FOR.A®
INNOVATIONS IN VIDEO
and AUDIO TECHNOLOGY

OPERATION MANUAL

UF-106B
Universal Frame

UF-106BPS
Power Supply Module

1st Edition - Rev. 3

FOR-A COMPANY LIMITED

Precautions

Important Safety Warnings

[Power]

 Caution	Operate unit **only** on the specified supply voltage.
	Disconnect power cord by connector only. **Do not** pull on cable portion.
 Stop	**Do not** place or drop heavy or sharp-edged objects on power cord. A damaged cord can cause fire or electrical shock hazards. Regularly check power cord for excessive wear or damage to avoid possible fire / electrical hazards.

[Grounding]

 Caution	**Ensure** unit is properly grounded at all times to prevent electrical shock hazard.
 Hazard	**Do not** ground the unit to gas lines, units, or fixtures of an explosive or dangerous nature.
 Caution	**Ensure** power cord is firmly plugged into AC outlet.

[Operation]

 Hazard	**Do not** operate unit in hazardous or potentially explosive atmospheres. Doing so could result in fire, explosion, or other dangerous results.
 Hazard	**Do not** allow liquids, metal pieces, or other foreign materials to enter the unit. Doing so could result in fire, other hazards, or unit malfunction.
	If foreign material does enter the unit, turn power off and disconnect power cord **immediately.** Remove material and contact authorized service representative if damage has occurred.

[Transportation]

 Caution	**Handle** with care to avoid shocks in transit. Shocks may cause malfunction. When you need to transport the unit, use the original packing materials or alternate adequate packing.

[Circuitry Access]

	**Do not** remove covers, panels, casing, or access circuitry with power applied to the unit! Turn power off and disconnect power cord prior to removal. Internal servicing / adjustment of unit should only be performed by qualified personnel.
 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 power is disconnected. Capacitors associated with the power supply are especially hazardous. Avoid contact with any capacitors.
 Hazard	Unit **should not** be operated or stored with cover, panels, and / or casing removed. Operating unit with circuitry exposed could result in electric shock / fire hazards or unit malfunction.

[Potential Hazards]

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

[Rack Mount Brackets, Ground Terminal, and Rubber Feet]

 Caution	To rack mount or ground the unit, or to install rubber feet, **do not** use screws or materials other than those supplied. Otherwise, it may cause damage to the internal circuits or components of the unit. If you remove the rubber feet attached on the unit, **do not** reinsert the screws securing the rubber feet.

[Consumables]

 Caution	The consumables used in unit must be replaced periodically. 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, they should be replaced at an early date. For details on replacing the consumables, contact your dealer.

Upon Receipt

Unpacking

UF-106B/UF-106BPS units and their accessories are fully inspected and adjusted prior to shipment. Operation can be performed immediately upon completing all required connections and operational settings.

Check your received items against the packing lists below.

◆ **UF-106B**

ITEM	QTY	REMARKS
UF-106B	1	The blank panel for rear module installation is optional.
AC Cord	1 set	AC cord, AC cord retainer
Operation Manual	1	This manual

◆ **UF-106BPS**

ITEM	QTY	REMARKS
UF-106BPS	1	Redundant power supply front unit and rear unit
AC Cord	1 set	AC cord, AC cord retainer
Screw (bind, M3 x 6)	2	For front unit
Screw (bind, M3 x 10)	2	For rear unit
Operation manual	1	This manual

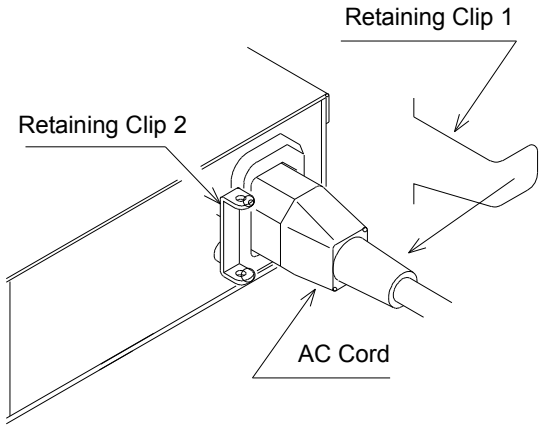
Check

Check to ensure no damage has occurred during shipment. If damage has occurred, or items are missing, inform your supplier immediately.

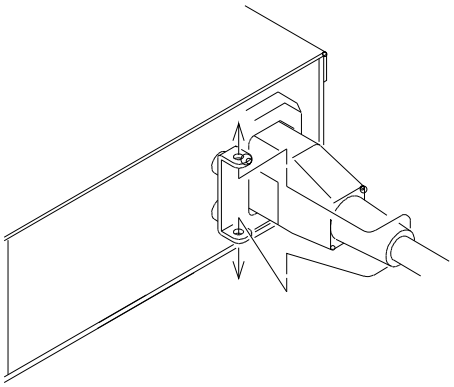
IMPORTANT
Do not stack units on top of one another.

Installing the AC Cord Retaining Clips

1) Securely plug the AC cord into the AC inlet
2) Attach Retaining Clip 1 onto the side of the AC cord.



3) Thread both ends of Retaining Clip 1 into the holes of Retaining Clip 2.



The installation is now complete.

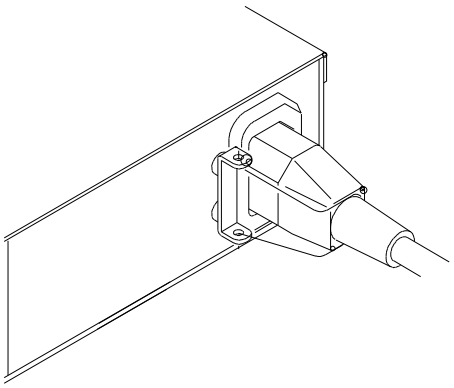


Table of Contents

1. Prior to Starting

1-1. Welcome

Congratulations! By purchasing UF-106B Universal Frame you have entered the world of FOR-A and its many innovative products. Thank you for your patronage and we hope you will turn to FOR-A products again and again to satisfy your video and audio needs.
FOR-A provides a wide range of products, from basic support units to complex system controllers, which have been increasingly joined by products for computer video based systems. Whatever your needs, talk to your FOR-A representative. We will do our best to be of continuing service to you.

1-2. About the UF-106B/UF-106BPS

The UF-106B Universal Frame allows any system to be built at low cost and under minimum space. Up to six UFM modules can be installed.
Installation of the optional redundant power supply allows increased safety during operation.

1-3. Features

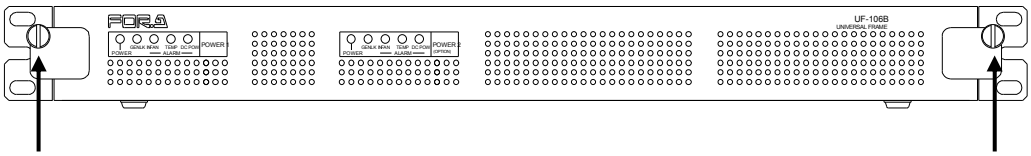
- Up to six UFM modules (boards) including the UFM-30 series can be installed to match your system requirements.
- UFM-30CTL (Control Card) mountable
- Installation of the UF-106BPS enables a redundant power supply (dual power supply) configuration.
  (When the UF-106BPS is installed, the maximum number of installable UFM modules is four.)
- UF-106APS and UF-106BPS, redundant power supply units, are substitutable for each other.
- All modules can be replaced from the front. Front power unit and front UFM module both support hot-swapping.
- Alarm sensors (Temperature Error/ Fan Stop/ Power Unit Voltage Error) and status indicators (GENLOCK IN/ Power) are shown on front LEDs.
- Alarm data can be output from rear connectors. (One make-contact output and two open-collector outputs.)
- One loop-through connector for genlock signal (BB or Tri-level sync) input. (The genlock signal can be supplied to all universal frame modules installed in the unit.)
- Network control available using UFM-30CTL
- EIA standard IRU size

1-4. About This Manual

Before connecting or operating your unit, read this operation manual thoroughly to ensure you understand the product. After reading, it is important to keep this manual in a safe place and available for reference.

2. Panel Descriptions

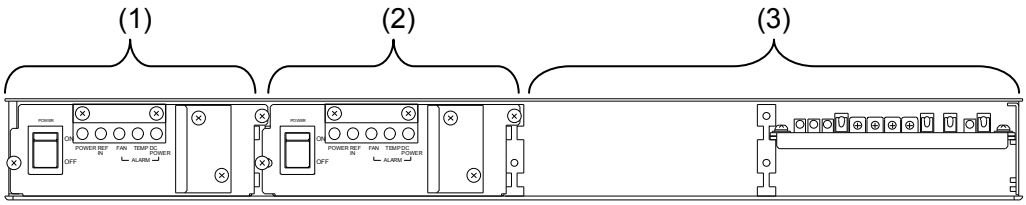
2-1. Front Panel



To remove the front panel, loosen and pull out the two knob screws on the front panel face.

2-2. Front Interior

The slot configuration shown below is revealed when the front panel is removed.



(1) Dedicated power supply slot
A slot for the power supply front unit.
The standard power unit is installed in slot (1).

(2) Power unit/Module shared slot
Slot (2) is a shared slot for a front redundant power unit or front UFM modules.
A front power unit or front UFM modules are installed here.
Two front UFM modules can be installed in slot (2). In this case, up to six UFM modules can be installed.
When the redundant power supply is installed, the maximum number of installable UFM modules is four.

NOTE
Two power units can be installed in the UF-106B. The redundant power supply is option (UF-106BPS). The power unit can be replaced without interrupting the main unit power supply, in case there is a problem in one power unit, If two power units are installed and both power switches are turned on.

(3) Dedicated module slot
Slot (3) is a dedicated UFM module slot.
Front UFM modules are installed here.
Power units cannot be installed in this slot.
For the module operating procedures, refer to the respective module operation manuals.

2-3. Slot No.

The slots are numbered 1, 2, 3, … 7 starting from the right, as viewed from the front.

- When one power unit is installed

7 （POW1）	5	3	1
	6	4	2

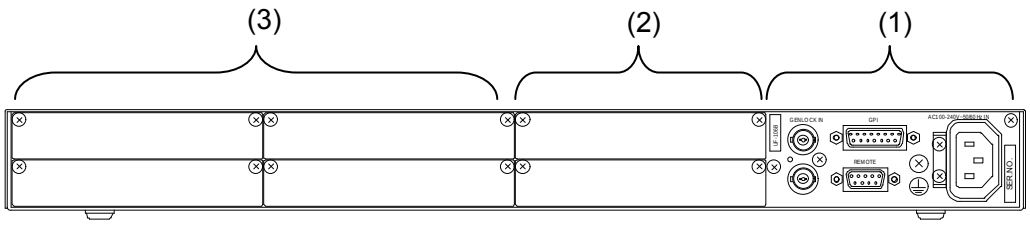
- When two power units are installed

7 （POW1）	6 （POW2）	3	1
		4	2

(When the redundant power supply is installed, the maximum number of installable UFM modules is four.)

2-4. Rear Panel

The rear panel has the following slot configuration.



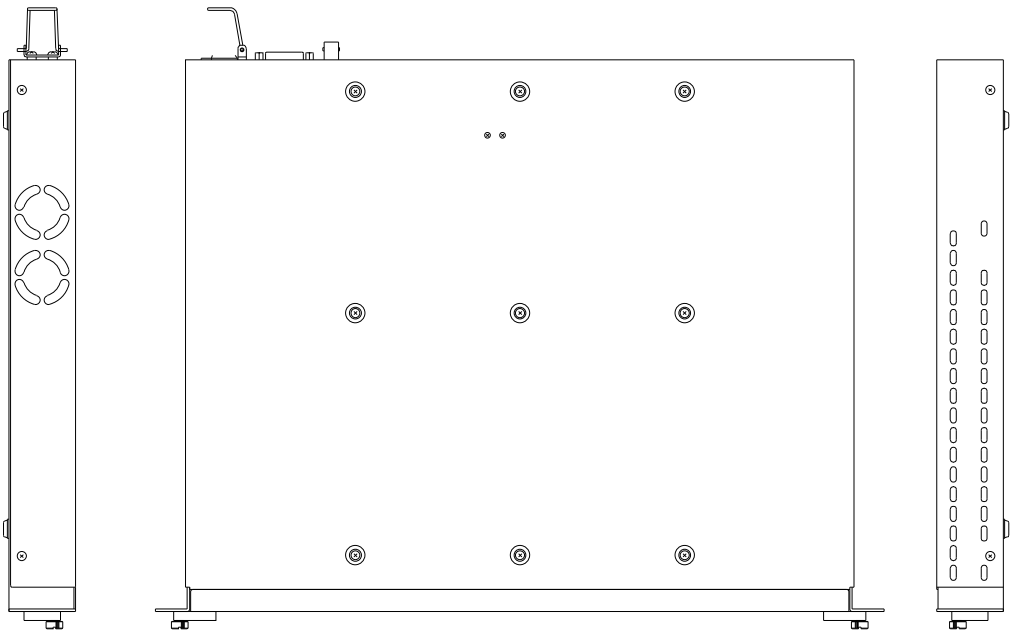
(1) Dedicated power supply slot
Slot (1) is a slot for the power supply rear unit.
The standard power unit is installed in slot (1).

(2) Power unit/Module shared slot
Slot (2) in the figure above is a shared slot for a rear redundant power unit or rear UFM modules.
The rear power unit or rear UFM modules are installed here.

(3) Dedicated module slot
Slot (3) in the figure above is a dedicated UFM module slot.
The rear UFM modules are installed here.
Power units cannot be installed in this slot.

2-5. Fan

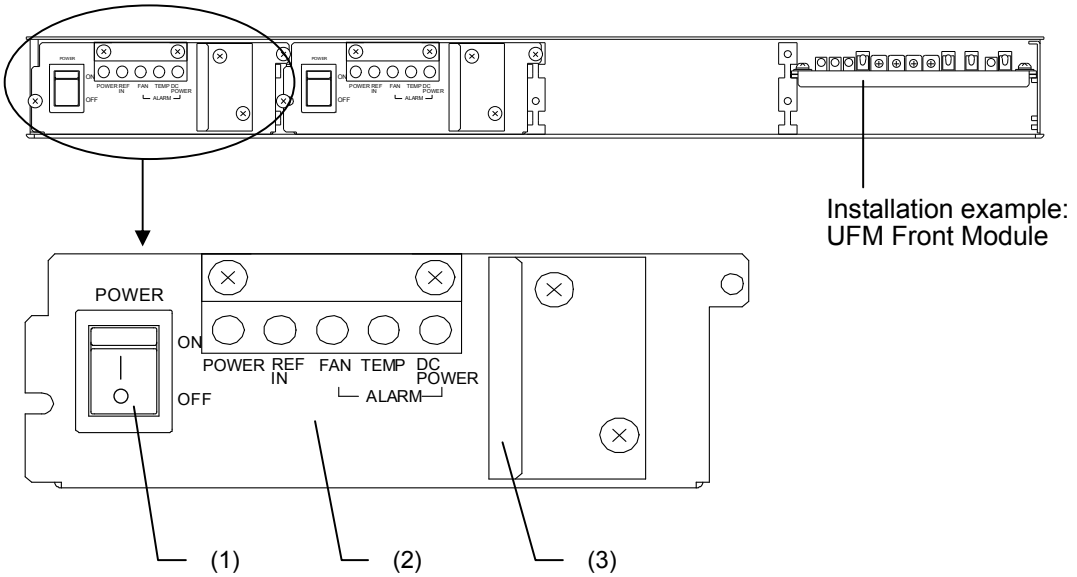
Fan units are provided to prevent overheating due to heat generated inside the device.Do not block the vent openings on both side panels.



(Front Panel)

2-6. Power Unit

2-6-1. Front Power Unit

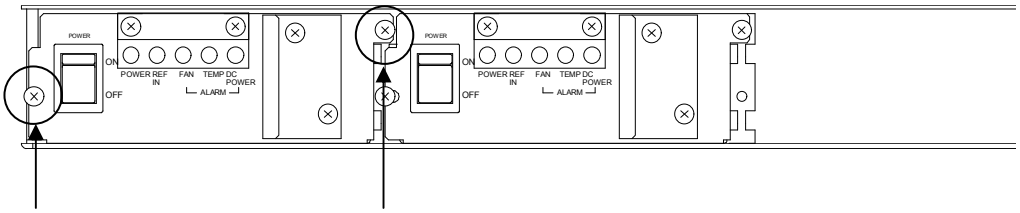


(1) POWER switch
This is the power switch. The power turns ON when set to "|".

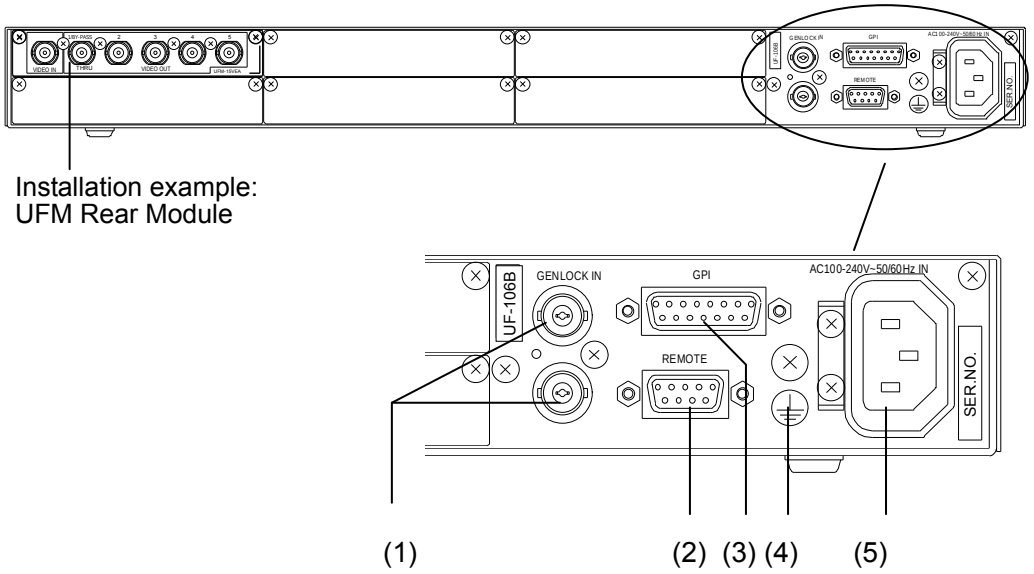
(2) Status Indicators

LED indicator	Description	
POWER	Lit green	The DC power is being supplied normally.
REF IN	Lit green	An external reference signal (BB or Tri-level sync) is input to the rear panel GENLOCK IN terminal.
FAN	Unlit	All cooling fans are working properly.
	Lit red	One or more fans has failed. Power off the unit and replace the fan(s), if necessary.
TEMP	Unlit	The temperature of the power supply unit is normal.
	Lit red	The temperature of the power supply unit is abnormal. Replace the power supply unit.
DC POWER	Unlit	The voltage of the power supply unit is normal.
	Lit red	The voltage of the power supply unit is abnormal. Replace the power supply unit.

(3) Power unit eject lever
To remove the power unit, take off the two screws on the front of the power unit, and then pull out the eject lever.



2-6-2. Rear Power Unit (Standard Power)



(1) GENLOCK IN (Auto-terminated connector)
This terminal is an input connector for the reference signal.
Input the black burst (BB) or tri-level sync signal that serves as a reference signal.
To loop-through the reference signal, connect another device to the other connector of the two. If a loop-through connection is not used, the loop-through connector is automatically 75Ω terminated.

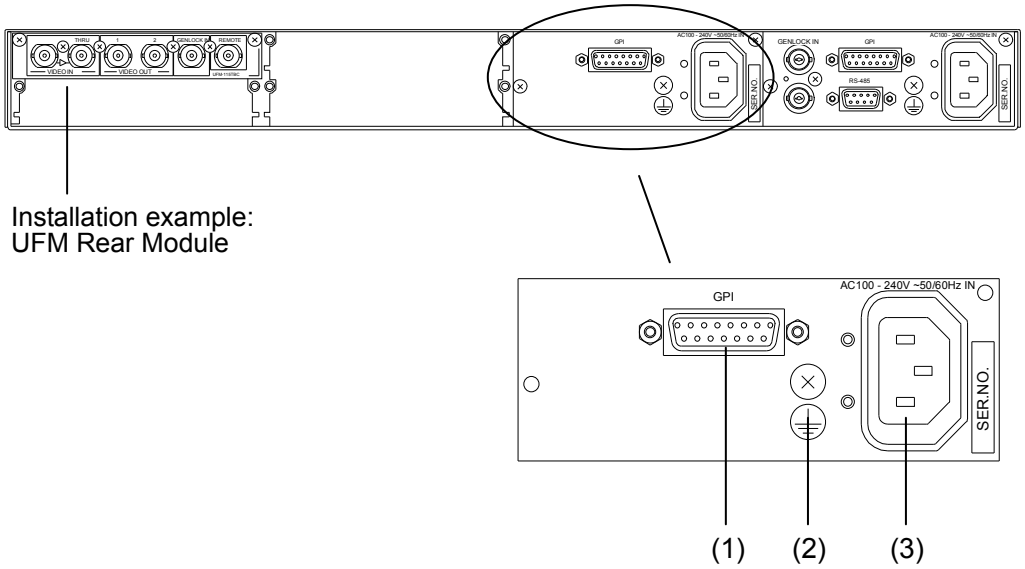
(2) REMOTE
Not used.

(3) GPI
This terminal is used to output alarm signals to an external device when a power supply, fan, or temperature error occurs.
See section 2-7 for detailed specifications of the GPI connector.

(4) Ground terminal
Be sure to always ground the device to protect operators against static electricity and/or electrical shock.

(5) AC power input (100 to 240 VAC 50/60 Hz)
Used for connection to an AC power source using the supplied AC cable.

2-6-3. Rear Power Unit (Redundant Power Supply)



(1) GPI
This terminal is used to output alarm signals to an external device when a power supply, fan, or temperature error occurs.
See section 2-7 for details on the GPI connector.

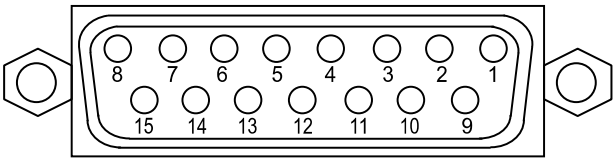
(2) Ground terminal
Be sure to always ground the device to protect operators against static electricity and/or electrical shock.

(3) AC power input (100 to 240VAC 50/60 Hz)
Used for connection to an AC power source using the supplied AC cable.

IMPORTANT
The UF-106B standard power unit and UF-106BPS redundant power unit **can** be installed in UF-106A frames, but they **cannot** be installed in UF-106 frames. In the same way, the UF-106 standard power unit and UF-106PS redundant power unit cannot be install in the UF-106A or UF-106B frames. Consult your FOR-A reseller for more details about the replacement of your power supply unit/s.

2-7. GPI Connector

2-7-1. GPI Connector Specifications



15-pin D-sub, female

Compatible connector:
15-pin D-sub male
DA-15PF-N (JAE)
Cover:
Metal hood
Short screw
DA-C4-J10-S1 (JAE)
*Using inch screws

GPI Connector Assignment Table (15-pin D-sub female)

No.	Signal	Signal Details	No.	Signal	Signal Details
1	+24V	+24VDC output (*1)	9	+24V	+24VDC output (*1)
2	GND	GND	10	GND	GND
3	GND	GND	11	ALARM2	Power alarm (*2)
4	ALARM1	Fan alarm (*2)	12	GND	GND
5	COM	Common alarm	13	POWALM -	Common contact alarm (*3)
6	POWALM +	Contact alarm + (*3)	14	N.C.	N.C.
7	N.C.	N.C.	15	N.C.	N.C.
8	N.C.	N.C.			

(*1)Outputs+24 VDC. Maximum current per pin should be 125 mA. Using pin 1 and pin 9 enables a maximum current of 250 mA to be output.
(*2)Open collector output. Maximum current limit: 24 VDC / 50 mA
(*3)A short circuit occurs between the pin 6 ‘contact alarm +’ and pin 13 ‘common contact alarm’ whenever a power voltage error, fan stoppage, or a temperature error occurs in the power unit. Maximum current limit: 24 VDC / 0.5 A.

2-7-2. Alarm Output

The GPI connector output and front LED status corresponding to each unit and board status are shown in the tables below.

Standard power supply only

Power ON/OFF		OFF	ON			
Fan operation			○	×	○	○
Power unit temperature			○	○	×	○
Power output voltage			○	○	○	×
Front LED status	POWER	－	Green	Green	Green	Green
	GENLOCK IN	*1	*1	*1	*1	*1
	FAN	－	－	Red	－	－
	TEMP	－	－	－	Red	－
	DC_POWER	－	－	－	－	Red
ALARM1		Open	Open	0V	Open	Open
ALARM2		Open	Open	Open	Open	0V
POWALM+, POWALM- status		Shorted (Electrical connection)	Open (No Electrical connection)	Shorted (Electrical connection)	Shorted (Electrical connection)	Shorted (Electrical connection)

○: Normal, ×: Error, －: Off
*1: Depends on genlock signal status

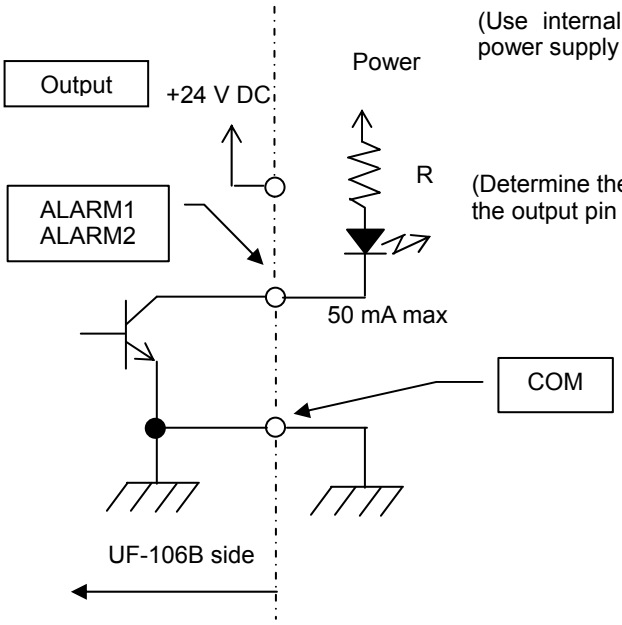
Redundant power supply installed (when other power supply is on)

Power ON/OFF		OFF			ON
Fan operation		○	×	○	Same as standard power supply only
Power unit temperature		○	○	×	
Power output voltage		Not output			
Front LED status	POWER	Green	Green	Green	
	GENLOCK IN	*1	*1	*1	
	FAN	－	Red	－	
	TEMP	－	－	Red	
	DC_POWER	Red			
ALARM1		Open	0V	Open	
ALARM2		0V	0V	0V	
POWALM+, POWALM- status		Shorted (Electrical connection)	Shorted (Electrical connection)	Shorted (Electrical connection)	

○: Normal, ×: Error, －: Off
*1: Depends on genlock signal status

2-7-3. Connection Circuit Example

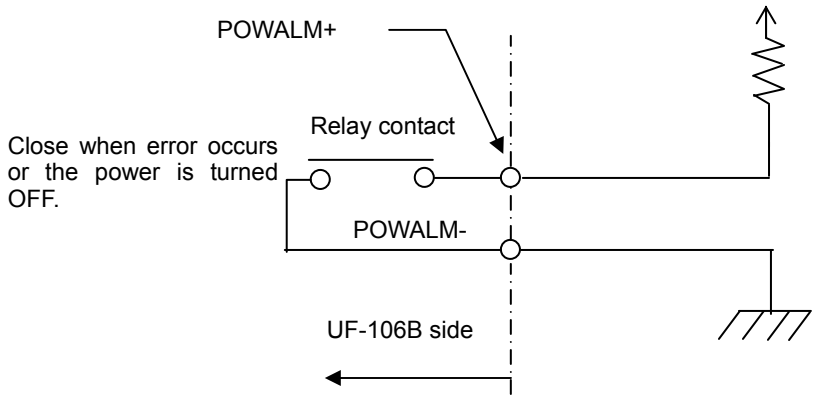
◆ Example of ALARM1/ALARM2 (Open-Collector Output) Circuit



(Use internal +24 VDC power supply or, external power supply of under +24 VDC.)

(Determine the resistance value so that the current in the output pin will not exceed 50 mA.)

◆ Example of POWALM (Alarm Out Contact Relay) Circuit



Rated voltage	Rated current
24 VDC	0.5 A

3. Installation

IMPORTANT	Note that the UFM module may be damaged by static electricity. Be sure to use a body ground to prevent electrostatic damage.

3-1. UFM Module Installation

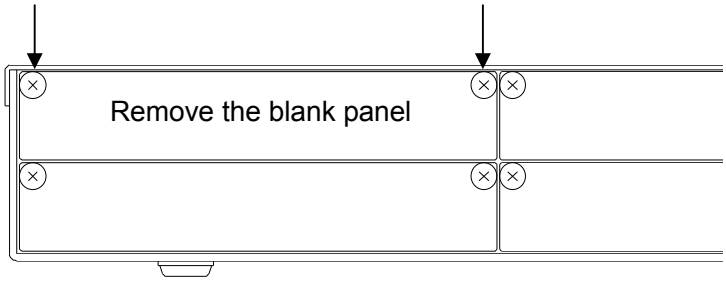
UFM modules can be installed in any empty slot. It is recommended to keep an empty slot between modules to prevent internal overheating and to simplify the connection work on the rear panel.

IMPORTANT
A UFM module set consists of a front and rear module. Be sure to always install the front and rear modules in the same slot positions. The front UFM module can be installed with the power on. However, the power must always be turned off when installing the rear UFM module. Be sure to always install blank panels onto empty slots. This helps prevent the intrusion of foreign objects and internal overheating.

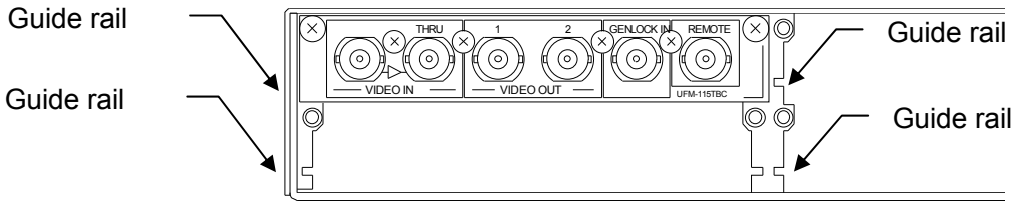
3-1-1. Rear UFM Module Installation

(1) Turn OFF the power of the UF-106B.

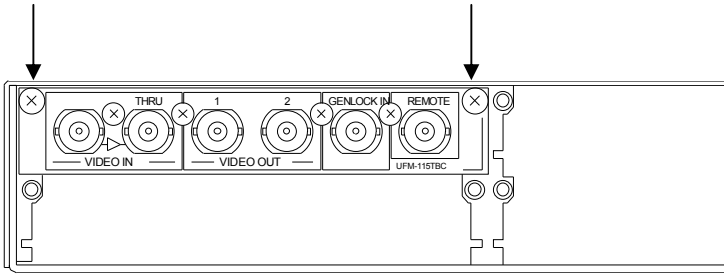
(2) Removing the blank panel
A blank panel is installed on the slot where the rear UFM module will be installed on the UF-106B rear panel. Remove the two screws on both sides of the blank panel, and then remove the blank panel. Keep the removed blank panel in a safe place.



(3) Inserting the rear UFM module
Guide rails are provided for each slot. Put the board into the guide rail, and then insert slowly and carefully.

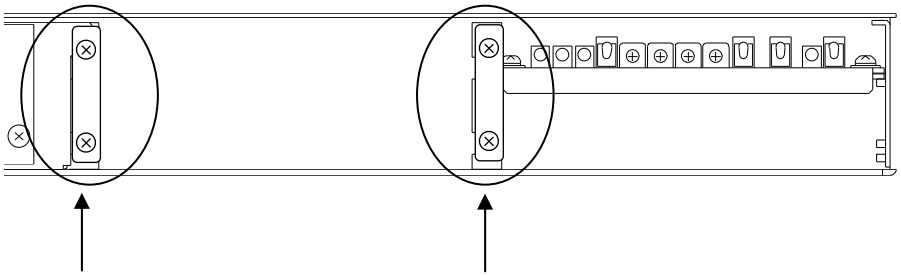


(4) Securing the module
Fasten the two screws on the board to secure firmly in place.

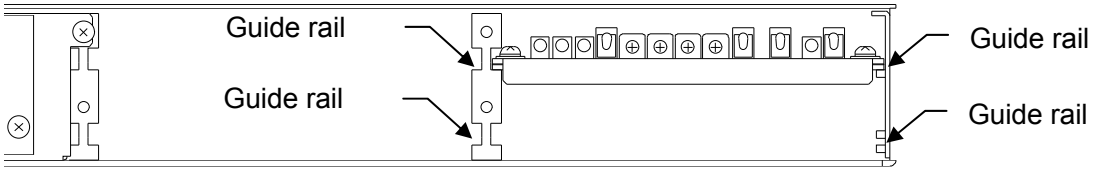


3-1-2. Front UFM Module Installation

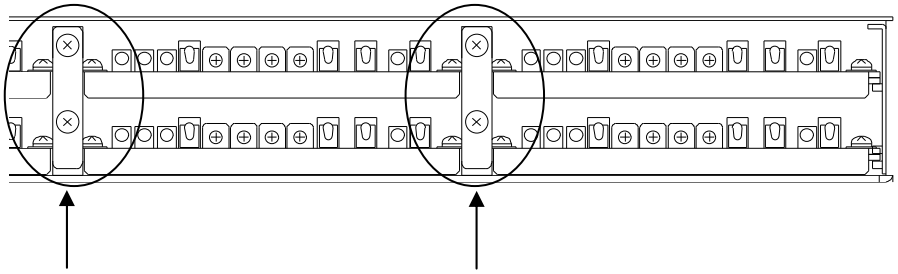
(1) Removing module holders
Slot module holders are provided on the UF-106B front panel. Loosen the top and bottom screws securing the holders, and then take them off.



(2) Inserting the front UFM module
Board guide rails are provided for each slot. Put the board into the guide rail, and then insert slowly and carefully.



(3) Securing the module
Attach the slot module holders that were removed in step (1). Tighten the top and bottom screws to firmly secure the holder in place.



3-2. UFM-30CTL Installation

The UFM-30CTL is a plug-in module that can be installed into UFM frames. The UFM-30CTL can monitor modules that are installed in the same UFM frame with it, via web browser or SNMP. Some UFM modules such as UFM-30FS/FS-R installed into the same UFM frame can be remotely controlled via web browser or a remote control unit, UF-NETRU.
UFM-30CTL modules can be installed into any empty slot. It is recomended to keep an empty slot between modules to prevent internal overheating and to simplify the connection work on the rear panel.

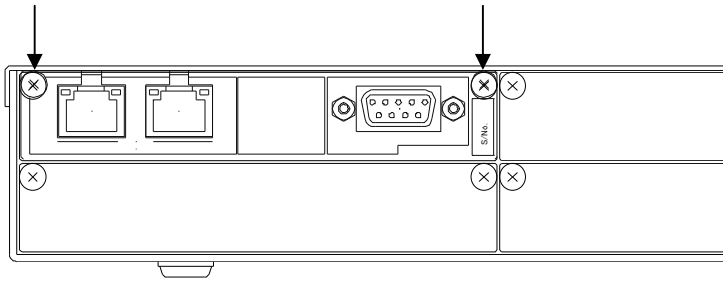
IMPORTANT
A UFM-30CTL set consists of a front and rear module. Be sure to always install the front and rear modules in the same slot positions. The front module can be installed with the power on. However, the power must always be turned off when installing the rear module. Either one of two remote control methods is available on the UF-106B: serial control via the REMOTE connector or network control using a UFM-30CTL. If the network control does not work after installing UFM-30CTL, change the dipswitch settings inside the UF-106B referring to section 3-2-3. "Internal Settings." Be sure to always install blank panels on the empty slots. This helps to prevent the intrusion of foreign objects and internal overheating.

3-2-1. UFM-30CTL Rear Module Installation

(1) Turn OFF the power of the UF-106B.

(2) Removing the blank panel
A blank panel is installed on the slot where the rear module will be installed on the UF-106B rear panel. Remove the two screws on both sides of the blank panel, and then remove the blank panel. Keep the removed blank panel in a safe place.

(3) Inserting the rear module
Guide rails are provided for each slot. Put the board into the guide rail, and then insert slowly and carefully.

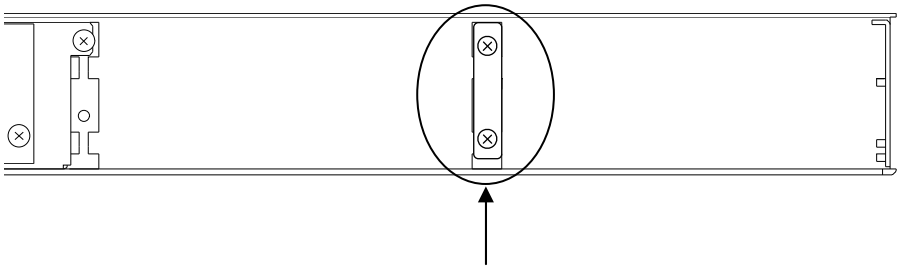


(4) Securing the module
Fasten the two screws on the board to secure firmly into place.

3-2-2. UFM-30CTL Front Module Installation

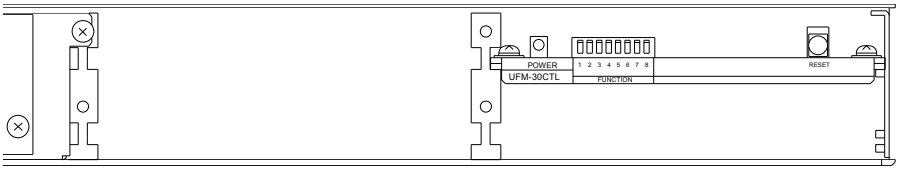
(1) Removing module holders

Slot module holders are provided on the UF-106B front panel. Loosen the top and bottom screws securing the holders, and then take them off.



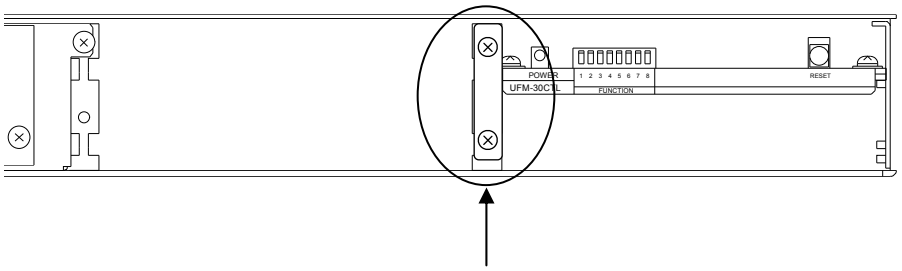
(2) Inserting the front module

Guide rails are provided for each slot. Put the board into the guide rail, and then insert slowly and carefully.



(3) Securing the module

Attach the slot module holders that were removed in step (1). Tighten the top and bottom screws to firmly secure the holder in place.

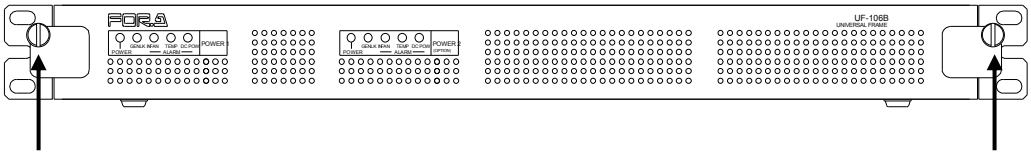


3-2-3. Internal Settings

If network control does not work after the UFM-30CTL is installed, it is necessary to remove the power supply front unit and change the dipswitch settings.
Change the dipswitch settings for S1 on the Power Supply unit as shown below to enable network control.

IMPORTANT
Note that the UF-106B cannot be controlled by serial interface (the REMOTE connector) if network control using a UFM-30CTL is enabled.

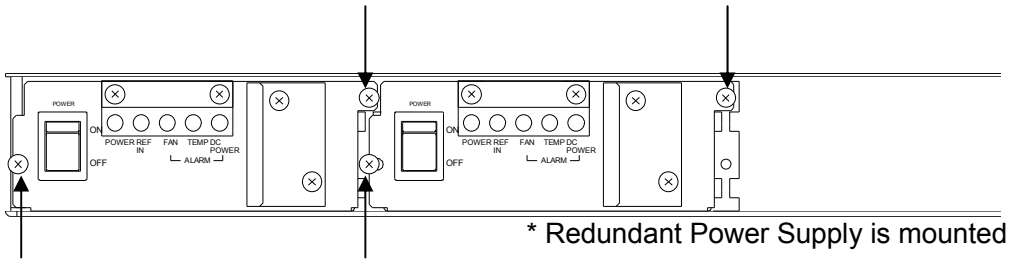
3-2-3-1. Removing the Power Supply Front Unit



(1) To remove the front panel, loosen and pull out the two knob screws on the front panel face.

(2) Turn OFF the power of the UF-106B.

(3) To remove the power unit, take off the two screws on the front of the power unit. Remove four in total when a redundant power supply is mounted.

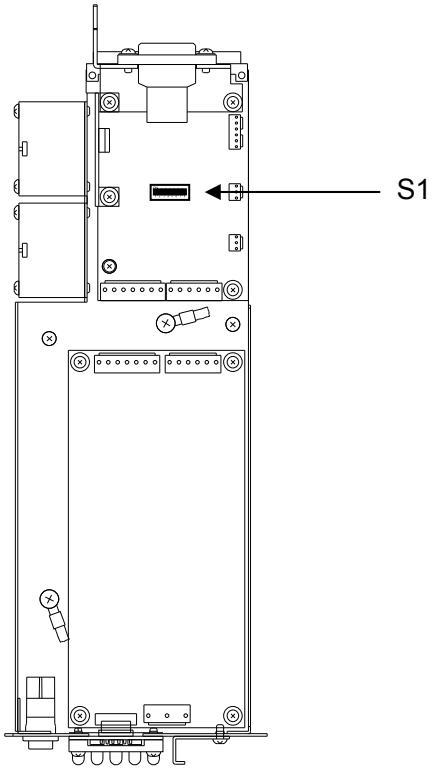


* Redundant Power Supply is mounted.

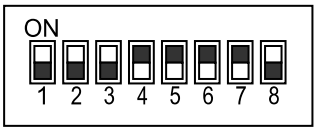
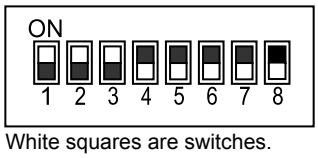
(4) Pull out the eject lever, remove the power supply front unit slowly and carefully.

3-2-3-2. Changing the of Power Supply Front Unit Dipswitch Settings

Change the S1 dipswitch settings of the power supply front unit.
If the redundant power supply is mounted, change both the standard power supply and redundant power supply's dipswitches.



◆ **S1 Dipswitch Settings**

Pin No.	Network control with UFM-30CTL	Serial control via REMOTE
1	ON	ON
2	ON	ON
3	ON	ON
4	OFF	OFF
5	OFF	OFF
6	OFF	OFF
7	OFF	OFF
8	ON	OFF
—	 White squares are switches.	 White squares are switches.

3-2-3-3. Power Supply Front Unit Installation

(1) Insert the power supply front unit slowly and carefully into the power supply slot.
(2) Tighten the two screws on the front to secure the Power Supply Front Unit.
(3) Turn ON the power of the UF-106B.
(4) Grasp the two knob screw on the front panel, attach the front panel on the device and tighten the screws.

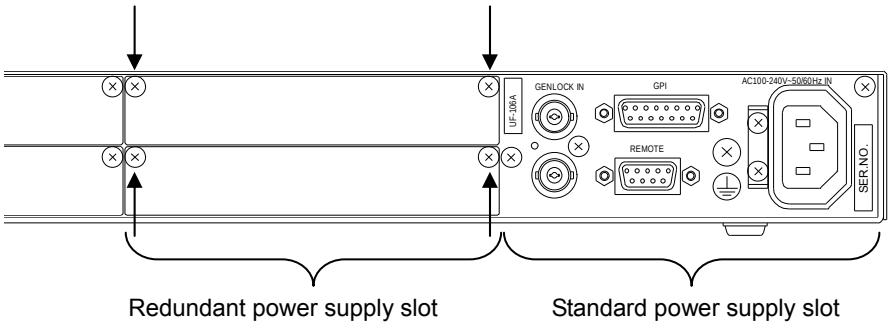
3-3. Redundant Power Supply (UF-106BPS) Installation

The UF-106BPS (redundant power supply) is a plug-in type unit. Remove the blank panel on the slot of the rear panel, then the power supply can be installed easily.
The UF-106APS units can be used in place of UF-106BPS.

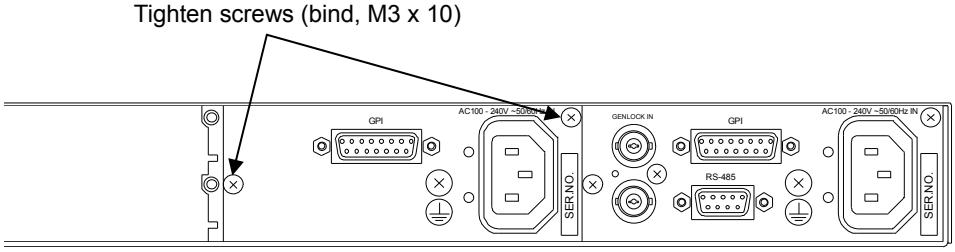
IMPORTANT	To prevent electrical shock, be sure to either connect the ground terminal to a ground wire or unplug the AC power cable from the AC outlet before performing any work. For possible emergencies, the redundant power supply can be installed with the power on. However, normally the UF-106B power should be turned OFF during installation.

3-3-1. Redundant Power Supply Rear Unit Installation

(1) Removing the blank panel
A blank panel is installed on the slot where the redundant power unit will be installed on the UF-106B rear panel. Remove the four screws securing the top and bottom blank panels, then take both blank panels off.
Keep the removed blank panels in a safe place.



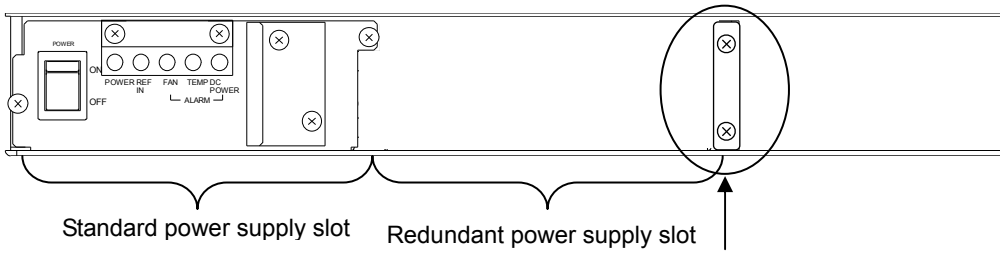
(2) Installing the UF-106BPS rear unit
Insert the UF-106BPS rear unit slowly and carefully into the redundant power supply slot.



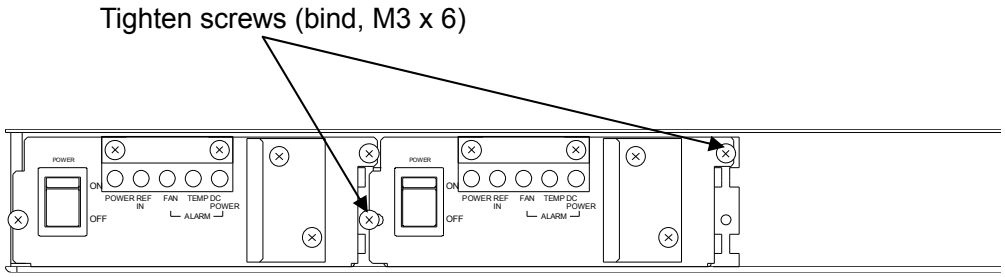
(3) Securing the unit
Firmly secure the rear unit using the supplied two bind screws (M3 x 10) on the right and left sides.

3-3-2. Redundant Power Supply Front Unit Installation

(1) Removing module holders
Slot module holders are provided on the UF-106B front panel. Loosen the top and bottom screws securing the holder, then take them off.
Keep the removed holders in a safe place.



(2) Inserting the front UF-106BPS unit
Insert the front UF-106BPS unit into the redundant power supply slot slowly and carefully.

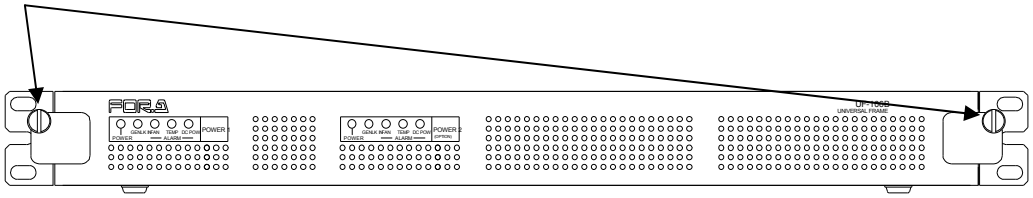


(3) Securing the front UF-106BPS unit
Firmly secure the rear unit using the supplied two bind screws (M3 x 10) on the right and left sides of the UF-106BPS unit.

IMPORTANT
Connect the power cable, then turn on the power switch on the front of the power unit Turn ON the power switches for both the standard and redundant power supply units. The system can not automatically switch to the redundant power supply during a power failure, unless both power supplies are turned ON.

3-4. Front Panel Installation

After completing the installation, return the front panel before operating the UF-106B in your system.
Turn the power on, then attach the front panel on the device and tighten the two knob screws.



4. Specifications and Dimensions

4-1. Specifications

UF-106B

Installable modules	Max. 6 modules (Max. 4 when using redundant UF-106BPS)
Genlock In	BB: 0.429 Vp-p (NTSC) / 0.45 Vp-p (PAL) or Tri-level sync:0.6 Vp-p 75Ω BNC x 1, loop-through (Terminate with 75Ω terminator, if unused.)
Power	100 to 240 VAC ±10%, 50/60Hz
Consumption	160 VA (100 V AC supplied at maximum output current) 154 VA (220 V AC supplied at maximum output current)
Maximum output current	+24VDC 5.0A
Alarm Output	15-pin D-sub female (power supply error, fan error)
	Lock screw: Inch type
Dimensions	482(W) x 44(H) x 365(D)mm
Weight	6.2 kg (including one power unit)
Temperature	0°C to 40°C
Humidity	30% to 90% (no condensation)
Consumables (if used 24 hours a day at normal temperature)	
	Cooling fan: Replace every 6 years. Power: Replace every 5 years.

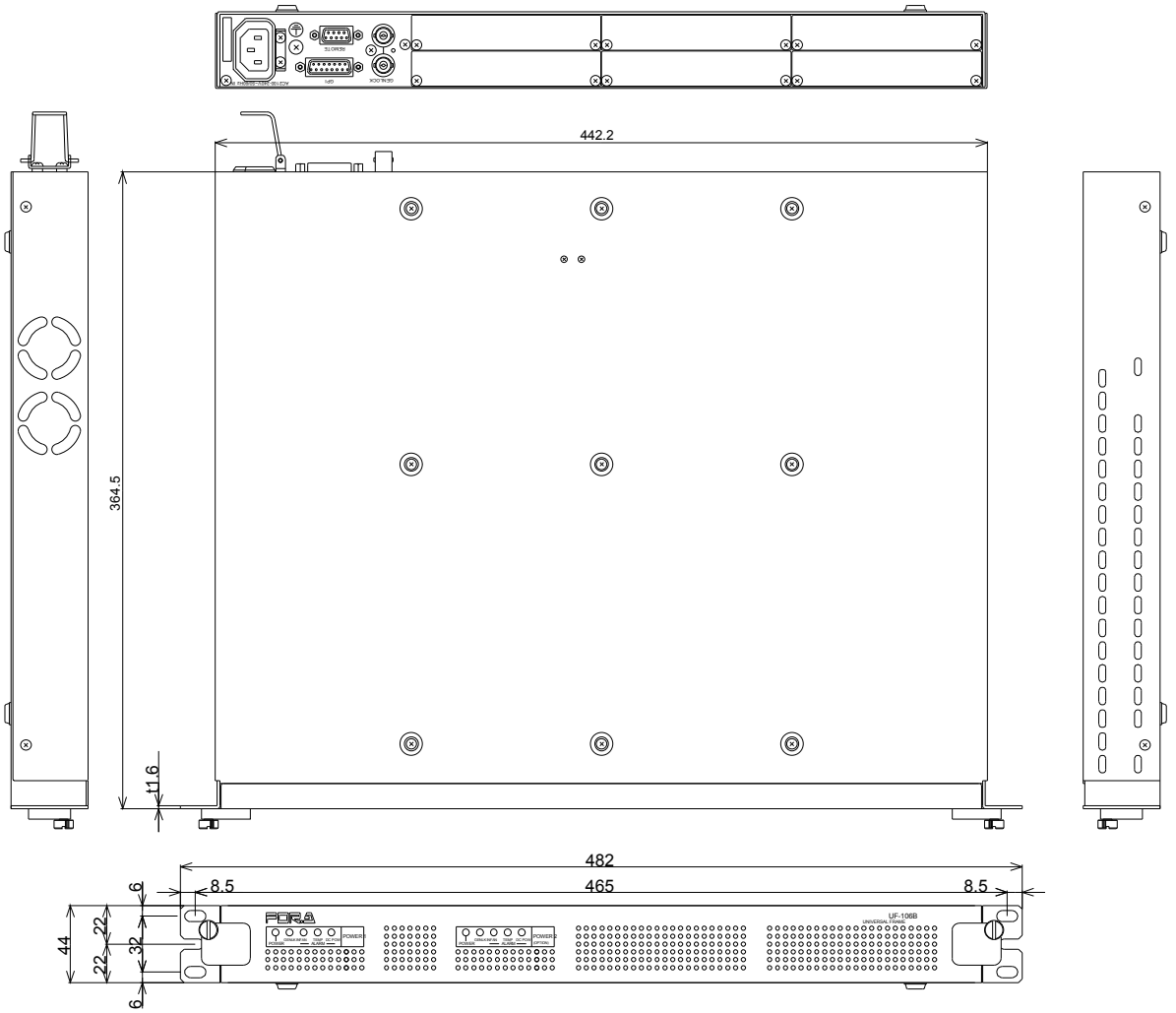
UF-106BPS

Power	100 to 240VAC ±10%, 50/60Hz
Consumption	120 VA (100 V AC supplied at maximum output current) 132 VA (220 V AC supplied at maximum output current)
Maximum output current	+24 VDC 5.0 A
Alarm Output	15-pin D-sub female (power supply error, fan error)
	Lock screw: Inch type
Dimensions	Front unit 111.5(W) x 40(H) x 294(D)mm
	Rear unit 108.7(W) x 41(H) x 72.2(D)mm
Weight	1.2 kg
Temperature	10°C to 40°C
Humidity	30% to 90% (no condensation)
Consumables (if used 24 hours a day at normal temperature)	
	Cooling fan: Replace every 6 years. Power: Replace every 5 years.

4-2. External Dimensions

4-2-1. UF-106B

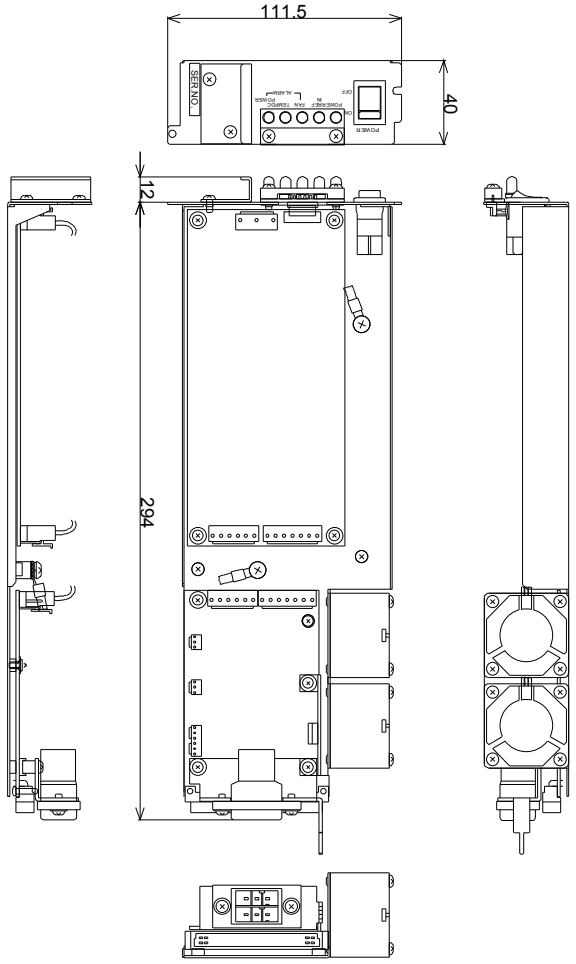
(All dimensions in mm)



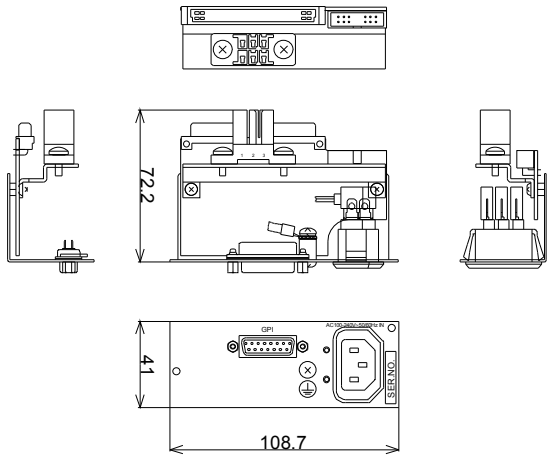
4-2-2. UF-106BPS

(All dimensions in mm)

Front unit



Rear unit



Warning

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

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