

Read this manual and the BS/SV unit manuals carefully before use.

Safety precautions

Read these "Safety precautions" carefully before performing installation work. The precautions shown here are divided into a "Warning" and "Caution" section, but those that are likely to lead to serious consequences such as death or serious injury if the installation is performed incorrectly are noted collectively in the "Warning" section. However, even the items described in the "Caution" section may lead to serious consequences depending on the situation. Observe all of the following, as each contains important information regarding safety. After the installation work is complete, perform a test run and check that there are no abnormalities. In addition, ask the customer to keep this manual for future reference.

Warning

- For drainage of BS/SV units. Do not use for any other application. If the usage application is incorrect, fire/water leakage, etc. may result.
- Regarding the installation, ask your dealer or a specialist. If you perform installation work yourself and there are imperfections in the installation, water leakage/electrocution/fire may result.
- Make sure to perform installation work properly according to the installation manual (16). If there are imperfections in the installation, water leakage/electrocution/fire may result.
- For the safety circuit power supply wire (3), shape the wire so that the service cover of the BS/SV unit does not rise. Install the service cover securely. If the service cover is not installed completely, electrocution/fire may result.
- Perform earthing work. Do not connect earth wires to gas pipes, water pipes, lightning rods, or telephone earth wires. If earthing is performed incorrectly, electrocution may result.
- For installation parts, be sure to use accessories and parts with the designated specifications. If parts without the designated specifications are used, water leakage/electrocution/fire may result.
- Turn off the power supply before performing installation work. If electrical parts are touched while the power supply is turned on, electrocution may result.
- Connect the wire securely using the specified power supply wire (3). Secure it properly so that the external force from the wire is not applied to the terminal connection part. If connections are incomplete or incorrectly secured, heat generation/fire at the terminals may result.
- Install the product securely in a place that can sufficiently withstand the weight of the kit. If the strength is insufficient, the kit may fall and cause injuries.

Caution

- For drainage work, install the pipes according to this installation manual (16) to ensure proper drainage and insulate them to prevent condensation. If there are imperfections in the pipe work, water may leak and cause household goods to get wet.
- Do not install in locations such as the following:
 - Locations where flammable gas may leak, locations where carbon fibre and flammable dust float, or locations where volatile flammable materials such as thinner and gasoline are handled. If gas leaks and collects around the drain up kit (1), fire may result.
 - Locations with machines that generate electromagnetic waves. These may cause abnormalities in the control system, making normal operation impossible.

Drain up specifications

Main applicable models	BS4A14AJV1B BS6A14AJV1B BS8A14AJV1B BS10A14AJV1B BS12A14AJV1B	Insulation	Type E
Exterior	White (Munsell 10Y9/0.5)	Drain inlet connection pipe diameter	VP13 (**)
Maximum lift (mm)	1000 (*)	Drain outlet connection pipe diameter	VP20 (***)
Drain discharge flow rate (L/h)	24	Safety device	Float switch
Power supply	Single-phase 220-240V, 50Hz	Operation sound (dB)	25
Power consumption (W)	14.1	Product weight (kg)	3.2
Operation current (A)	0.18		

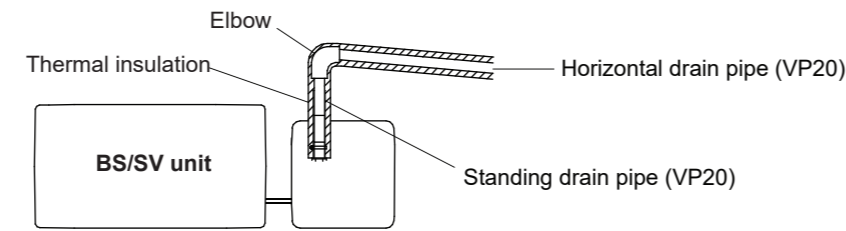
* Height from the bottom of the drain up kit (1) to the drain pipe
** Connected with the soft socket (10)
*** Connected to VP20 with the soft drain pipe (11)

Components

Name	Shape	Qty	Name	Shape	Qty
Drain up kit (1)		1	Hose clamp (small) (8)		4
Relay harness (2)		1	Hose clamp (big) (9)		1
Power supply wire (3)		1	Soft socket (10)		2
Thermal insulation (4)		1	Soft drain pipe (11) (for drain outlet)		1
Thermal insulation (for drain inlet) (5)		1	Casing screw + washer (12)		1
Thermal insulation (for drain outlet) (6)		1	Screw (13)		4
Clamp material (7)		4	Hanger metal (14)		2

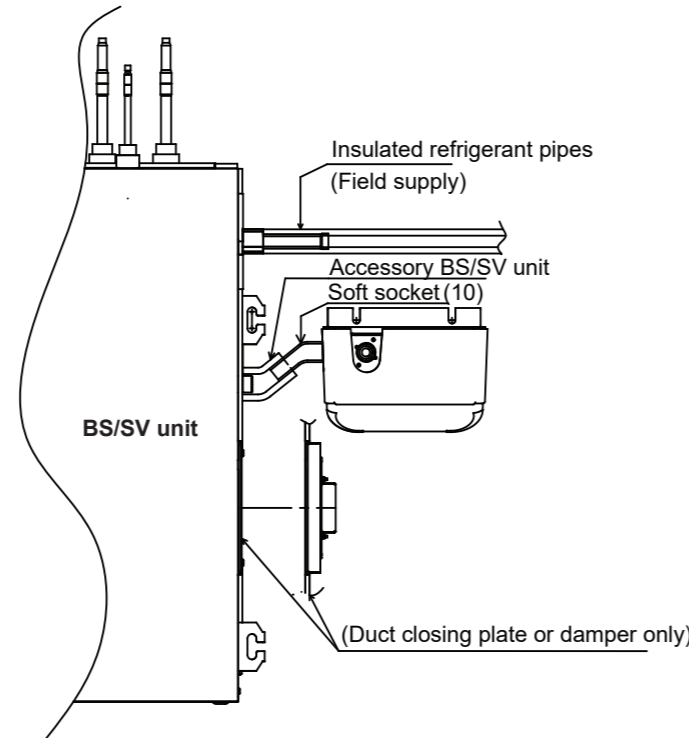
Tapping screw (15)		5	Operation manual (17)		1
Installation manual (16)		1			

Parts required for installation (field supply)

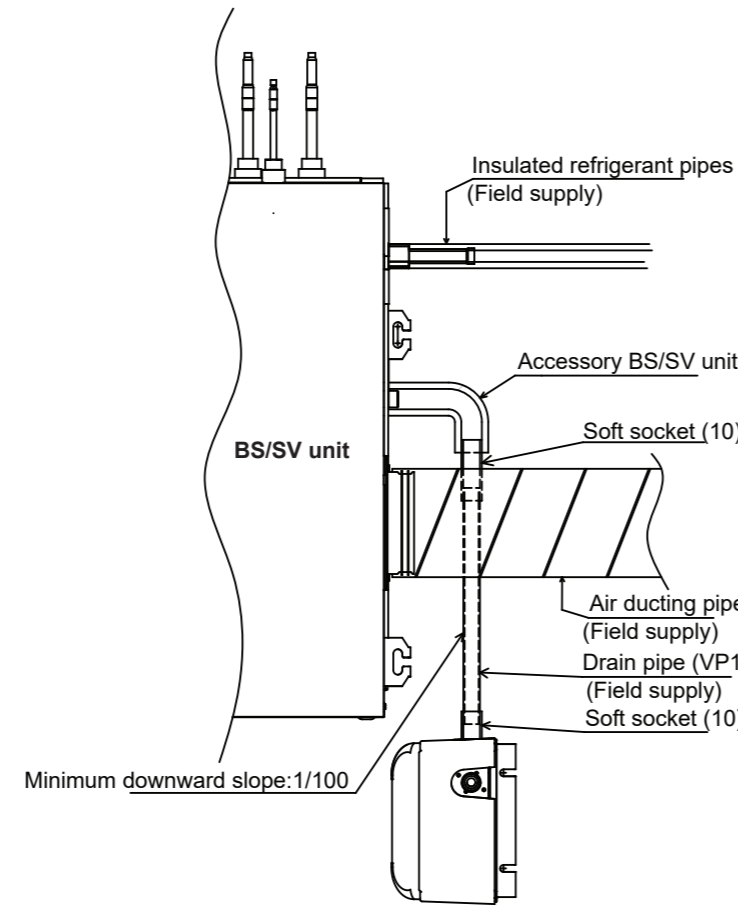


Drain position

The drain up kit (1) can only be installed on the right side of the BS/SV unit. Before installing the drain up kit (1), make sure that you have enough room above it to install the drain pipes at the outlet. There are two ways of installing the drain up kit (1): close-by or at a slight distance. Installing the drain up kit (1) close-by is only advised when the ducting is installed on the other side or when no ducting is installed at all.



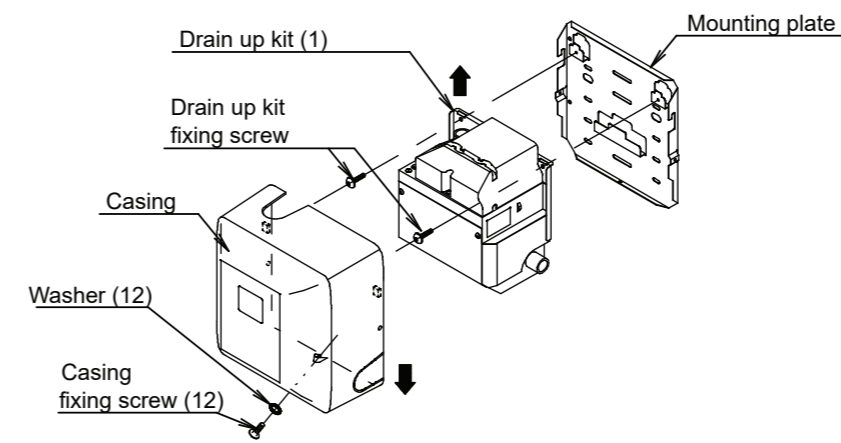
When the ducting is installed on the same side as the drain up kit (1), there is not enough room to properly conduct maintenance on the drain up kit (1). In this case, it is advised to use PVC pipes to install the drain up kit (1) further away.



Note 1: Secure the space required on the right of the BS/SV unit and the space required for service around the drain up kit (1) installation location.
Note 2: Field supply pipes such as PVC pipes cannot be connected directly to the drain inlet and drain outlet of the drain up kit (1). Use the accessories described in the installation manual (16).

1. Preparation before installation

- Preparation of the drain up kit (1)
- Separate the casing and drain up kit (1) from the mounting plate.
- Remove the casing fixing screw and washer (12). Lower the casing and pull it forward to separate it from the drain up kit (1).
 - Remove the 2 drain up kit fixing screws. Lift the drain up kit (1) to separate it from the mounting plate.



Both soft sockets (10) as well as the soft drain pipe (11) can be cut if a shorter length is preferred. However, make sure that the pipe never risks kinking, as a kink obstructs the flow of the drained water.

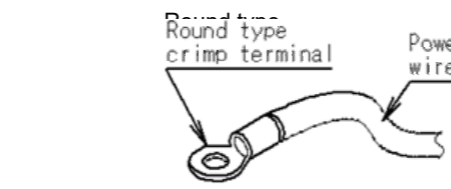
2. Preparation of the BS/SV unit

Caution

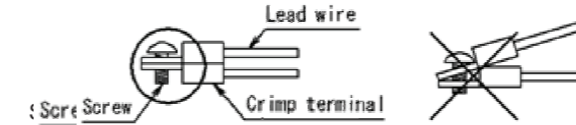
- Work with the power supply turned off.
- When connecting terminals to the inter-unit wiring terminal block, attach them correctly. If the crimp terminals are both installed in the same orientation accidentally, the terminal contact area decreases and there will be a risk of overheating and burning.

Precautions for power supply wire (3) (includes the earth wire)

Use round type crimp terminals to connect the inter-unit wiring terminal block and the earth wire. If for some reason you cannot use round type terminals, observe the following items.



- Do not connect 2 wires with different diameters to the inter-unit wiring terminal block. There is risk of abnormal heat generation due to loose wires, etc.
- Connect the wire securely using the specified power supply wire (3). Secure it in such a way that no external force is applied to the terminal part.

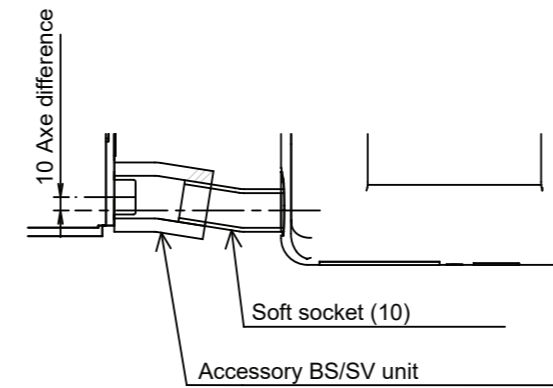


- Use an appropriate screwdriver to tighten the terminal screws. A screwdriver with a head that is too small will damage the screw heads and make proper tightening impossible.
- Respect the tightening torque of the terminal screws in the table below. Tightening the screws too much can damage them.

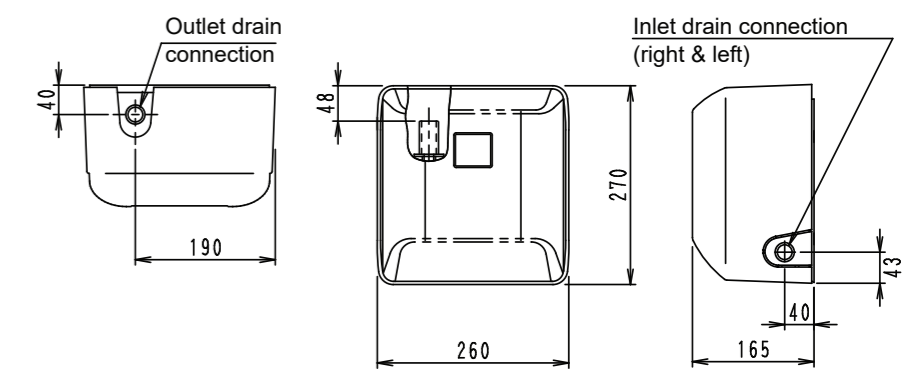
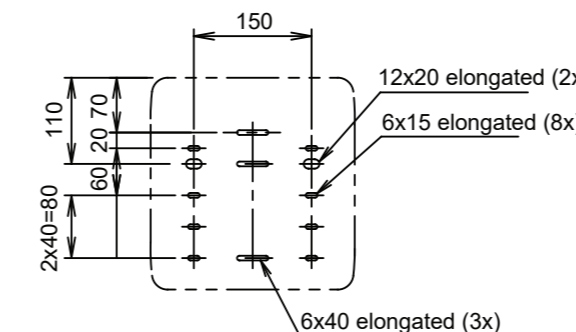
Tightening torque (Nm)	
Terminal block	0.79-0.97
Earthing screw	1.44-1.94

3. Installation of mounting plate and tentative placement of the drain up kit (1)

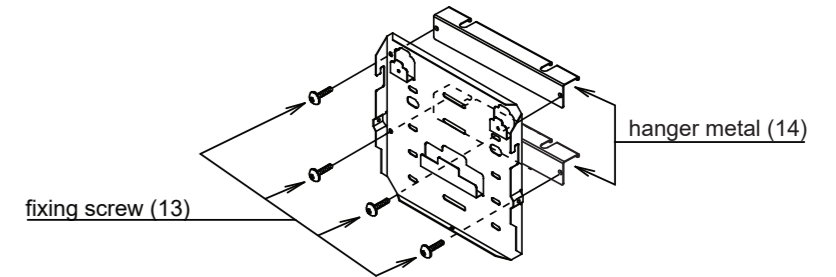
- Install the BS/SV unit.
- Attach the drain socket accessory (accessory set of the BS/SV unit) onto the drain socket of the BS/SV unit according to the BS/SV unit installation manual.
- If you install the drain up kit (1) next to the BS/SV unit: attach the soft socket (10) to the accessory and clamp it using the hose clamp (9).
- If you install the drain up kit (1) at a distance from the BS/SV unit: adjust the distance using a hard PVC pipe (VP13) and the soft sockets (10) on both sides of the PVC pipe.
- Clamp the soft socket (10) onto the drain socket of the drain up kit (1) using one of the smaller hose clamps (8).
If you install the drain up kit (1) kit at a distance from the BS/SV unit: use hose clamps (8) to tighten both soft sockets (10) onto the PVC pipe.
- Important:** Position the drain socket of the drain up kit (1) at the very least 10 mm lower than the drain socket of the BS/SV unit to guarantee proper operation of the drain up kit (1). It is recommended to take a bit of margin and place the drain up kit (1) 20 mm lower.



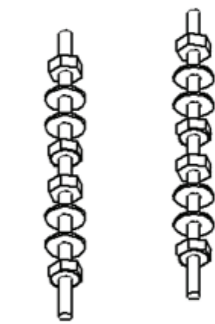
- If the drain up kit (1) will be mounted to the wall, install the mounting plate of the drain up kit (1). Attach the mounting plate at 4 or more locations using screws (15).



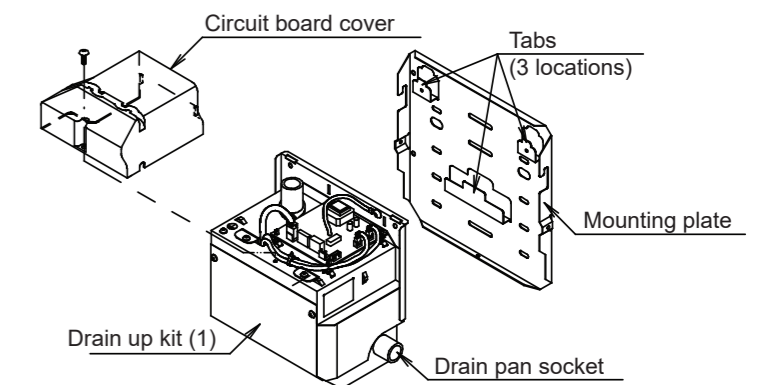
If you install the drain up kit (1) onto the ceiling, fix the 2 hanger metals (14) to the mounting plate using 2 screws (13) for each hanger metal (14).



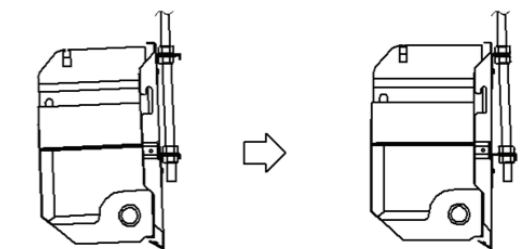
When installing the drain up kit (1) to the ceiling, use locally procured threaded rods (2x), flat washers (8x) and M10 hexagonal nuts (8x). Install them in the ceiling at 150 mm distance.



- Tentatively place the drain up kit (1) by hooking it on the tabs (3 locations) of the mounting plate.
- Remove the circuit board cover.



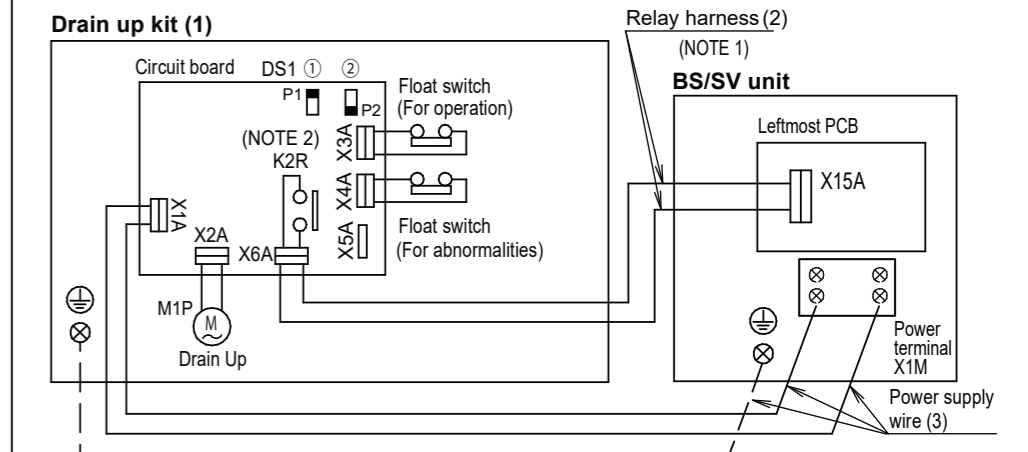
- If the drain up kit (1) tilts forwards, when mounting to the ceiling, adjust the M10 hexagonal nuts.



4. Installation of the relay harness (2) & power supply wire (3)

Caution

Work with the power supply turned off.

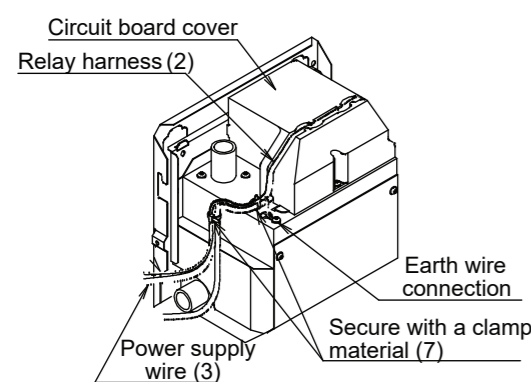
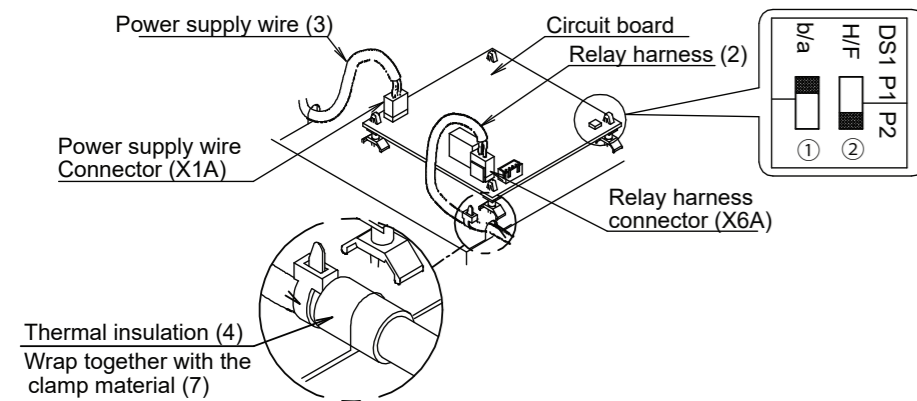


When connecting the relay harness (2), remove the X15A short circuit connector at the leftmost main PCB (A1P) of the BS/SV unit.

Note 1: The relay harness (2) cannot be extended, as it may malfunction due to noise.

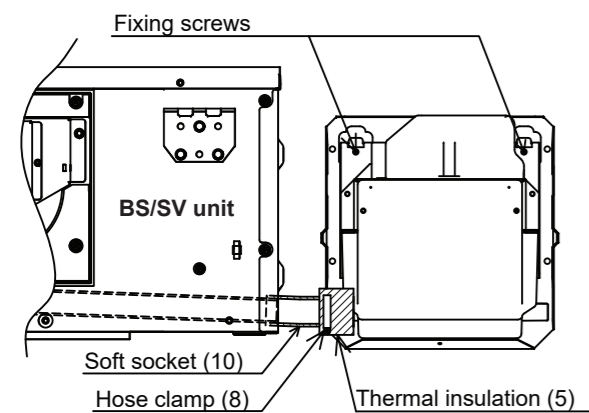
Note 2: When the power supply is turned on, the K2R contact on the drain up kit (1) closes and becomes a non-voltage constant B contact.

1. Remove the service cover of the BS/SV unit as explained in the installation manual of the BS/SV unit to access the switchbox of the BS/SV unit.
2. Connect the relay harness (2) and the power supply wire (3) to the BS/SV unit.
3. Position the relay harness (2) and power supply wire (3) in the BS/SV unit as instructed in the installation manual of the BS/SV unit.
4. Connect the relay harness (2) to the circuit board connector (X6A) of the drain up kit (1).
5. Connect the power supply wire (3) to the circuit board connector (X1A) of the drain up kit (1).
6. Secure the earth wire to the drain up kit (1) using the earth connection screw.
7. Bundle excess harness with a clamp (7).
8. Wrap the thermal insulation (4) around the relay harness (2).
9. Check that the DIP switch (DS1(2)) on the circuit board assembly of the drain up kit (1) is set to P2 and (DS1(1)) is set to P1.
10. Attach the circuit board cover.
11. Secure the relay harness (2) and power supply wire (3) with a clamp (7).
12. The earth resistance value should be 100 Ohms or less.



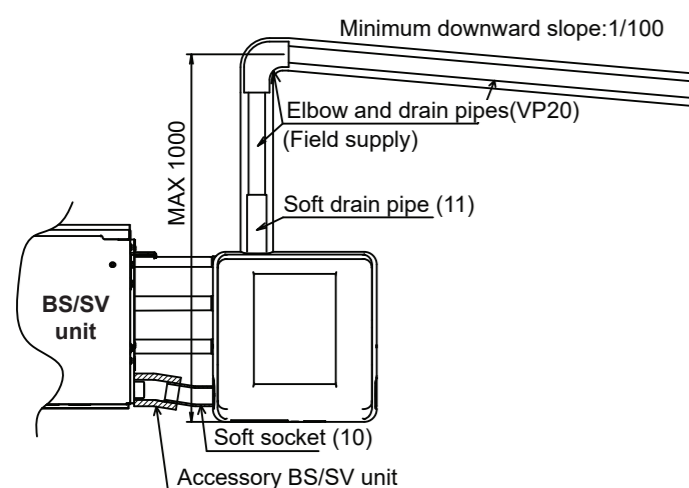
5. Drain piping procedure

1. Secure the drain up kit (1) to the mounting plate using 2 fixing screws.
2. Wrap the thermal insulation (5) around the hose clamp (8) to insulate it.



Caution

- Field supply pipes such as PVC pipes cannot be directly connected to the drain socket. Use the drain socket accessory, which is a BS/SV unit accessory, and the soft socket (10).
 - Tighten the hose clamps (8&9) with a torque of 1.0 to 1.2 Nm.
3. Connect the outlet pipe.
 - Connect the soft drain pipe (11) to the soft drain pipe connection port.
 - Tighten the connection between the drain up kit (1) and the soft drain pipe (11) with a hose clamp (8) and wrap it with thermal insulation (6).
 - Connect the soft drain pipe (11) and the field supply drain pipe in the ceiling with adhesive.

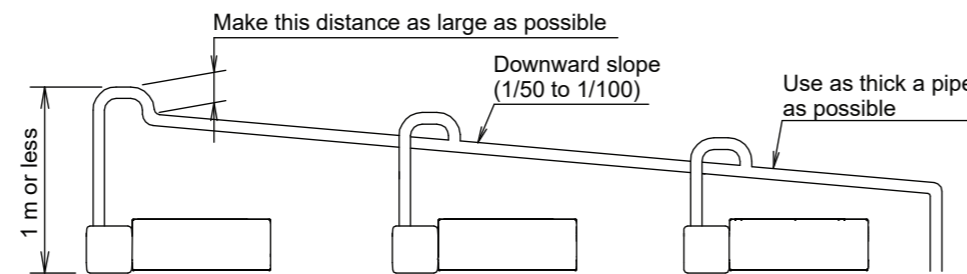


Caution

- Outlet pipe parts are field supply.
- Thermally insulate the drain pipe.
- Make a downward slope (1/100 or more) for the horizontal section of the drain pipe so that there will be no trapped air. If the horizontal section is long, install a support bracket in the middle to prevent the pipe from sagging.
- Field supply pipes such as PVC pipes cannot be directly connected to the soft drain pipe connection port. Use the attached soft drain pipe (11).
- Tighten the hose clamps (8&9) with a torque of 1.0 to 1.2 Nm.

In case of a centralised pipe

- When converging into one central pipe, follow the procedure shown below to absolutely prevent water from flowing backward into the unit.

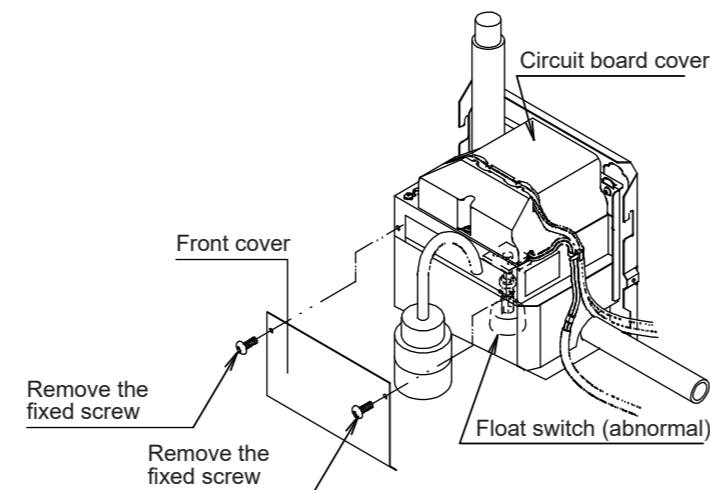


6. Test run

Caution

- Work with the circuit board cover attached. Using something such as a tester, check whether single-phase 220-240V (50Hz) power supply voltage is supplied to the drain up kit (1).
- Do not splash water into the drain up motor.

1. Remove the front cover of the drain up kit (1).
2. Perform a drainage check.
 - Pour water into the drain pan until the drain pan is about half-full of water.
 - Turn on the drain up kit (1) power supply.
 - Check that the pump operates and drains.
 - Check that the drain water flow is smooth.
 - Check that there is no water leakage from the pipe.
3. Perform an abnormal stop check.
 - Start the air conditioner.
 - Press the float switch (for abnormalities) for 5 seconds or more.
 - Check that outdoor air conditioner unit stops operating.
4. If both checks were successful, reattach the front cover.



7. Installation of the casing

1. On the casing, cut out and remove the covering of the casing pipe outlet with something such as a cutter.
2. Position the casing over of the drain up kit (1) and lift it.
3. Attach the casing to the drain up kit (1) with the casing screw and washer (12).

8. Checks after installation work is completed

Check these items after the installation is completed.

Check item	Check column
Is the BS/SV unit at least 10 mm higher than the drain up kit (1)?	
Is the drain pipe securely connected? Is there any risk of water leakage?	
Is the drain hose insulated properly?	
Is the drain pipe pointing downwards? (1/50 to 1/100)	
Is all the wiring connected?	

Precautions when operating

- The pump will repeatedly stop and start operating due to the action of the float switch.
- Do not turn off the power supply immediately. Wait at least 5 minutes after stopping operation, because remaining water still needs to be discharged once operation has stopped.
- If the power supply is not turned off, the drain pump will stop after about 20 minutes of residual operation. If the safety circuit is activated, the operation of the outdoor air conditioner will stop.
- If water leaks from the inside of the BS/SV unit or the drain up kit (1), stop operation immediately. The drain outlet may be clogged or the safety circuit may not be working properly. Contact your dealer.