

Thank you for purchasing the FPSU Power Supply Unit.
Please read through this manual before use for correct handling.

YOKOGAWA
Yokogawa Electric Corporation

IM 77J50P01-01E
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CAUTIONARY NOTES FOR SAFE USE OF THE PRODUCT

This User's Manual should be carefully read before installing and operating the product. Please keep this User's Manual for future reference.
The following symbols are used on the product and in this manual to ensure safe usage.



WARNING

Calls attention to actions or conditions that could cause serious or fatal injury to the user, and indicates precautions that should be taken to prevent such occurrences.



Protective grounding terminal



Alternating current

The following symbol is used only in this manual.



CAUTION

Calls attention to actions or conditions that could cause injury to the user or damage to the instrument or property and indicates precautions that should be taken to prevent such occurrences.

CHECKING PRODUCT SPECIFICATIONS AND PACKAGE

(1) Checking the Model and Product Specifications

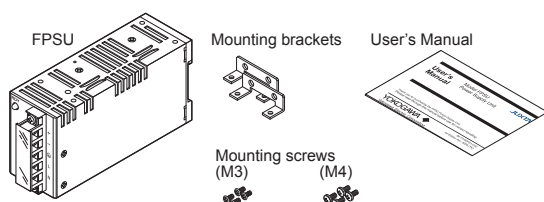
Check that the model and specifications indicated on the nameplate attached to the main unit are as ordered.

Model	Suffix codes	Description
FPSU	-□ □ *C	Power supply unit
Power supply	-6	100 to 240 V AC ~
Output	4	24 V DC
Style code	*C	Style C

(2) Packaged Items

Check that the package contains the following items:

- FPSU: 1
- Mounting bracket: 2
- Mounting screw (M3) (For fixing the mounting brackets): 4
- Mounting screw (M4) (For rack and wall mounting): 4
- User's Manual (This manual: IM 77J50P01-01E)



GENERAL

The FPSU is a power supply unit that accepts AC power input and supplies 24 V DC power.

- Available for both 100 V AC and 220 V AC operation
- Redundant power supply operation
(Parallel connection of the FPSU enables the backup operation.)

IMPORTANT NOTES BEFORE USE



WARNING

- **Protective Grounding**
To prevent electric shock, always confirm that protective grounding is connected before turning ON the instrument's power supply.
- **Necessity of Protective Grounding**
Do not cut off the internal or external protective grounding wire or disconnect the wiring of the protective grounding terminal. Doing so renders the protective functions of the instrument invalid and poses a potential shock hazard.
- **Defects in Protective Functions**
If protective functions such as grounding are suspected to be defective, do not operate the instrument. Ensure that all protective functions are in working order before operating the instrument.
- **Do not use in an Explosive Atmosphere**
Do not operate the instrument in locations with combustible or explosive gases or steam. Operation in such environments constitutes an extreme safety hazard. Use of the instrument in environments with high concentrations of corrosive gas (H₂S, SO_x, etc.) for extended periods of time may cause a failure.
- **Damage to the Protective Construction**
If this instrument is used in a manner not specified in this manual, the protection provided by this instrument may be impaired.
- **Modification/Disassembling**
Modification or disassembling of the product is strictly prohibited.

Warning and Disclaimer

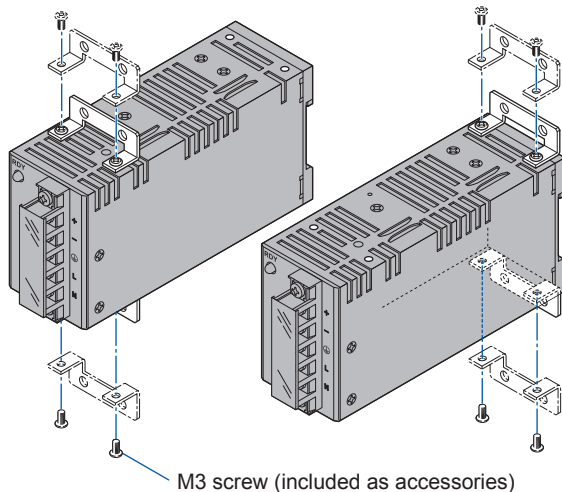
- YOKOGAWA makes no warranties regarding the product except those stated in the WARRANTY that is provided separately.
- The product is provided on an "as is" basis. YOKOGAWA assumes no liability to any person or entity for any loss or damage, direct or indirect, arising from the use of the product or from any unpredictable defect of the product.

MOUNTING METHOD

Mounting Brackets

The mounting brackets are necessary for rack mounting or wall mounting. Install them as shown below.

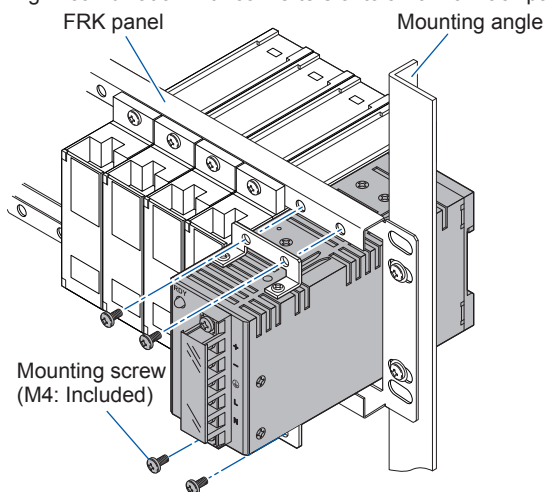
Rack mounting



Wall mounting

Rack Mounting

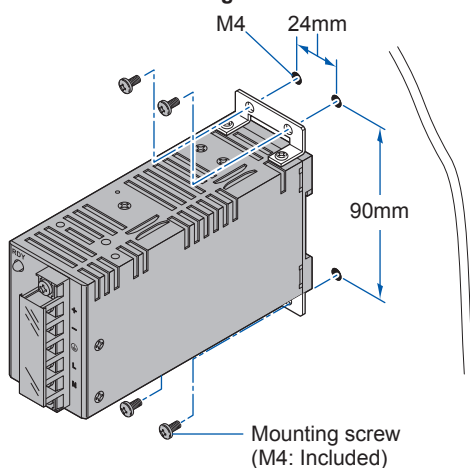
Take the FRK panel and install it on a mounting angle as shown below. This method is suitable for the case of high density mounting in combination with converters onto a 19-inch rack panel.



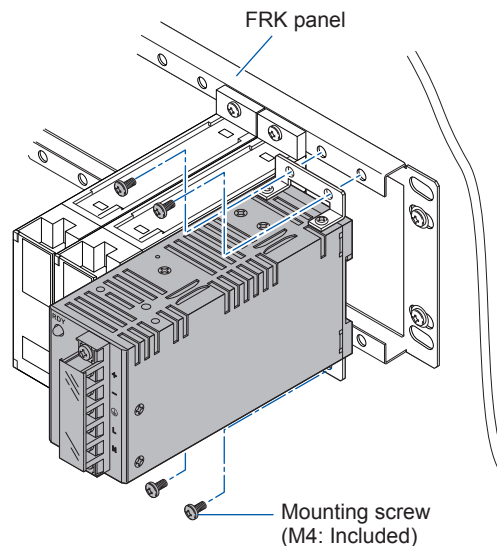
Wall Mounting

As shown in the following figures, mount the power supply unit on the wall, either directly or by using the FRK panel.

Direct wall mounting

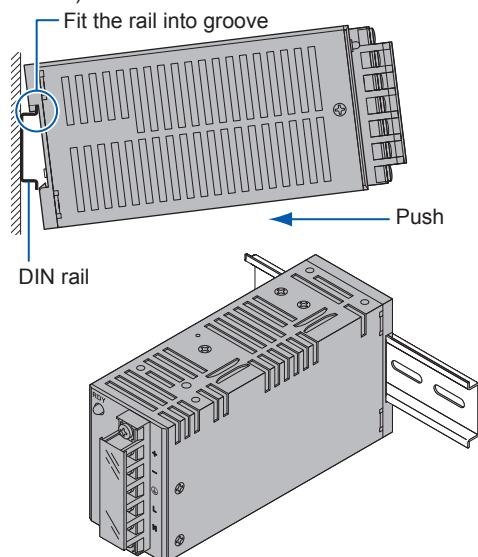


Wall mounting by using the FRK panel

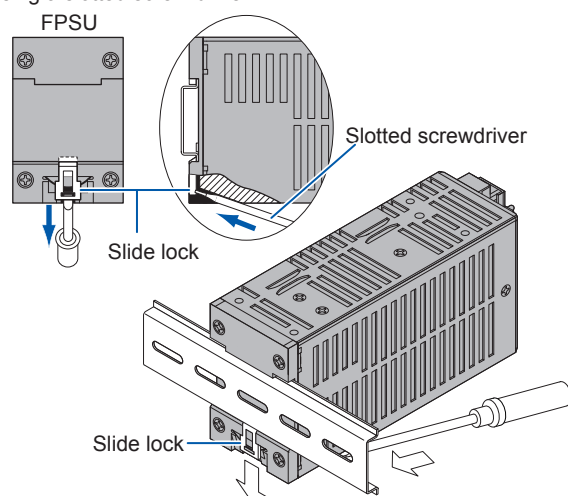


DIN Rail Mounting

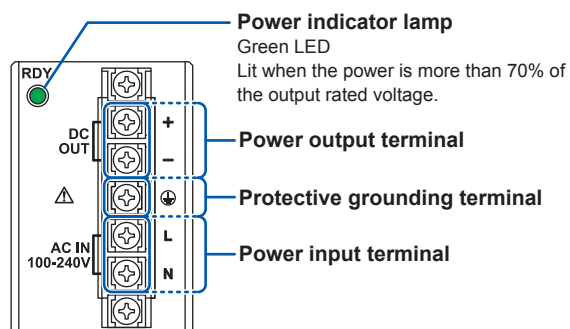
Place the power supply unit so that the DIN rail fits into the upper part of the DIN-rail groove on the rear side, and push until it latches. This unit is fixed by a slide lock (at the lower part on the rear of the unit).



To remove the unit from the DIN-rail, pull down the slide lock using a slotted screw-driver.



NAME OF EACH PART



EXTERNAL WIRING



WARNING

Be sure to turn OFF the power supply before wiring to avoid the risk of electric shock. Use a tester or similar device to ensure that no power is being supplied to a cable to be connected.



CAUTION

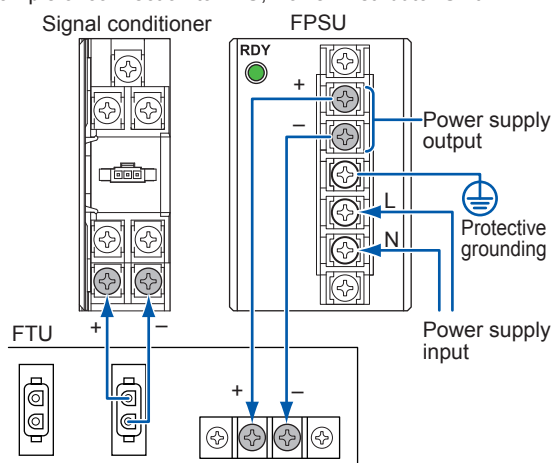
- The wiring procedure for the FPSU should be carried by a qualified person (an electrician, etc.) who has knowledge of and actual experience in electrical matters.
- Adhere strictly to the specifications to avoid overheating or damage. Before turning on the power, ensure the following:
 - (a) Power supply voltage and input signal value applied to the product should meet the required specifications.
 - (b) The external wiring to the terminals and wiring to ground are as specifications.
- The FPSU should always be grounded to protect the operator and maintenance personnel from electric shock and to prevent the effects of external noise. Ground wiring should be grounded to ground (minimum resistance). For the ground cable, the temperature rating is 60 °C or more.
- After completion of power cable wiring and ground wiring, always install the terminal cover to the instrument.
- Be sure to install a circuit breaker (conforming IEC 60947: 15 A/220 V AC) in the location which can be easily operated near the power supply unit. Moreover, clearly indicate that the switch is used to de-energize this unit.

Each wire should be connected to M4 screw terminals on the front of this unit. Attach a crimp-on lug to each wire for connection to the terminals.

- For the wiring cable, it is recommended that the nominal cross-sectional area of the conductor is 1.25 mm² or more.

Wiring Diagram 1

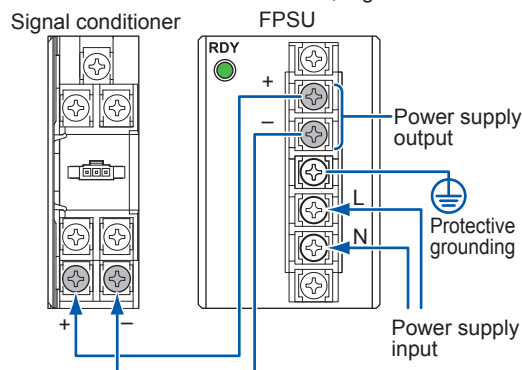
Example of connection to FTU, Power Distributor Unit



Use the dedicated wire connector for the connection of FTU and JUXTA F series Signal Conditioners.

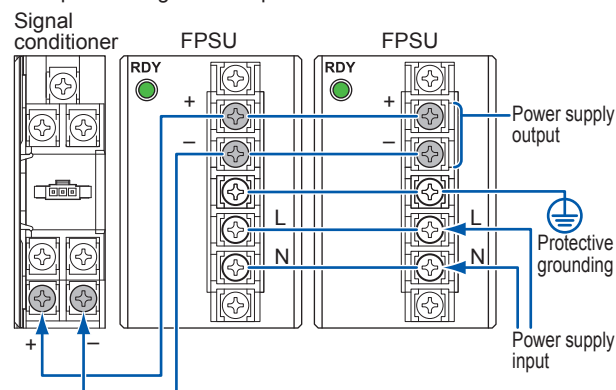
Wiring Diagram 2

Example of connection to JUXTA F series, Signal Conditioners.



Wiring Diagram 3

Example of using FPSU in parallel connection.



Even if one FPSU fails, the parallel connection enables the back-up operation by another FPSU.



CAUTION

The output current does not increase even if power supply units are connected in parallel.

MAINTENANCE

• Daily Inspection

If any trouble is found during use, stop supplying a power immediately. Moreover, if abnormalities are found, contact your nearest Yokogawa office or representative.

Check the followings:

- Power output (output voltage) of this unit is 24V DC \pm 10% using a tester.
- No smoke, abnormal odor or noise comes out from the product.
- Power indicator lamp (green LED) is lit.

• Handling Precautions

- To clean the main unit, wipe it with a soft, dry cloth. Do not use organic solvents such as benzene or thinner for cleaning, as discoloration or deformation may result.
- Keep electrically charged objects away from the signal terminals. Not doing so may cause the instrument to fail.

SPECIFICATIONS

Input

Power Supply Rated Voltage	100 to 240 V AC ~, 50/60 Hz
Voltage range	100 to 240 V AC Operating range: 85 to 264 V AC
Frequency range	50/60 Hz Operating range: 47 to 63 Hz
Current	1.6 A or less
Rush current	20 A (7 ms) or less (at 25 °C cold start)

Output

Rated voltage	24 V DC $\pm 10\%$
Rated current	1.7 A
Input and Load change	24 V DC $\pm 10\%$
Overcurrent protection	110% or more
Overvoltage protection	33 V DC or less

Isolation

Insulation resistance	100 M Ω or more (at 500 V DC) between power input and power output, power output and case (protective grounding terminal), and power input and case (protective grounding terminal).
Withstand voltage	1500 V AC/min. between power input and (power output and case [protective grounding terminal]) 500 V AC/min. between power output and case (protective grounding terminal).

Safety Standards

Safety	CSA C22.2 No.61010-1
Installation category	CAT.II
Pollution degree	2

Installation Location

Operating temperature range	0 to 50 °C
Operating humidity range	5 to 90%RH (no condensation)
Environmental condition	Environments without sea breeze, direct sunlight, dusts, corrosive gases such as the hydrogen sulfide gas, and the altitude of more than 2000 m above sea level.

Mounting and Dimensions

Case body material	Aluminium and ABS resin
Mounting method	Rack mounting, wall mounting, DIN rail Mounting
Connection method	M4 screw terminal
External dimensions	72 × 48 × 160 mm (H × W × D) (See the External dimensions on page 4)
Weight	Approx. 420 g

CAUTIONS FOR MEETING SAFETY STANDARDS

In order to comply with the safety standard, all the following conditions must be met:



CAUTION

- The installation shall be done by the service personnel or authorized personnel who have received special training at Yokogawa.
- The instrument shall be mounted in a lockable metal cabinet.
- The rated temperature of wiring cables shall be greater than 70 °C.

EXTERNAL DIMENSIONS

Unit: mm

