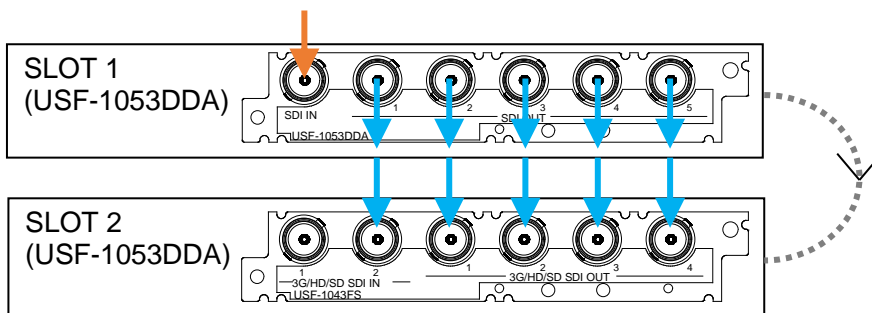
The number of outputs can be increased up to 10 by installing two USF-1053DDA modules into a USF frame and using internal bus lines. Install a module pair into **Slot 1 and Slot 2** or **Slot 3 and Slot 4** on the USF-105S/AS frame

USF-105S/AS Frame Rear Panel



To use frame internal buses for video signal distribution, change module settings using dip switches on the USF-1053DDA front panel or in the Web GUI page.

5-1. Slot 1 to Slot 2



5-1-1. Input Settings via DIP Switch

Set the front panel DIP switches on USF-1053DDA modules to those shown in the tables below and install them into **Slot 1** and **Slot 2** on the USF frame.

USF-1053DDA	SW1	SW2	SW3	SW4	Uses the rear panel input.
Slot 1	ON	OFF	OFF	OFF	

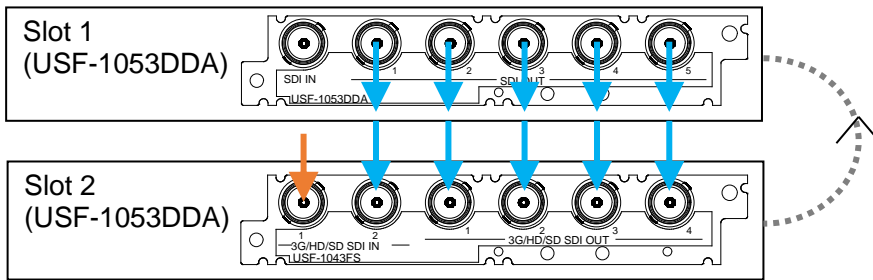
USF-1053DDA	SW1	SW2	SW3	SW4	Uses the Slot 1 input.
Slot 2	OFF	ON	OFF	OFF	

5-1-2. Input Settings via Web GUI

- (1) Install two USF-1053DDA modules into Slots 1 and 2.
- (2) Start the 1053DDA Web GUI and set as follows.

Set Slot 1 Input Source to **Rear In**.
 Set Slot 2 Input Source to **Slot 1**.

5-2. Slot 2 to Slot 1



5-2-1. Input Settings via DIP Switch

Set the DIP switch settings to those shown in the tables below for two USF-1053DDA modules and install them into **Slot 1** and **Slot 2** on the USF frame.

USF-1053DDA	SW1	SW2	SW3	SW4	Uses the Slot 2 input.
Slot 1	OFF	ON	OFF	OFF	

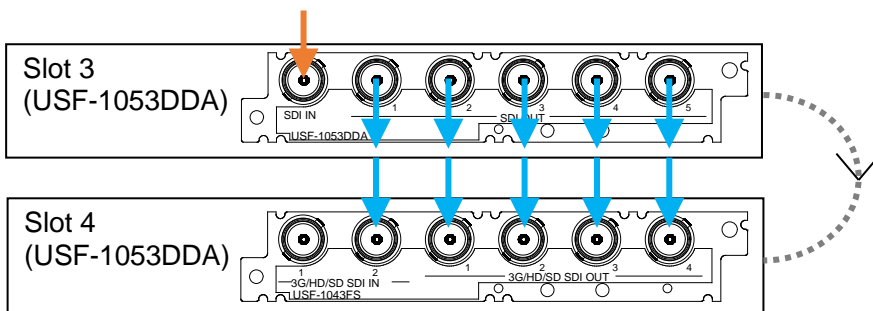
USF-1053DDA	SW1	SW2	SW3	SW4	Uses the rear panel input.
Slot 2	ON	OFF	OFF	OFF	

5-2-2. Input Settings via Web GUI

- (1) Install two USF-1053DDA modules into Slots 1 and 2.
- (2) Start the 1053DDA Web GUI and set as follows.

Set Slot 1 Input Source to **Slot 2**.
Set Slot 2 Input Source to **Rear In**.

5-3. Slot 3 to Slot 4



5-3-1. Input Settings via DIP Switch

USF-1053DDA	SW1	SW2	SW3	SW4	Uses the rear panel input.
Slot 3	ON	OFF	OFF	OFF	

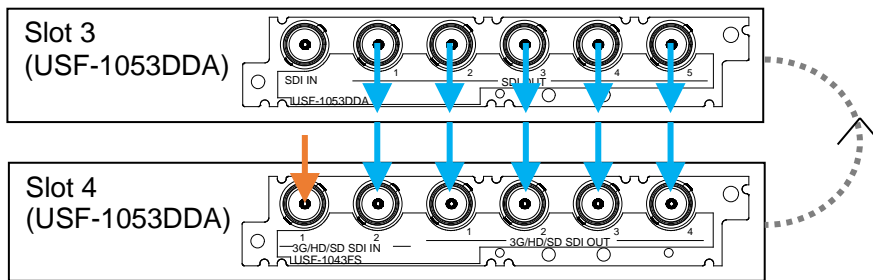
USF-1053DDA	SW1	SW2	SW3	SW4	Uses the Slot 3 input.
Slot 4	OFF	OFF	OFF	ON	

5-3-2. Input Settings via Web GUI

- (1) Install two USF-1053DDA modules into Slots 3 and 4.
- (2) Start the 1053DDA Web GUI and set as follows.

Set Slot 3 Input Source to **Rear In.**
 Set Slot 4 Input Source to **Slot 3.**

5-4. Slot 4 to Slot 3



5-4-1. Input Settings via DIP Switch

USF-1053DDA	SW1	SW2	SW3	SW4	Uses the Slot 4 input.
Slot 3	OFF	OFF	OFF	ON	

USF-1053DDA	SW1	SW2	SW3	SW4	Uses the rear panel input.
Slot 4	ON	OFF	OFF	OFF	

5-4-2. Input Settings via Web GUI

- (1) Install two USF-1053DDA modules into Slots 3 and 4.
- (2) Start the 1053DDA Web GUI and set as follows.

Set Slot 3 Input Source to **Slot 4.**
 Set Slot 4 Input Source to **Rear In.**

6. Web GUI

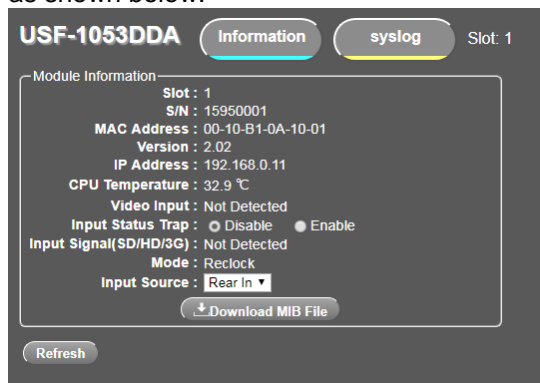
Status parameters of USF-1053DDA can be displayed on the Web display if the module is installed in a USF frame. SNMP monitoring is also available. Refer to the USF frame operation manual for details on displaying the Web GUI window.

NOTE

USF-1053DDA does not support simultaneous Web GUI access from multiple PCs. To simultaneously monitor a USF-1053DDA from multiple PCs, use the SNMP function.

6-1. Web Display Information

Start the Web GUI and click on a USF-1053DDA from the installed slot number to open the window as shown below.

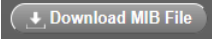


Module Information

Item	Description
Slot	Slot no. of the USF frame in which USF-1053DDA is installed.
S/N	Serial Number of USF-1053DDA.
MAC Address	MAC address of USF-1053DDA.
Version	Software version of USF-1053DDA.
IP Address	IP address of USF-1053DDA.
CPU Temperature	Temperature of the CPU on the USF-1053DDA.
Video Input	Displays video input status. Detected: Normal video input. Not Detected: No video input, or input level is low. When Input Source is set other than Rear In, input signal cannot be detected. "-----" is displayed.
Input Status Trap	Sets the SNMP trap setting when monitoring USF-1053DDA via SNMP manger; Enable: Sends input status traps Disable: Sends no traps. When Input Source is set other than Rear In, input signal cannot be detected so no trap is sent although Enable is selected.
Input Signal (SD/HD/3G)	Displays the bit rate of SDI input; SD (270Mbit/sec), HD (1.5Gbit/sec) or 3G (3.0Gbit/sec). No Signal: No input signal. When Input Source is set other than Rear In, input signal bit rate cannot be detected. "-----" is displayed.
Mode	Displays the re-clock function mode.

Input Source	Displays the USF-1053DDA Input Source. Rear In or Slot 1 to 12 Input Sources are settable via Web GUI if SW1 to SW4 are all Off. The slot number(s) set by “Table 1: Input Signal Switch Settings” are shown grayed out here if any of SW1 to SW4 switch(es) is(are) On,
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Downloading MIB Files

- (1) Click  to download the MIB (Management Information Base) for your SNMP manager.
- (2) Select **Save** (S) from the opened dialog box.
- (3) FORA-USF1053DDA-MIB.zip File is downloaded.
- (4) Unzip the file and load it into your SNMP manager.

6-2. syslog Functions

The USF-1053DDA supports log monitoring and message transmission via syslog protocol. Clicking the syslog tab opens a window shown as below.

Item	Descriptions
Send syslog	Select Enable to send syslog messages to the management terminal.
Send address	Sets the IP address to send syslog messages to. The IP address is the same as the SNMP trap address. Refer to the USF frame operation manual for details on setting SNMP trap addresses.
Facility	Sets syslog logging facilities in Local 0 through Local 7.
Header message	Sets syslog header messages up to a maximum of 63 alphanumeric characters. Factory setting: USF-1053DDA.
Input video detect	Sets detection messages for video input into USF-1053DDA (maximum of 63 alphanumeric characters). Sets priority in 9 steps. Factory setting: Notice .
Input video loss	Sets detection messages for input video into USF-1053DDA is lost (maximum 63 alphanumeric characters). Sets priority in 9 steps. Factory setting: Warning .

- * Click **Apply** when settings are changed.
- * When video signals routed from USF frame internal bus are distributed, , syslog messages are not sent out.

7. About SNMP

The USF-1053DDA can be remotely monitored using an external SNMP monitoring system that supports SNMPv2C. MIB (Management Information Base) files that are required for SNMP monitoring systems can be downloaded from the Web GUI. Refer to the prior section for details on downloading MIB files. Refer to the USF frame operation manual for details on SNMP settings.

◆ GET List

Object group	Item Name	Object name in MIB file	Value	OID	Type	TRAP Function
OID: 1.3.6.1.4.1.20175.1.312.1.						
Unit Status	Product Name	usf1053DdaProductName	USF-1053DDA	1	OCTET STRING	
	Product Code	usf1053DdaProductCode	1023808	2	INTEGER	
	Serial Number	usf1053DdaSerialNumber	1595****	3	INTEGER	
	Soft Version	usf1053DdaVersion	**.**	4	OCTET STRING	
	Slot Number	usf1053DdaSlotNumber	1~12	5	INTEGER	
	CPU Temperature	usf1053DdaCpuTemperature	** degree Celsius	6	INTEGER	
	Input Video Status	usf1053DdaInputStatus	-1:cannotDetect 0: not Detected 1: detected	7	INTEGER	✓
	Input SDI Bit Rate	usf1053DdaSdiRate	-1:cannotDetect 0: not Detected 1: sdi SD 2: sdi HD 3: sdi 3G	8	INTEGER	
Reclock Bypass Setting	usf1053DdaReclockBypass	0:reclocking 1:reclock Bypass	9	INTEGER		

* No item can be set from SNMP.

◆ TRAP List

Object Group	Item Name	Object name in MIB file	OID	Reference Object	Type
OID: 1.3.6.1.4.1.20175.1.312.0.					
TRAP	SDI Input	usf1053DdaInputStatusChanged	1	usf1053DdaSlotNumber	INTEGER
				usf1053DdaInputStatus	INTEGER

* When video signals routed from USF frame internal bus are distributed, SDI Input trap is not sent out.

8. Specifications and Dimensions

8-1. Specifications

Video Input	3G-SDI: 3Gbps HD-SDI: 1.5Gbps SD-SDI: 270Mbps DVB-ASI: 270Mbps 75Ω BNC x 1
Video Output	3G-SDI: 3Gbps HD-SDI: 1.5Gbps SD-SDI: 270Mbps DVB-ASI: 270Mbps 75Ω BNC x 5
Cable Compensation	Automatic Cable Compensation 3G-SDI: Max. 70m (Using 5C-FB-equivalent cable) HD-SDI: Max. 100m (Using 5C-FB-equivalent cable) SD-SDI: Max. 200m (Using 5C-2V-equivalent cable)
SNMP	SNMP Monitoring available (via USF frame) SNMP version v2C
Temperature	0°C to 40 °C
Humidity	30% to 90% (no condensation)
Power	+12V DC (Supplied by USF frame)
Power Consumption	3VA (3W)
Dimensions	Front Module: 106 (W) x 356 (D) mm Rear Module: 114 (W) x 20.2 (H) mm
Weight	220 g
Required Slot	1 Slot

8-2. External Dimensions

(All dimensions in mm)

