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TECHNICAL MANUAL

AIR-CONDITIONING CONTROL SYSTEM

CENTRAL CONTROL

SC-SL4-AE2

SC-SL4-BE2

MITSUBISHI HEAVY INDUSTRIES THERMAL SYSTEMS, LTD.

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■ Number of units in combinations
[per system]

	SL4	SL2N	SL1N	Gateway
	SC-SL4-AE2 or SC-SL4-BE2	SC-SL2NA-E	SC-SL1N-E	SC-LGWNB or SC-WBGW256
new SL (Superlink)	2	2	8	0
	2	4	4	0
	2	8	0	0
	1	1	4	1
previous SL	1	1(×3)* ¹	0	0
	1	0	3(×3)* ¹	0

*1 In case of previous SL, three Superlink networks are available.

The number of units listed in the table above can be connected for each communication system.

Number of units in combination as shown above is applicable to when the units being controlled by each central control are not duplicated.

In case of managing one unit with plural central controls (SC-SL4-AE2, SC-SL4-BE2, SC-SL2NA-E), be sure to make permission / prohibition setting only with a master central control, not with other central controls.

When using an external input (emergency stop, demand), input the external signal to the master central control.

In addition, make this setting to “valid” when the external input wiring such as emergency stop or demand input are connected to the master central control.

■ Operating System and Web Browser

	Google Chrome	Microsoft Edge
Windows®10	○(*1)	○(*2)

Restart Web browser regularly. Operation may become unstable.

Windows is the registered trademarks of Microsoft Corporation in the United States and/or other countries.

(*1) The version tested : 87.0.4280.88

(*2) The version tested : 87.0.664.66

■ Compatibility table about the Utility software

(1) The Utility software for editing the definition files

	SC-SL4-AE/A or SC-SL4-BE/A	SC-SL4-AE/B or SC-SL4-BE/B	SC-SL4-AE2 or SC-SL4-BE2
SL4-V2 Utility	NO	YES	(*1)
SL3N-E Utility	YES (*2)	YES (*3)	—

(2) The Utility software for calculating the amount of energy consumption

	SC-SL4-AE/A or SC-SL4-BE/A	SC-SL4-AE/B or SC-SL4-BE/B	SC-SL4-AE2 or SC-SL4-BE2
SL4-BE Utility	NO	YES	YES
SL3N-BE Utility	YES	NO	NO

(3) The Utility software for editing the characters in menu on screen.

	SC-SL4-AE/A or SC-SL4-BE/A	SC-SL4-AE/B or SC-SL4-BE/B	SC-SL4-AE2 or SC-SL4-BE2
SL4E2 character changer (Under development)	NO	NO	YES
SL4V2 character changer	NO	YES	NO
SL4-E character changer	YES	NO	NO

(4) The Utility software for editing the characters on SL3N-BE Utility and SL4-BE Utility

	SC-SL4-AE/A or SC-SL4-BE/A	SC-SL4-AE/B or SC-SL4-BE/B	SC-SL4-AE2 or SC-SL4-BE2
SL4-BE character changer	NO	YES	YES
SL3N-BE character changer	YES	NO	NO

YES : Applicable, NO : Not applicable, — : Not evaluated

(*1) : Under testing

YES (*2) : Fan speed setting (4th, Auto) is not valid. It should be set from SL4.

If the demand control is valid, it becomes demand Level 1.

YES (*3) : Fan speed setting becomes 3 fan steps only. Different fan speed have to be set from SL4 itself.

If the demand control is valid, it becomes demand Level 1.

Maximum editable block number is 16. More than 17 (up to 20) have to be set from SL4 itself.

Maximum editable group number is 9. More than 10 (up to 12) have to be set from SL4 itself.

"Accounting period time" recognized as "Accounting period 1".

The definition file exported from SL4(2nd) is not editable by SL3N-E Utility.

Applicable Windows OS: Windows®10

	SC-SL4-AE/A, SC-SL4-BE/A	SC-SL4-AE/B, SC-SL4-BE/B	SC-SL4-AE2/1, SC-SL4-BE2/1
Screen image	Black	Black / White	←
Max. number of blocks	16	20	←
Max. number of groups per block	9	12	←
Accounting periods	2 periods	4 periods	←
External input for accounting period	1 point	2 points	←
Group display	Panel / List	Layout (Group icons, JPEG file made by customer) / List	←
Home leave	—	ON (Cool / Heat by outdoor temperature) / OFF	← (Only for air-conditioner group)
Energy saving	—	ON (temperature shift) / OFF	← (Only for air-conditioner / HMU group)
Silent	—	ON (Priority is given to the silence of the outdoor unit) / OFF (Except for the indoor unit model KXE6F or former, model KXZE1 (FDU224 / 280, FDU-F, FDE) or units connected by Superlink adapter SC-ADNA-E)	← (Only for air-conditioner / Q-ton group (*4))
Cooling/heating judgment automatically	—	Determine operation mode by external temperature	← (Only for air-conditioner / HMU group)
Temperature range setting	Cool : lower limit 16 - 18°C upper limit 30 - 35°C Heat : lower limit 10 - 18°C	Cool : lower limit 16 - 28°C, upper limit 30 - 35°C Heat : lower limit 10 - 18°C, upper limit 22 - 30°C	← For air-conditioner group For HMU group : Cool : lower limit 5 - 28°C, upper limit 28 - 30°C Heat : lower limit 15 - 22°C, upper limit 22 - 55°C
Temperature limit setting	—	VALID (limiting set temperature of unit which exceeds upper or lower limit is changed an upper or lower limit) / INVALID	← (Only for air-conditioner / HMU group)
NTP (Network Time Protocol)	—	VALID / INVALID	←
Operation time history	Display the accumulated operation time	Display the accumulated operation time by operation mode	←
Energy consumption history	—	Display the accumulated consumption	← (Except the Q-ton group)
Hot water amount history	—	—	Displays a graph showing the hot water amount for two days for Q-ton.
Group user	—	Operate and monitor only the set groups (Web Monitoring Function only)	←
Outdoor air temperature	—	Set the outdoor units for outdoor air temperature display	← (Except the Q-ton group)
“Backlight On” with alarm	—	VALID (backlight ON when one or more units stop with alarm) / INVALID	←
Flap control setting	—	Operation range (upper and lower limit position) setting of flaps at each air outlet of the unit	← (Only for air conditioner group)
Data logging	—	VALID (logging the unit's data (run/stop, set temperature, room temperature and outdoor air temperature)) / INVALID	← For HMU group, return air temperature means outlet water temperature. For Q-ton group, pause is included in stop.
Group type (*1)	—	Air-conditioner, other (run / stop only)	Air-conditioner, HMU or Q-ton, other (run / stop only)(*5)
Fan type	3 or 4 speed	1, 2, 3 or 4 speed	←
Louver type	VALID	VALID / INVALID	←
Operation data monitoring	—	Monitor the operation data of indoor unit and outdoor unit. (Maintenance user only)	←
Communication with the building monitoring	—	Corresponds to XML communication	← (Except the HMU / Q-ton group)
Language	English or Spanish	English or other language	←
Demand control *2	[Level 1] temperature shifts by 2 deg C [Level 2 and 3] fan mode	←	(Only for air-conditioner / HMU group) Select the set temperature shift by 1 - 9 deg C (*3) or fan mode at each demand level
Applicable model	Air conditioner or units connected by interface	←	Air-conditioner, hydro module units (HMU-KIT or later), heat pump water heaters (ESA30EH or later) or units connected by the interface
Yearly schedule	It will not be reflected the next year, it is necessary to set at least once every year.	←	Reflected the next year by the default schedule
Default password	OPERATOR : 123456	Operator : 123456, Group user : 123456	OPERATOR : 999999, Group user : 111111

← “ : Invalid

- (*1) Do not change the group type during demand control.
- (*2) Do not change the demand definition or the demand level setting during demand control. When demand and emergency stop are input, remote control operation is prohibited until both are released.

Unit power failure is not supported.

- (*3) When SL4 is turned off due to a power failure etc. during the set temperature shift control, the set temperature remains shifted after the recovery of power source and does not return to the original set temperature even if the demand input is canceled. To restart the set temperature shift control, re-input the demand signal.

Example	Level 1	Level 2	Level 3
Demand definition	set temperature shift (1°C)	set temperature shift (2°C)	fan mode
D1 (Demand Level 1)	set temperature : (T ₀ +1)°C	set temperature : (T ₀ +2)°C	operation mode : fan
D2 (Demand Level 2)	—	set temperature : (T ₀ +2)°C	operation mode : fan
D3 (Demand Level 3)	—	—	operation mode : fan

T0 : set temperature just before demand control

- (*4) This function cannot be used for the unit model ESA30EH-25/1 or former.

- (*5) HMU : Hydro module units (HMU-KIT or later)

Q-ton : Heat pump water heaters (ESA30EH or later)

1. SPECIFICATIONS

Item		Central control SC-SL4-AE2	Central control SC-SL4-BE2
Model name		SC-SL4-AE2	SC-SL4-BE2
Applicable model		Superlink compatible indoor unit ⁽¹⁾⁽⁸⁾	
Operating ambient temperature range		0 ~ 40°C	
Power source		1 phase 100 V, 200 ~ 240 V, 50/60 Hz	
Power consumption		9W	
External dimensions (Height×Width×Depth)		172mm×250mm×(23+70)mm ⁽²⁾	
Net weight		2kg	
LCD touch panel ⁽⁴⁾⁽⁵⁾		Color LCD, 9 inch wide	
Maximum connectable number of indoor units		New SL: Max. 128 units×1 network Previous SL: Max. 48 units×3 networks = Max. 144 units	
Input	Superlink	New SL: 1 network, Previous SL: 3 networks	
	Watt-hour meter pulse input ⁽³⁾	–	8 points, Non-voltage contact pulse width 80ms or more
	Emergency stop signal input ⁽³⁾	1 point, Non-voltage contact (normal open), Continuous input (Close; Center & Stop all units)	
	Demand signal input ⁽³⁾⁽⁷⁾	2 point, Non-voltage contact (normal open), Continuous input (Center & set temperature shift, Center & Fan mode)	
Output	Operation output	1 point, Non-voltage contact, Maximum rated current 40 mA, DC24V All indoor units at stop: Open, If there is any unit operating: Close	
	Malfunction output	1 point, Non-voltage contact, Maximum rated current 40 mA, DC24V All indoor units are normal: Close, If there is any error unit: Open ⁽⁶⁾	
Selection of language		English or other language can be selected as the default language.	

Notes (1) Some of the new functions cannot be used depending on the indoor unit model.

(2) “70” indicates embedded portion in the wall.

(3) SC-SL4-AE2 (SC-SL4-BE2) supplies internal DC 12V (10mA maximum) to detect a contact state.

(4) The life of LCD backlight is around 80,000 hours.

(5) Durability of touch panel is around 10 million times.

(6) On the “Function Setting” screen, it is possible to change the malfunction output to normally Open or Close. It is Open during power supply OFF or until SC-SL4-AE2 (SC-SL4-BE2) starts after power supply ON (including the automatic reboot).

(7) It is possible to change to accounting period time input. (1 or 2 points) (SC-SL4-BE2 only)

(8) Air-conditioner, hydro module units (HMU-KIT or later), heat pump water heaters (ESA30EH or later) or units connected by the interface. RCI-MDQE2 is needed for heat pump water heaters.

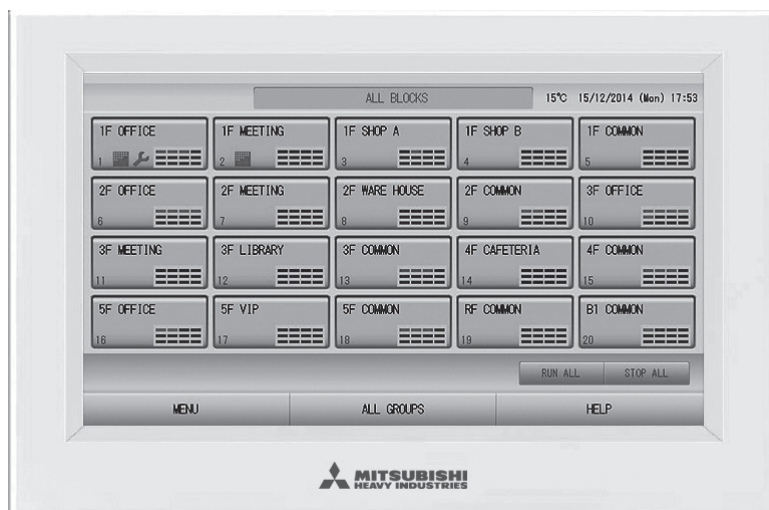


Fig.1-1 Appearance

Note (1) : Use the attached installation brackets (front and rear).

Note (2) : Maximum number of connectable indoor units depends on the indoor unit model.

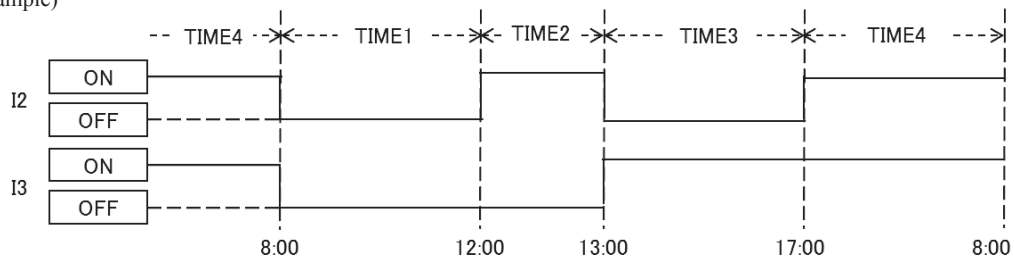
Note (3) : When energy consumption calculation function is required, use SC-SL4-BE2.

Note (4) : The energy consumption calculated by this equipment does not conform to OIML, and there are no guarantees concerning the results of the calculations. This unit calculates only energy consumption distribution (electric power). Customers should perform the calculation of the fees corresponding to the energy consumption.

Note (5) : You can divide a day into up to 4 periods for calculation by the clock function of the main body of SC-SL4-BE2. You cannot do different settings for each group. It is not possible to set a different time zone for each day of the week.

You can also set the accounting period time by using the external input. In this case, it cannot be performed level control of demand control or demand control because of using 1 or 2 points of demand signal input. Please prepare the external timer for changing time zone, and you can divide a day into up to 4 patterns for calculation.

(Example)



2. OPERATION AND SETTING

Operation and setting is implemented in groups or in a batch for Max.128 groups (144 groups for Prev. SL). Operation and setting cannot be done in each block or each unit.

(1) Air-conditioner / Other group

No.	Item	Description
1	RUN / STOP / Home Leave ON / Home Leave OFF	Performs run (operation) or stop control, or home leave ⁽⁶⁾ on/off.
2	Operation mode	Auto ⁽¹⁾ , Cool, Dry, Fan or Heat
3	Temperature setting	18°C-30°C (0.5°C intervals) ⁽²⁾ Possible to extend the lower temperature limit to 16 - 18°C and the upper temperature limit to 30 - 35°C for the cooling mode, and the lower temperature limit to 10 - 18°C and the upper temperature limit to 22 - 30°C for the heating mode.
4	Remote control Lock / Unlock	The permission / prohibition based on remote control function. The permission / prohibition for RUN/STOP, operation mode and temperature setting can be set individually. ⁽³⁾
5	Fan speed	4 th ⁽⁴⁾ , 3 rd , 2 nd , 1 st , auto ⁽⁵⁾ speed
6	Louver direction	Auto swing ON/OFF and louver positions 1 - 4.
7	Filter sign reset	Resets the filter sign
8	Error reset	Resets the error sign with the RUN or STOP operation.
9	Energy saving ⁽⁷⁾	Possible to save energy by shifting set temperature.

Notes (1) Do not use the Auto mode on any indoor unit other than those connected to the simultaneous heating & cooling 3-pipe multi system or single split PAC.

(2) Do not set the temperature setting at 0.5°C intervals on any indoor units with RCD type of wired remote control. It would cause malfunction of the wired remote control. Make sure to set at 1°C intervals.

(3) This function becomes valid in combination with the indoor unit model KXE4 or later, the Superlink adapter model SC-ADN-E or later and the remote control, which is the model RC-E1 or later. (For models earlier than the above-mentioned, the function becomes invalid because the indoor unit and remote control cannot receive the instruction even though the setting can be displayed.) Since setting is overwritten in SC-SL4-AE2 (SC-SL4-BE2) even if setting is done from the remote control, set using SC-SL4-AE2 (SC-SL4-BE2). However, "ALL Lock" and "ALL Unlock" can be set for old indoor models. (Same to "Center" or "Center & Remote")

(4) This function becomes valid only in combination with the indoor unit model KXE6D or later and SC-ADNA-E or later. For the previous indoor units, it is not possible to set the 4th fan mode, but other setting is possible as before. When indoor unit is operating at 4th fan speed, the fan speed mode displayed on SC-SL4-AE2 (SC-SL4-BE2) shows the 4th fan mode even though its setting is "Invalid".

(5) Fan speed "Auto" becomes valid only in combination with the indoor unit model KXE6F or later and the remote control, which is the model RC-EX1 or later. This function cannot be used for units connected by Superlink adapter SC-ADNA-E.

(6) This function is used for maintaining the room temperature at a moderate level for avoiding extremely hot or cool after leaving home. When the outdoor temperature is high, the home leave mode operates to cool down the room temperature to a moderate level in order not to become too hot in the room. When the outdoor temperature is low, it operates to warm up the room temperature to a moderate level in order not to become too cold in the room. The cooling and heating operations are controlled according to the outdoor air temperature and the set temperature. The set temperature and fan speed can be set. This function cannot be used for units connected by Superlink adapter SC-ADNA-E.

(7) By energy saving control of SL4, the set temperature will be raised during cooling, the set temperature will be lowered during heating and remote control's temperature setting operation will be prohibited. This function is available only when remote control permission/prohibition setting is "Valid".

(2) HMU group

No.	Item	Description
1	RUN / STOP	Performs run (operation) or stop control.
2	Operation mode	Auto ^{*1} , Cool, Pump or Heat
3	Temperature setting	0.5°C intervals Possible to change the lower temperature limit to 5 - 28°C and the upper temperature limit to 28 - 30°C for the cooling mode, and the lower temperature limit to 15 - 22°C and the upper temperature limit to 22 - 55°C for the heating mode.
4	Remote control Lock / Unlock	The permission / prohibition based on wired remote control function. The permission / prohibition for RUN/STOP, operation mode and temperature setting can be set individually. ^{*2}
5	Temperature2 setting	5°C-55°C (0.5°C intervals)
6	Filter sign reset	Resets the filter sign
7	Error reset	Resets the error sign with the RUN or STOP operation.
8	Energy saving ^{*2}	Possible to save energy by shifting set temperature.

*1. Do not use the Auto mode on any unit other than those connected to the simultaneous heating & cooling 3-pipe multi system.

*2. By energy saving control of SL4, the set temperature will be raised during cooling, the set temperature will be lowered during heating and remote control's temperature setting operation will be prohibited. This function is available only when remote control permission/prohibition setting is "Valid".

(3) Q-ton group

No.	Item	Description
1	RUN / PAUSE	Performs run (operation) or pause control.
2	FILL UP ^{*4}	START / FINISH
3	Hot Water Temperature setting ^{*1 *4}	60°C - 90°C (1°C intervals) Possible to change the upper temperature limit to 70 - 90°C (5°C intervals)
4	Hot Water Storage Amount ^{*4}	10% - 100 % (10 % intervals)
5	Keep Warm Temperature ^{*1 *2 *4}	40°C - 63°C (1°C intervals)
6	PEAK-CUT	0, 40, 60, 80, or 100% (cancel)
7	Heating Set Temperature. ^{*3}	20°C - 52°C (1°C intervals)
8	Silent Mode ^{*5}	ON / OFF
9	ANTI-LEGIONELLA ^{*4 *5}	ON / OFF
10	HEATING ^{*3}	ON / OFF

*1. Set keep warm temperature less than storage hot water temperature by 5°C or more. Ex.) When storage hot water temperature is 65°C, set keep warm temperature less than 60°C.

*2. Only for the tank type of the unit is OPEN.

*3. Only for the application of the unit is HEATING.

*4. Only for the application of the unit is HW.

*5. This function cannot be used for the unit model ESA30EH-25 / 1 or former.

3. CONTROL SELECTION SETTING

It is possible to change the settings as follows.

No.	Item	Description
1	Backlight Timeout time	Time from the last operation on the touch panel until the monitor backlight turns OFF can be selected.
2	Brightness	Brightness for the monitor backlight can be selected.
3	SL mode	Sets New or Previous Superlink.
4	Auto mode setting	Selection of "Auto" mode is enabled or disabled on the setting screen of SC-SL4-AE2 (SC-SL4-BE2).
5	Remote control Permission/prohibition setting	In case of managing with two or more central control, it is possible to set invalid of the remote control's operation permission/prohibition setting from SC-SL4-AE2 (SC-SL4-BE2).
6	Remote control function Permission/prohibition setting	It is possible to set valid / invalid for individual permission/prohibition of remote control function. If this item is set "Invalid", the remote control individual permission/prohibition setting cannot be selected. It can be set "ALL Lock" (Center) or "ALL unlock" (Center & Remote) only.
7	Remote control timer Permission/prohibition setting	It is possible to prohibit the remote control timer. The permission / prohibition for remote control timer operation is set in batch.
8	Folder name setting	It is possible to specify the folder to transfer the calculated data to USB memory.
9	Malfunction (Error) output	It is possible to choose "Closed" or "Open" status for malfunction (error) output during normal operation of units.
10	Fan Type	It is possible to choose Fan Type (1, 2, 3 or 4 speed) of indoor unit on the setting screen of SC-SL4-AE2 (SC-SL4-BE2).
11	Auto Fan Speed	Selection of Fan speed "Auto" is enabled or disabled on the setting screen of SC-SL4-AE2 (SC-SL4-BE2).
12	Temperature Indication	This selects Fahrenheit or Celsius for the temperature display.
13	Upper / Lower Temperature Limit Setting *1	It is possible to choose VALID or INVALID of limiting set temperature of indoor unit which exceeds upper or lower limit is changed an upper or lower limit.
14	Security Lock Setting	Used to valid / invalid the Security Lock. The password is required to turn on the backlight which is turned off when the Security Lock is valid.
15	Language Setting	Used to select the display language, English or other language.
16	Demand & Emergency Stop Setting	Used to select operations, the schedule adjustment at the release of emergency stop or demand operation, and running of the schedule during the demand control.
17	Unit Type	It is possible to choose Unit Type (air-conditioner, other, HMU or Q-ton) on the setting screen of SC-SL4-AE2 (SC-SL4-BE2).
18	Louver Type	It is possible to choose VALID or INVALID to set louver direction.
19	Screen Image	It is possible to choose BLACK or WHITE of screen image.
20	"Backlight On" with Alarm	It is possible to choose VALID or INVALID of the backlight ON when one or more units stop with alarm.
21	Data Logging	It is possible to choose VALID or INVALID of logging the unit's data (run/stop, set temperature, return air temperature and outdoor air temperature).

*1. Except the Q-ton groups.

Notes (1) Definition of New and Previous Superlink (New and Prev. SL)

New Superlink (New SL) : In case that all units connected to the network are models compatible with New Superlink (KXE6 model or newer, and type-N or newer of Central control and Interface), and the SL settings are in factory default ("New SL" or "AUTO").

Previous Superlink (Prev. SL) : In case that even a single unit connected to the network is not compatible with New SL (KXE4 model or older, and older than type N of Central control and Interface), SL setting is required.

(2) In case of managing one unit with plural central controls (SC-SL4-AE2, SC-SL4-BE2, SC-SL2NA-E), regarding the prohibition setting of remote control if the different settings from plural central controls are done on this unit, it may cause that this unit cannot start operation by the remote control despite the intention of user. Accordingly, in this case, be sure to make permission / prohibition setting only with the master central control, not with slave central controls.

In addition, make this setting to "valid" when the external input wiring such as emergency stop or demand input are connected to this central control.

(3) Number of units in combinations;

In case of new SL

SC-SL4-AE2, BE2	1, 2	1, 2	1, 2
SC-SL2NA-E	0 - 2	3, 4	5 - 8
SC-SL1N-E	8	4	0

In case of previous SL

SC-SL4-AE2, BE2	1	1
SC-SL2NA-E	1 (×3) *1	0
SC-SL1N-E	0	3 (×3) *1

*1 In case of previous SL, three Superlink networks are available, SC-SL2NA-E, SC-SL1N-E can be connected to each network.



Fig.2-1 Display example1

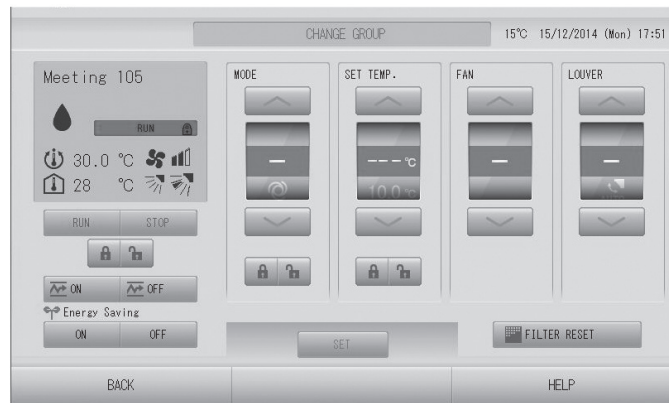


Fig.2-2 Display example2 (Air-conditioner / Other group)



Fig.2-3 Display example3 (HMU group)



Fig.2-4 Display example4 (Q-ton group)

4. STATUS MONITOR

Status monitoring can be done upon the unit block, unit group or individual indoor unit.

(1) Air-conditioner / Other group

No.	Item	Description
1	RUN/STOP/HOME LEAVE status	It displays "RUN/HOME LEAVE" if any units are running/home leave or displays "STOP" if all units are stopped.
2	Operation mode	Displays the operation mode of the representative unit.
3	Temperature setting	Displays the temperature setting of the representative unit.
4	Room temperature	Displays the suction temperature of the representative unit.
5	Lock / Unlock setting of remote control	Displays the status of permission/prohibition setting for wired remote control of the representative unit. Permission/prohibition setting for each function, as set from the remote control is not reflected because it is overwritten by setting with SC-SL4-AE2 (SC-SL4-BE2).
6	Fan speed	Displays the fan speed of the representative unit.
7	Louver direction	Displays the Auto swing ON/OFF setting and louver position setting of the representative unit.
8	Filter sign	When the cumulative operating time for any one of the indoor units managed with SC-SL4-AE2 (SC-SL4-BE2) reaches the set time to clean the air filter, the clean filter sign icon lights.
9	Maintenance (Inspection, Inspection 1, Inspection 2 and Backup)	When one or more indoor units managed with SC-SL4-AE2 (SC-SL4-BE2) requires inspection, the maintenance icon lights. There are 4 types of inspection <Inspection, Inspection 1, Inspection 2 and Backup>. Preference order of display is as shown below. Backup > Inspection 1 > Inspection 2 > Inspection
10	Malfunction (Error)	When any error is detected on one or more indoor units managed with SC-SL4-AE2 (SC-SL4-BE2), the error icon lights.
11	Outdoor air temperature	Displays the outdoor air temperature. You can choose up to 3 outdoor units and SL4 displays the average temperature of the outdoor units.

(2) HMU group

No.	Item	Description
1	RUN/STOP status	It displays "RUN" if any units are running or displays "STOP" if all units are stopped.
2	Operation mode	Displays the operation mode of the representative unit.
3	Temperature setting	Displays the temperature setting of the representative unit.
4	Temperature2 setting	Displays the temperature2 setting of the representative unit.
5	Lock / Unlock setting of remote control	Displays the status of permission/prohibition setting for wired remote control of the representative unit. Permission/prohibition setting for each function, as set from the remote control is not reflected because it is overwritten by setting with SC-SL4-AE2 (SC-SL4-BE2).
6	Outlet water temperature	Displays the outlet water temperature of the representative unit.
7	Inlet water temperature	Displays the inlet water temperature of the representative unit.
8	R/C sensor temperature	Displays the remote control temperature of the representative unit.
9	Filter sign	When the cumulative operating time for any one of the units managed with SC-SL4-AE2 (SC-SL4-BE2) reaches the set time to clean the air filter, the clean filter sign icon lights.
10	Maintenance (Inspection, Inspection 1, Inspection 2 and Backup)	When one or more units managed with SC-SL4-AE2 (SC-SL4-BE2) requires inspection, the maintenance icon lights. There are 4 types of inspection <Inspection, Inspection 1, Inspection 2 and Backup>. Preference order of display is as shown below. Backup > Inspection 1 > Inspection 2 > Inspection
11	Malfunction (Error)	When any error is detected on one or more units managed with SC-SL4-AE2 (SC-SL4-BE2), the error icon lights.
12	Outdoor air temperature	Displays the outdoor air temperature. You can choose up to 3 outdoor units and SL4 displays the average temperature of the outdoor units.

(3) Q-ton group

No.	Item	Description
1	RUN/PAUSE/STOP status	It displays "RUN" or "PAUSE" if any units are running or displays "STOP" if all units are stopped.
2	Operation mode	Displays the operation mode of the representative unit.
3	Hot Water Temperature setting	Displays the hot water temperature of the representative unit.
4	Keep Warm Temperature*	Displays the keep warm temperature of the representative unit.
5	Hot Water Storage Amount setting	Displays the hot water storage amount setting of the representative unit.
6	Heating status	Displays the heating status of the representative unit.
7	Heating Set Temperature	Displays the heating set temperature of the representative unit.
8	Heating setting	Displays the auto or manual for heating set temperature of the representative unit.
9	Application	Displays the application of the representative unit.
10	Priority	Displays the priority of the representative unit.
11	Hot Water Storage Amount	Displays the hot water storage amount of the representative unit.
12	Maintenance (Inspection 1, Inspection 2 and Backup)	When one or more units managed with SC-SL4-AE2 (SC-SL4-BE2) requires inspection, the maintenance icon lights. There are 3 types of inspection <Inspection 1, Inspection 2 and Backup>. Preference order of display is as shown below. Backup > Inspection 1 > Inspection 2
13	Malfunction (Error)	When any error is detected on one or more units managed with SC-SL4-AE2 (SC-SL4-BE2), the error icon lights.
14	PEAK-CUT	Displays the peak-cut status of the representative unit.
15	Silent Mode	Displays the silent mode status.
16	ANTI-LEGIONELLA	Displays the anti-freezing status of the representative unit.
17	HOLIDAY	Displays the holiday setting.
18	ANTI-FREEZING	Displays the anti-legionella status of the representative unit.

5. SCHEDULE SETTING

Schedule settings are possible for each group. It is possible to register the items⁽²⁾ 16 times per day.

No.	Item	Description
1	Yearly schedule	Specify the date and select/specify the weekday, holiday, special day 1 or special day 2. It is possible to set for a year. It will be reflected the next year by the default schedule ⁽⁴⁾ .
2	Today's schedule	Set the schedule that is effective for the current day only. The day's schedule has the priority over yearly schedule.
3	Detailed daily schedule	Set each schedule of the weekday, holiday, special day 1, and special day 2 which are used for the yearly schedule.
4	Season setting	Set the operating mode (Cool, Dry, Heat or Auto switch ⁽¹⁾) and temperature setting subsequently.

Notes (1) SL4 does cooling/heating judgment automatically by the outdoor air temperature.

(2) For air-conditioner group : RUN/STOP/HOME LEAVE, operation mode, remote control Lock/Unlock setting, temperature setting, energy saving and silent mode⁽³⁾,

For HMU group : RUN/STOP, operation mode, remote control Lock/Unlock setting, temperature setting, energy saving and temperature setting2,

For Q-ton group : hot water temperature setting, hot water storage amount setting, heating, heating set temperature, peak-cut, silent mode⁽⁵⁾ and anti-legionella⁽⁵⁾.

(3) This function cannot be used for the indoor unit model KXE6F or former, model KXZE1 (FDU224/280, FDU-F, FDE) or units connected by Superlink adapter SC-ADNA-E.

(4) Set the schedule of each days or dates (up to 15) to the weekday, holiday, special day 1 or special day2.

(5) This function cannot be used for the unit model ESA30EH or former.

(Sample settings):

①	7:55	RUN/STOP : RUN	Lock/Unlock : ALL Unlock	Operation mode : Cool	Set temp. : 25°C	Energy saving : -	Silent : -
②	9:40	RUN/STOP : STOP	Lock/Unlock : ALL Lock	Operation mode : -	Set temp. : -	Energy saving : ON	Silent : -
③	10:00	RUN/STOP : -	Lock/Unlock : ALL Unlock	Operation mode : Cool	Set temp. : 28°C	Energy saving : -	Silent : -
④	12:00	RUN/STOP : STOP	Lock/Unlock : ALL Lock	Operation mode : -	Set temp. : -	Energy saving : -	Silent : -
⑤	12:53	RUN/STOP : -	Lock/Unlock : ALL Unlock	Operation mode : Cool	Set temp. : 28°C	Energy saving : OFF	Silent : -
...							
⑩	23:00	RUN/STOP : STOP	Lock/Unlock : ALL Lock	Operation mode : -	Set temp. : -	Energy saving : -	Silent : -

6. MANAGEMENT AND CONTROL

No.	Item	Description															
1	Block definition	<p>Sets the block name and constituting groups. Group definition should be set beforehand.</p> <ul style="list-style-type: none"> • Max. number of blocks is 20 blocks; max. number of groups per block is 12 groups. • Max. number of characters in a block name is 16 characters. <p>Group icons can be arranged on the JPEG file (up to 780×315 pixels) made by customer.</p>															
2	Group definition	<p>Sets the group name and constituting units, representative unit, setting or non-setting units for batch control / energy saving / louver, demand control, group type (air-conditioner, other⁽²⁾, HMU or Q-ton), fan type and group icon⁽³⁾. Any units not set to a group are excluded from the control of SC-SL4-AE2 (SC-SL4-BE2).</p> <p>The factory setting is assigned to the group having one unit, and the unit address No. is assigned to the group name.</p> <ul style="list-style-type: none"> • Max. number of groups is 144 groups; max. number of unit per group is 16 units • Max. number of characters in a group name is 16 characters. 															
3	Unit definition (SC-SL4-BE2 only) ⁽⁷⁾	Sets the calculation type and capacity of units connected to this unit.															
4	Time and date setting	Sets the time and date used for schedule, Hour (24 hour basis)/Minute/Date/Month/Year. Sets NTP (Network Time Protocol) and VALID or INVALID of summer time.															
5	Alarm history	<p>Displays a maximum of 300 records for the history of error occurrence and restoration in the unit.</p> <p>Alarm history is erased by the power off or rebooting the program of SC-SL4-AE2 (SC-SL4-BE2).</p>															
6	Accounting period setting (SC-SL4-BE2 only)	Sets the period 1, 2, 3 and 4 used for calculation on the setting screen of SC-SL4-BE2. All day of the week of all groups becomes same setting. When choosing an accounting period setting by external input, this setting becomes invalid.															
7	Accounting period setting by external input ⁽⁴⁾ (SC-SL4-BE2 only)	Sets the period 1, 2, 3 and 4 used for calculation by external input. This makes it possible to switch the accounting period time for each day of the week, but you cannot do different settings for each group. It cannot be performed level control of demand control if you use one external point for accounting period setting, and it cannot be performed demand control if you use 2 external points for accounting period setting.															
8	Calculation data file record ⁽⁴⁾⁽⁷⁾ (SC-SL4-BE2 only)	Running time and amount of operation of each unit are accumulated per minutes, divided by Time 1, 2, 3 and 4, and saved to the file each 10 minutes.															
9	Demand control ⁽⁷⁾	<p>Up to three demand levels can be set using two-point demand input.</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Demand Input (I2)</th> <th style="text-align: center;">Demand Input (I3)</th> <th style="text-align: center;">Demand Level</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">OFF</td> <td style="text-align: center;">OFF</td> <td style="text-align: center;">OFF</td> </tr> <tr> <td style="text-align: center;">ON</td> <td style="text-align: center;">OFF</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;">OFF</td> <td style="text-align: center;">ON</td> <td style="text-align: center;">2</td> </tr> <tr> <td style="text-align: center;">ON</td> <td style="text-align: center;">ON</td> <td style="text-align: center;">3</td> </tr> </tbody> </table> <p>You can select the set temperature shift or fan mode at each demand level. Each group cannot be set differently. When a demand signal is inputted which temporarily activates demand control, demand control will be used for two minutes. When the demand signal is stopped, the system returns to the temperature or mode it was operating in (the temperature / operation mode and remote control permission/prohibition setting) just before it switched to demand control. Users can activate/deactivate the schedule which will run during demand input.</p> <p>【Set temperature shift】 The unit's set temperature shifts by 1 - 9 deg C (+1 - 9 deg C in cooling mode or -1 - 9 deg C in heating mode) and remote control's operation prohibited. If the temperature shift causes the temperature to surpass the upper/lower temperature limit, the upper/lower temperature limit will become the shift value.</p> <p>【Fan mode】 Sets the previously set unit to fan mode and remote control's operation prohibited.</p>	Demand Input (I2)	Demand Input (I3)	Demand Level	OFF	OFF	OFF	ON	OFF	1	OFF	ON	2	ON	ON	3
Demand Input (I2)	Demand Input (I3)	Demand Level															
OFF	OFF	OFF															
ON	OFF	1															
OFF	ON	2															
ON	ON	3															

No.	Item	Description
10	Emergency stop	All units (except the Q-ton groups) managed by SC-SL4-AE2 (SC-SL4-BE2) become “Stop” and “ALL Lock (Center)” condition by external emergency stop signal input. The units in the Q-ton groups managed by SC-SL4-AE2 (SC-SL4-BE2) become “Pause” by external emergency stop signal input. When the emergency stop signal is cancelled, the Lock/Unlock setting is returned to prior state and all units stay “Stop” or “Pause”. But the group whose schedule is set follows the closest schedule before cancellation time. If there is no setting (displayed as “—”) in the closest schedule time, the closest schedule before cancellation time is followed. When the emergency stop signal is inputted once, emergency stop control keeps for two minutes.
11	Power restoration control	Upon power restoration, the groups whose schedule is set are put under the schedule closest and earlier than the power restoration time. If there is no setting (displayed as “—”) in the closest schedule time, the setting at the time earlier than and closest to the power restoration time is followed. Unless any schedule is set to the current date, there is no power restoration control from SC-SL4-AE2 (SC-SL4-BE2).
12	Power failure compensation ⁽¹⁾	It compensates with the non-volatile memory the group definition, block definition, unit definition, yearly schedule setting, detailed daily schedule setting, accounting period time setting, function setting and accounting data files for 12 months.
13	System information	You can confirm system version, number of blocks, groups, units and IP address at “System Information” screen.
14	Web Monitoring Function	Allows users to monitor / control units using a web browser.
15	ID & Password	Used to set the Operator, Group user ⁽⁵⁾ or Maintenance user ID and password. The ID and password can be changed.
16	Operation time history	Displays a graph showing the accumulated daily operation time for 31 days by a group.
17	Energy consumption history (SC-SL4-BE2 only) ⁽⁷⁾	Displays a graph showing the accumulated consumption by a group for a day, month or year.
18	Flap control setting ⁽⁶⁾⁽⁸⁾	Motion range (upper and lower limit positions) of the flap at each air outlet of unit can be set at a desired range individually.
19	Operation data monitoring	You can monitor the operation data of indoor unit and outdoor unit. (Maintenance user only)
20	Communication with the building monitoring ⁽⁹⁾	Corresponds to XML communication.
21	Hot water amount history	Displays a graph showing the hot water amount for two days for Q-ton.

Notes (1) Operation status and setting contents on each indoor unit before a power failure are not retained.

(2) It is possible to set run/stop only.

(3) You can automatically set a group icon by model of units. This function cannot be used for units connected by Superlink adapter SC-ADNA-E or previous SL.

(4) There are no guarantees concerning the results of the calculations by malfunctions of a selected timer.

(5) It's possible to operate and monitor only the groups the operator set beforehand. (Web Monitoring Function only)

(6) This function cannot be used for unit connected by Superlink adapter SC-ADNA-E.

(7) Except the Q-ton groups

(8) Only for air-conditioner groups

(9) Except the HMU or Q-ton groups

Note 1: Calculation of energy consumption can be done by the calculation software that is bundled with SC-SL4-BE2. The energy consumption calculated by this central control does not conform to OIML, and there are no guarantees concerning the results of the calculations. There is a case for some trouble of SC-SL4-BE2, energy consumption calculations cannot be performed. Please note that we cannot be held liable in this case.

7. WEB MONITORING FUNCTION

This web monitoring system monitors and operates units connected to central control SC-SL4-AE2 (SC-SL4-BE2) from a web browser on the PC.

The right figure shows the basic system configuration. The central control SC-SL4-AE2 (SC-SL4-BE2) connected to units is linked directly to the monitoring and operating PC.

The web monitoring system can monitor and operate units by the group. It cannot monitor and operate by the block.

• Specifications of PC

The PC to be used with this product is not provided with the system. You must prepare it separately.

The following describes the minimum performance requirements for the PC.

- CPU clock : Pentium 500 MHz or higher (2 GHz or higher is recommended)
- Memory : 512 MB or more (1 GB or more is recommended)

• Operating System and Web Browser

The following table shows the supported combination of operating systems and web browsers. If you want to use other combinations, contact your dealer.

	Google Chrome	Microsoft Edge
Windows® 10	○ (**)	○ (***)

○ : Can be used

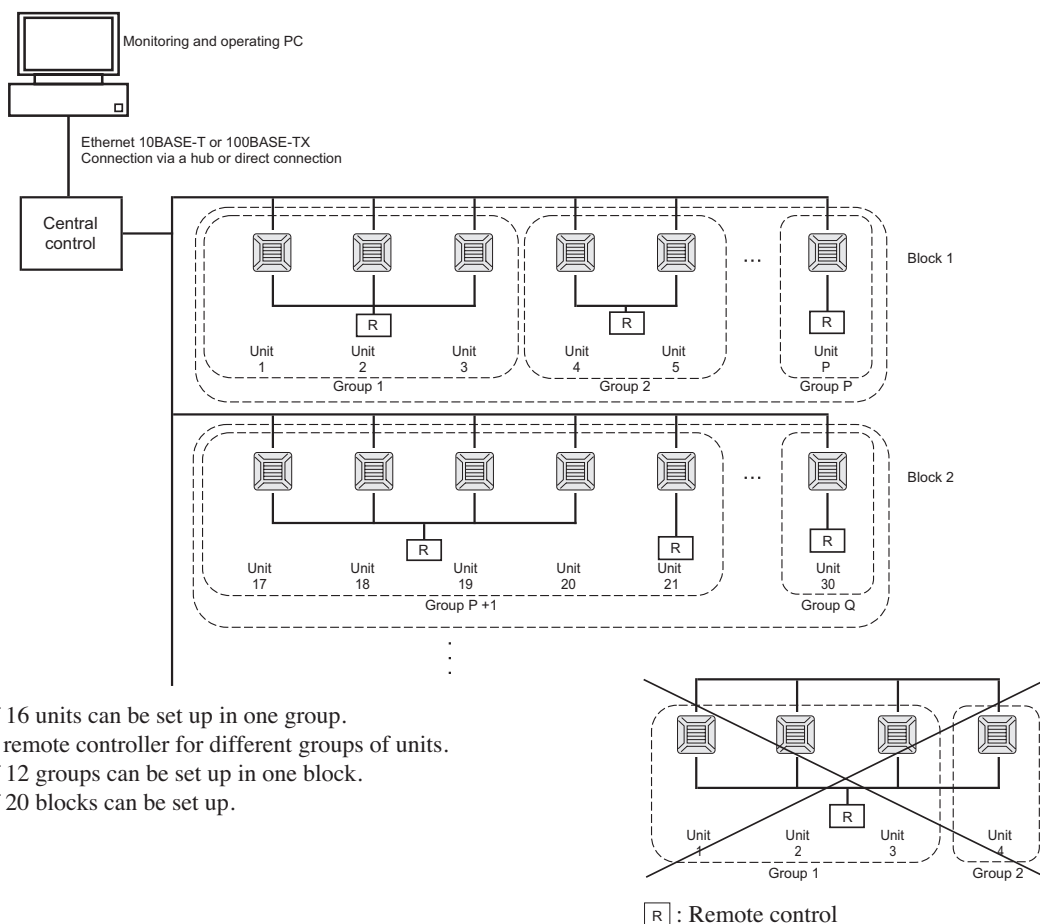
* Restart Web Browser regularly.

* Windows® is the registered trademarks of Microsoft Corporation in the United States and/or other countries.

(**) The version tested : 87.0.4280.88.

(***)The version tested : 87.0.664.66.

The operation of iOS 14.4 (the version of the OS of Tablet PC (iPad made by Apple)) was checked.

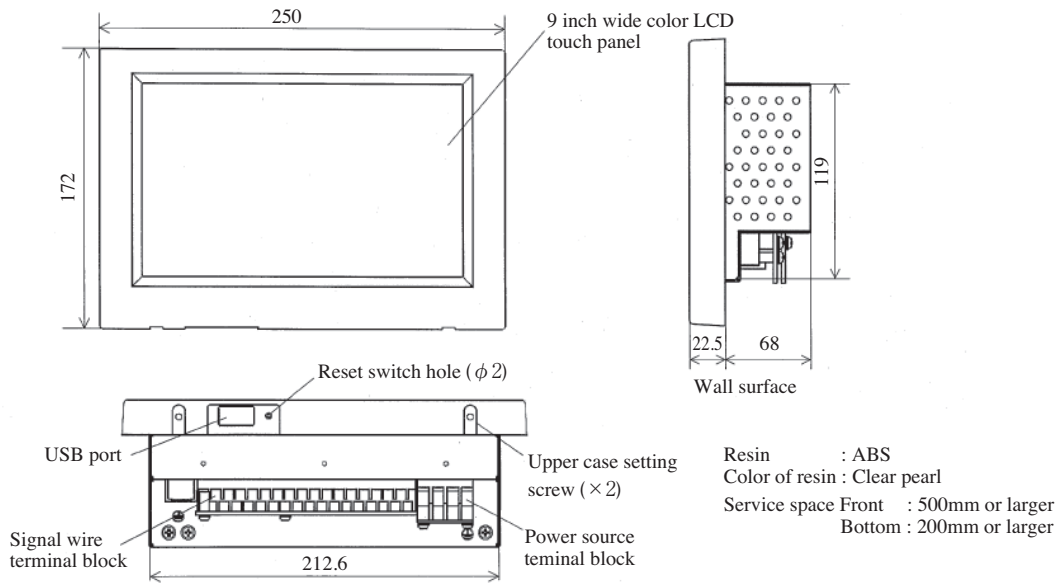


- A maximum of 16 units can be set up in one group.
- Do not use one remote controller for different groups of units.
- A maximum of 12 groups can be set up in one block.
- A maximum of 20 blocks can be set up.

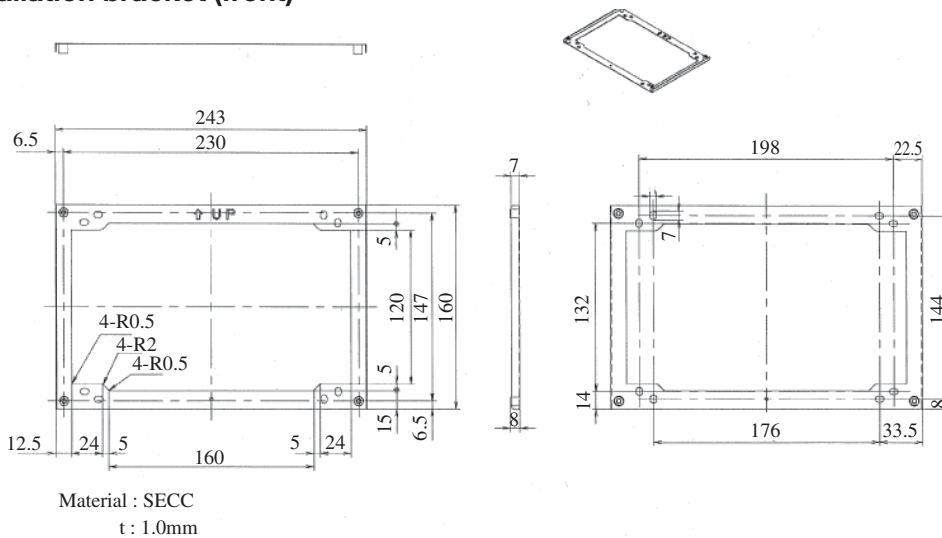
Fig.4 Web monitoring system diagram

8. EXTERNAL DIMENSIONS

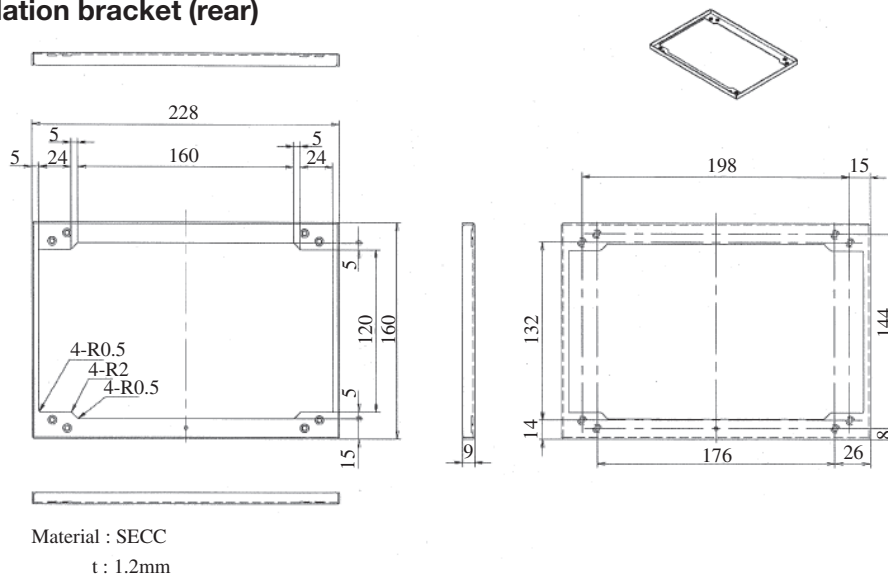
(1) Central control



(2) Installation bracket (front)



(3) Installation bracket (rear)



9. INSTALLATION OF CENTRAL CONTROL

PJZ012D091A

- Please read this manual thoroughly and follow it carefully when carrying out installation work.
- Please also refer to the installation manuals for the indoor and outdoor units.
- The appliance must be installed in accordance with national wiring regulations.
- The product is a precision equipment, so please handle it with enough care to prevent the unit damage due to falling and being stepped on.
- Before touching the terminal block, turn off the power source.

Safety Precautions

- Before starting installation work, read the "Safety Precautions" thoroughly in order to ensure you carry out installation correctly.

- Safety Precautions are divided into "Warning ⚠" and "Caution ⚠".

⚠ **WARNING** : Indicates a high possibility that serious injuries or death may occur if the unit is not installed correctly.

⚠ **CAUTION** : Indicates a possibility that serious consequences may occur depending on circumstances.

Please be sure to follow the instruction.

After completing the installation, carry out a test run to confirm that no abnormalities occur, and show customers how to use the unit according to the User's Manual. Please ask customers to keep the Installation Manual on hand.

⚠ WARNING

- Please ask your dealer or relevant professionals to install the unit. Installing the unit by yourself may result in defects, which may lead to electric shocks or fire.
- Install the unit correctly according to the Installation Manual. If any of the installation steps are not followed, electric shocks or fire may occur.
- Be sure to only use the included accessories and specified parts when installing the unit. Otherwise, it may result in electric shocks or fires.
- The electrical work should be performed by qualified electrical engineer, according to <Electrical Standards>, <Local electrical safety regulations> and wiring specification. If any of the installation steps are not followed, electric shocks or fire may occur.
- When wiring, ensure solid connection and fasten specified cables securely so that terminal connections may not be subject to external force working on cables. Incomplete connection for terminal wiring may cause electric shock and resultant fire.

⚠ CAUTION

- Please perform grounding work.
Please do not connect the ground wire with gas pipes, water pipes, lightning rod and telephone ground wire. Incomplete grounding work may cause electric shock.
- Please do not install the central control at the following places.
 1. Oil fog filled place, oil spraying and steamy location such as kitchen, etc.
 2. The place where corrosive gas such as sulfur dioxide generates.
 3. The location with machine that generates radio wave.
It may cause abnormality in the control system and abnormal running.
 4. The location at risk of flammable gas leaking.
The place where volatile combustible substance such as paint thinner and gasoline exists.
By any chance the gas leaks and it accumulates around the equipment, it may cause ignition.

1 **Applicable Models** All models for Superlink

2 **Accessories** Please check the following accessories.

Central control	1 unit
Pan-head screws (M4)	4 pieces for installing on the control box (10mm)
	4 pieces for embedding in a wall (40mm)
Pan-head screws (M3)	4 pieces (8mm) for installing the central control

User's manual (CD-ROM)	1 unit
Installation Manual (this document)	1 unit
Installation bracket (front)	1 piece
Installation bracket (rear)	1 piece
Round crimping terminal (L)	Large size × 2 pieces
Round crimping terminal (S)	Small size × 6 pieces

- For SC-SL4-BE2

CD-ROM (Energy consumption calculation software)	1 unit
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USB Memory	1 unit
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3 Installation Work

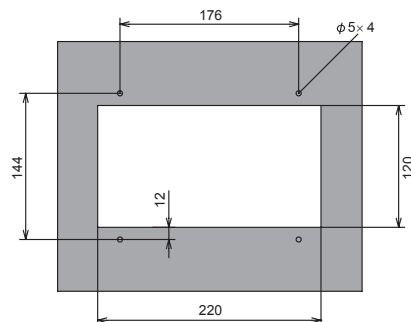
Please install the central control after turning off the power for fear of electric shock.
Please arrange or protect the wiring so that excessive force is not applied to the electrical wires.

Installation Place

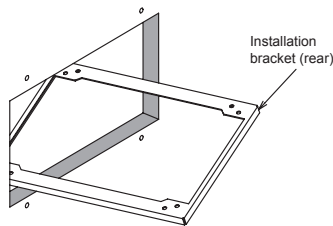
Please install in an indoor location that is not exposed to electromagnetic waves, water, dust, or other foreign substances.
The operating temperature range of this product is from 0°C to 40°C.
Install in a location where the ambient temperature remains within the operating temperature range.
However, if the operating temperature range is exceeded, be sure to implement corrective measures such as installation of a cooling fan.
Be aware that continued usage of this central control outside the operating temperature range can result in operation problems.

Space Required for Installation

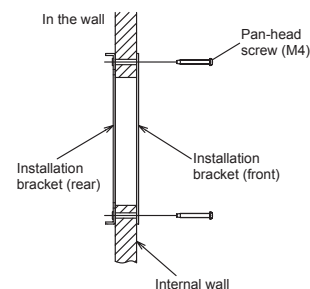
<Opening Space for the Installation>



Create a hole in the wall as shown in the figure above.
Be sure to check the dimensions required to correctly install the unit.



Insert the installation bracket (rear) into the rear of the wall through the hole, and secure the bracket.



Fasten the installation bracket (front) and installation bracket (rear) as shown in the figure above.
The top and bottom of the brackets can be easily identified. Be sure to check the "↑UP" mark to install it right side up.

(1) In case of installing on the control box

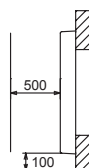
- Please use the control box of the size of 300mm × 400mm × 120mm or larger.
- Please be sure to lock the control box to protect persons from electric shock. Avoid usage of heat-retaining materials and heat-insulating materials because these can result in heat buildup and adversely affect the operation of the central control.

Caution

Please do not install devices that can cause the ambient temperature to rise in the same control box. Also, do not install multiple controls in the same control box. These can cause heat to build up and result in false operation. If multiple central control must be installed in the same control box, take corrective measures to ensure that the temperature in the control box does not rise above 40°C such as by installing cooling fans.

<Service space>

Front of the central control
500mm or larger
Bottom of the central control
100mm or larger

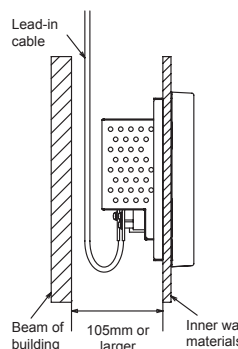


(2) In case of embedding in a wall

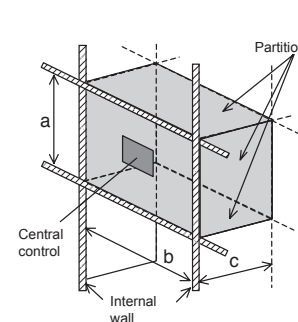
Be sure to use the attached installation brackets. Alternatively, you can use SLA3R-BX for SC-SL3N. Please be sure to use for protecting persons from the electric shock. Please check that the sufficient space is available in the wall. When the inside of the wall is divided and have a cavity, please create space more than 0.08m³. Refer to the table below. If there is partition on the left, right, top and bottom of the central control, please create a space that is 105mm or deeper.

	a (height) (mm)	b (width) (mm)	c (depth) (mm)	space (m ³)
Example1	900	800	110	0.08
Example2	1800	400	110	0.08
Example3	1000	400	200	0.08
Minimum	600 or larger	400 or larger	110 or larger	

<No partition>

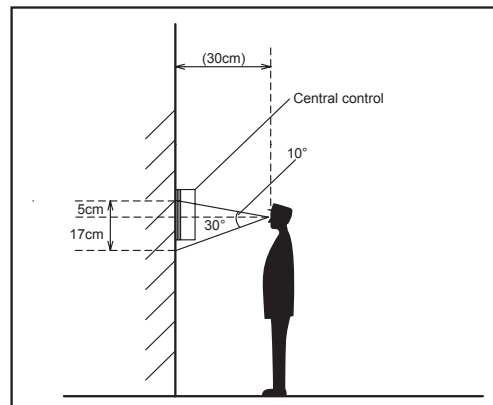


<With partition>



Installation Position

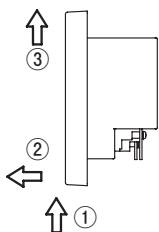
Install the central control so that the center of the screen will be at the same height as the eye level of people who will frequently use the unit.
The recommended position is that the center of the screen becomes within +10, -30 degrees from eye level.



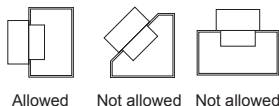
Installation procedure

(1) Remove the upper case

- ① Take out two screws using a cross slot screwdriver. (Do not lose the screws)
- ② Pull the upper case a little forward and push above. Then, upper case can be removed.



Caution

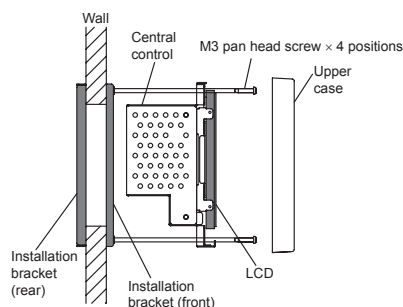


Please do not install facing upward or at a slant.

- Embed signal wire and power source wire in the wall beforehand.
- Connect wires to the terminal block.
- Confirm power source voltage and connect correctly.

(2) Installation outline

- Be sure to use the attached installation brackets.



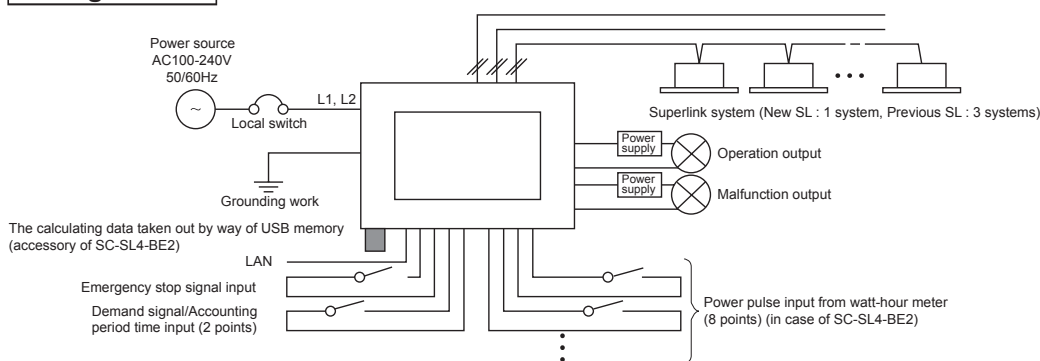
- Fasten the central control to the front side of the control box or a hole in the wall using the M3 screws.
- Wire separately the power source wire and the signal wire for preventing malfunctions.

4 Electric Wiring

For safety reasons, please use the round crimping terminals with insulated sleeves for connecting all wires to the central control.

- Please do the grounding work. Please do not connect earth line with gas pipes, water pipes, lightning rods and grounding line of telephone.
- Please do not turn on the power source (local switch) until all of the work is completed.
- Please wait at least two minutes after the indoor and outdoor units are turned on before turning on the power source.
- Except for the central control in the figure, all of the components are obtained at the site (wires, switches, relays, power source, lamps, etc.)
- Please be sure to build the circuit breaker which is easily accessible with building equipment's wiring.
- Please be sure to use the supplied round crimped terminals when connecting wires to the power source terminal block and Superlink terminal block.
- Before connecting the wires, remove the cover of the terminal block. After the work is completed, fix the cover of the terminal block as before. The cover is used to prevent electric shock due to accidental contact.
- Please use a watt-hour meter, demand input device and emergency stop input device which comply with a relevant IEC Safety Standard.

Wiring Outline



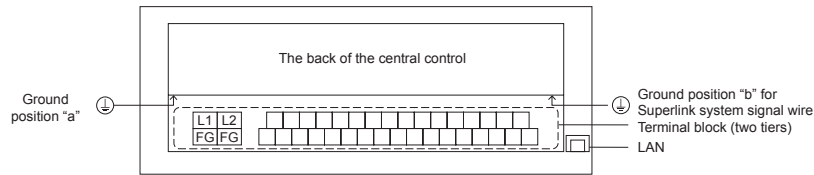
Wiring Specifications

Power source wire	1.25mm ²
Local switch	10A
Superlink signal wire (Note 1, Note 2)	Shielded wire (double-core, 0.75mm ² - 1.25mm ²). Max. 1000m per line (Max. distance: 1000m, Total wire length: 1000m)
The wire for operation output, malfunction output, emergency stop and demand input	Shielded wire (double-core, 0.75mm ² - 1.25mm ²). Maximum length: 200m per system
The wire for watt-hour meter	Shielded wire (double-core, 0.75mm ² - 1.25mm ²). Maximum length: 200m per system
Grounding wire	0.75mm ² - 6mm ²

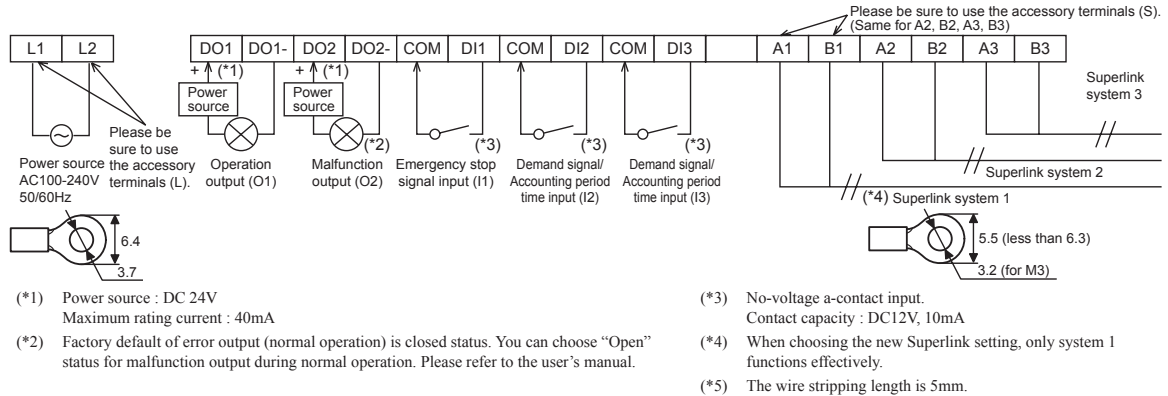
Note 1: When this central control is used, use a shielded wire for the Superlink signal wire. Ground both ends of the shielded wire. (Please wire the ground of the central control at ⊕ Ground position "b" of "System Wiring" in the diagram)

Note 2: If the indoor and outdoor units connected to the network are all compatible units with New Superlink, a total wire length of 1500m per line is possible (maximum distance: 1000m). However, be sure to use a 0.75mm² wire diameter if the total wire length exceeds 1000m. For further information, please contact your sales representative or dealer.

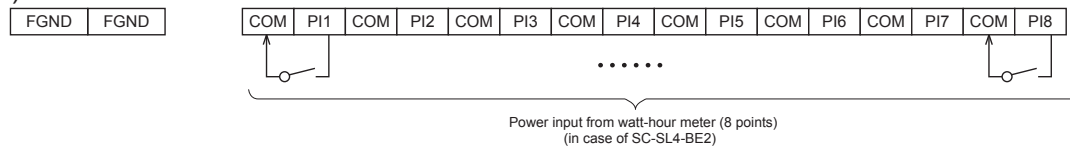
System Wiring



(1) The upper tier of Terminal Block (*)



(2) The lower tier of Terminal Block



Caution

- Do not connect power source wire to another terminal block. When you connect by mistake, damage and damage by fire of the electric part are caused, and it is very dangerous. Please check the wiring thoroughly again before turning on power.
- The demand signal input is configured for two points. To configure the 3 level setting, contact your sales representative or dealer.
- Please connect the watt-hour meter that satisfies the specification below.
 - the meter with pulse transmitter
 - the meter with pulse width of 100ms or more
- The energy consumption calculated by this central control does not conform to OIML, and there are no guarantees concerning the results of the calculations.

Notice

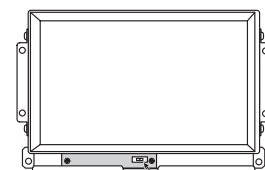
Please choose the new or previous setting of Superlink (SL) in the display of the main unit. (See user's manual)
It is necessary to change if the connection network is for previous Superlink. Whether the real connection network is new Superlink or previous Superlink depends on the type of connected indoor unit, outdoor unit, etc. Inquire the agents or dealers for more information.
When choosing the new Superlink Communication setting, 1 system wiring can connect up to a maximum of 128 units. Be sure to connect wiring to the Superlink system 1. Be careful not to connect to the Superlink system 2 or 3, as the main unit will not be recognized.

Power switch

The power switch is lower front of the central control. After installation is completed, turn the power switch ON.
Note that the central control does not start up unless the power switch is turned ON.
(It is turned ON by factory default.)

Note

Please peel off the protection sheet of the screen when you pass the central control to the customers.
Before you mount the upper case, please peel off the sheet.



Power switch

After checking the wiring and doing power switch operation, when the screen is not displayed, please contact the shop where the central control was purchased. This product consists of the exclusive parts, and you can not exchange the electrical equipment. Please do not disassemble other than what is stated in this instruction manual.

Other Information

- This central control is electronic and independently mounted control.
- The type of this central control is automatic action for which the manufacturing deviation and the drift of its operating value, operating time or operating sequence have not been declared and tested under the standard.
- The actions of this central control are full-disconnection on operation, a trip-free mechanism which cannot even momentarily be reclosed against the fault, an action which can only be reset by the use of a tool, an action that does not require any external auxiliary energy source of electrical supply for its intended operation, and electronic disconnection on operation.
- The rated impulse voltage (impulse withstand voltage) is 2500V.
- The surface of touch panel and front cover produce an increase of temperature of about 15 degrees.
- Purpose of control is operating control.
- The lifetime of the keying of touch panel is ten million times. The lifetime of LCD is about 80,000 hours.
- Control pollution degree is 2.
- Ball pressure test temperature : 75 °C (front cover)
- Voltage and current declared by the EMC tests : AC85V:172mA, 200V:103mA
- The MAINTENANCE MENU is provided for dealers and qualified professionals responsible for maintaining the central control units. When logging in with a normal operator's ID, you are not permitted to operate the MAINTENANCE MENU. Please refer to the user's manual.
Please do not disclose the ID and password to anyone except operators. ID : MHI, Password : 123456
The default ID and password can be changed. Please refer to "MAINTENANCE USER SETTING" in the user's manual.

10. ACCOUNTING CALCULATION

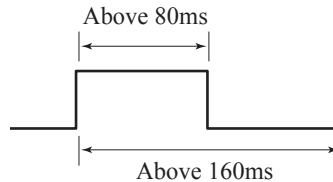
(1) Selection of watt-hour meter (SC-SL4-BE2)

To calculate the energy consumption, it is necessary to procure a watt-hour meter at site. Select a meter according to the following items.

(2) Selecting the pulse unit

(a) Restrictions on the pulse input receiving side

Meter with pulse width above 80ms (6 pulses/second or fewer). More than 1 pulse/day (More than 1 pulse/10 minutes is desirable.)



(b) Selecting the pulse unit

- ① Calculate the total amount of power source capacity required for the units to be connected.
- ② Select provisionally an integrated watt-meter that fits to the following requirement.
- ③ Calculate max. operating status of units

Example) the estimated overload condition expected in the summer season is assumed to be the total power consumption x 1.2;

When provided the total power consumption = 100 kW and the power factor = 90 %,

Operating at full load = 100 x 1.2 = 120 kW with 3-phase, 200V,

I (current) = $120 \times 1000 / (1.732 \times 200 \times 0.9) = 385$ A

→The watt-hour meter needs to have a capacity of 400A.

If you select 400A watt-hour meter made by Mitsubishi Electric;

K11 type: Select the pulse unit 100 kWh/P or 10 kWh/P

K12 type: Select the pulse unit 100 kWh/P or 10 kWh/P or 1 kWh/P

* For smaller pulse unit, consult a watt-hour meter manufacturer.

- ④ Check the pulse unit when the power consumption is 120 kWh (Example)

When the pulse input is maximum and 0.1 kWh/P is selected; $1200 \text{ P/h} = 20 \text{ P/min} = 1 \text{ P}/3\text{-second}$, it is fewer 5 P/second so this is acceptable.

If 0.1 kWh/P is selected ; $120 \text{ P/h} = 2 \text{ P/min}$, it is 20 P/10-minute so this is acceptable.

If 1 kWh/P is selected ; $12 \text{ P/h} = 0.2 \text{ P/min}$, it is 2 P/10-minute so this is acceptable.

If 10 kWh/P is selected ; $1.2 \text{ P/h} = 0.02 \text{ P/min}$, it is zero pulse/10-minute. It is 28 P/day.

Since it is sufficient for the calculation if there is 1 pulse a day or more, it is possible to use 10 kWh/P.

However, since it is likely to produce calculation errors depending on the running rate, it is better to use 1 kWh/P.

(c) Maximum count number of power pulse input

Watt-hour pulse unit	0.01 kWh/P	0.1 kWh/P	1 kWh/P	10 kWh/P
Maximum measurable watt-hour	5,400kWh/day	5,400kWh/day	540,000kWh/day	540,000 kWh/day
	225 kWh/h	2,250 kWh/h	22,500 kWh/h	225,000 kWh/h

(3) Energy consumption calculation (SC-SL4-BE2 only) (Except Q-ton)

Calculation of energy consumption can be done by the calculation software “SL4-BE Utility” that is bundled with SC-SL4-BE2. SL4-BE Utility calculates the amount of energy consumption with unit’s running data saved by SC-SL4-BE2. The amount of energy consumption is divided proportionally day by day according to the operating ratio of the unit, and it is calculated as the group total amount of energy consumption for every period.

The calculated results can be edited in spreadsheet software (Microsoft® Excel, etc.).

< Calculation procedure >

- ① Accumulate operating time of each unit. (per minute)
- ② Obtain the amount of operation for each unit (Ki) and add them based on time zone (1, 2, 3, 4) (per minute)

$$K_i = K_i \text{ (previous value)} + K_M$$

K_M : Amount of operation for unit per minute

Amount of operation is calculated with the following 4 methods.

MULTI1 : Calculation according to the amount of refrigerant flow during Thermo ON. Used for KX Series.

MULTI2 : Calculation according to Thermo ON time. Used for KX Series.

ON/OFF : Calculation according to the unit operating time. Used for KX series, single split PAC connected by Superlink adapter SC-ADNA-E.

SINGLE : Calculation according to outdoor unit’s compressor ON time. Used for single split PAC connected by Superlink adapter SC-ADNA-E.

* Select same method for same system of watt-hour meter.

* If it is set at MULTI1 or MULTI2, indoor units in the FAN mode are excluded from the proportional distribution. If you need to include the indoor units under the FAN mode in the proportional distribution, set it to ON/OFF.

NOTE

SC-ADNA-E is needed for single split PAC. Select ON/OFF or SINGLE.

Select ON/OFF for Superlink adapter SC-ADNA-E connected to multiple indoor units in different refrigerant systems, because SINGLE is the calculation based on on/off state of outdoor unit compressor.

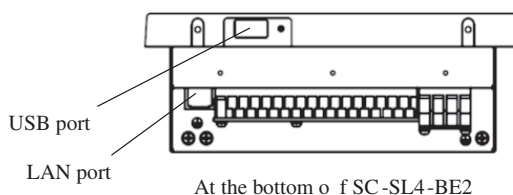
Select ON/OFF for KX series connected by Superlink adapter SC-ADNA-E.

For residential unit connected by SC-BIKN and SC-ADNA-E, select ON/OFF or SINGLE.

When SINGLE is selected, SC-ADNA-E must be connected to one indoor unit.

Please select ON/OFF for units connected by SC-BIFN-E or SC-GIFN-E.

* When the unit is not used in a day (Ex. Holiday), and thus there is no operating indoor unit to divide proportionally, the portion of standby power does not match the value on the meter. It is necessary to re-calculate the data using the spreadsheet software.

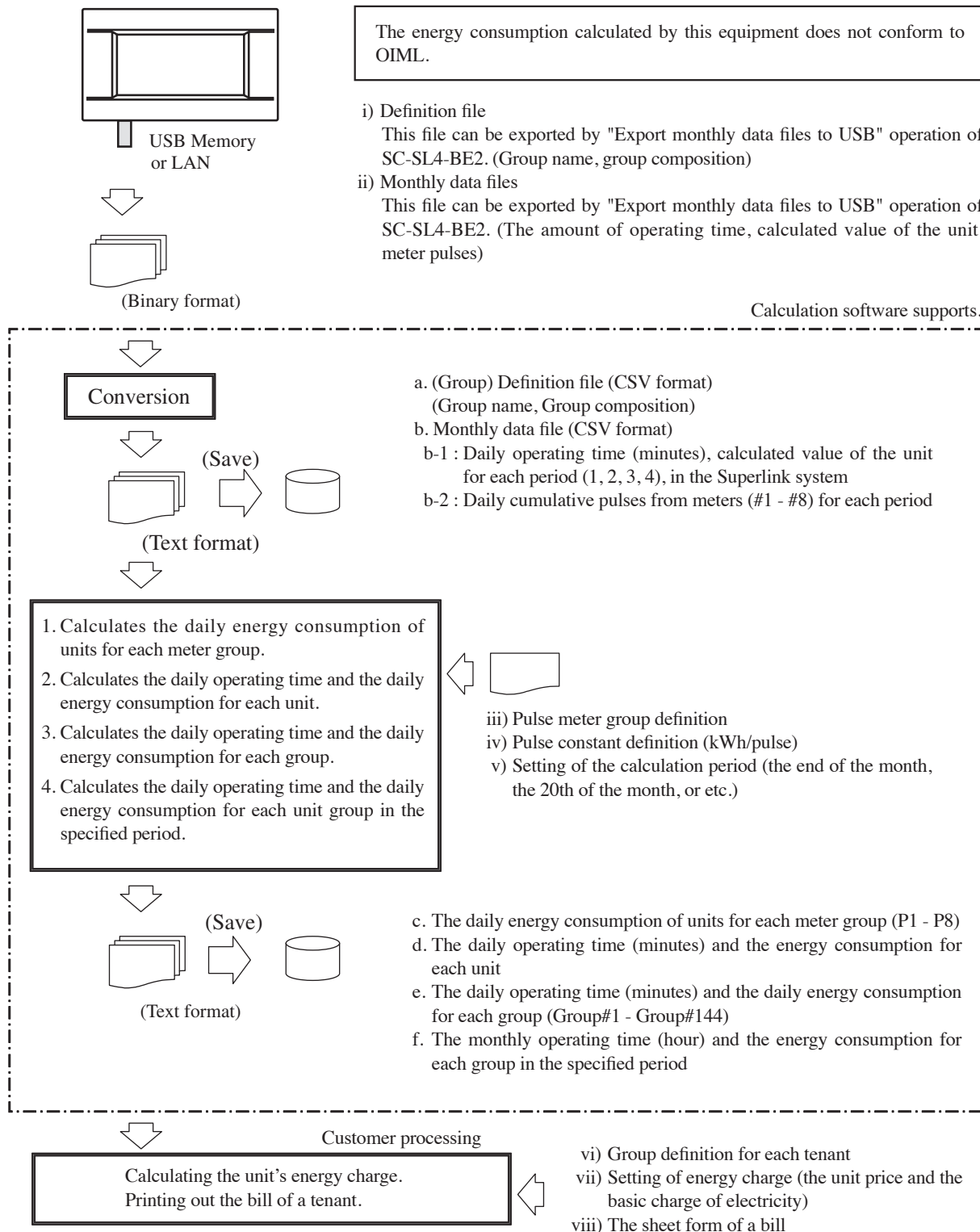


- Monthly Data File can be downloaded via the LAN.

(4) Software overview

SL4-BE Utility calculates the amount of energy consumption with air-conditioner's running data saved by SC-SL4-BE2 (Ver.2.00 or later). The amount of energy consumption is divided proportionally day by day according to the operating ratio of the unit, and it is calculated as the group total amount of energy consumption for every period.

(a) Flow of data processing



(b) Function outline

- Calculates and makes the monthly data file of the unit's group energy consumption in the specified period.
 - The operating time and the energy (electricity) consumption for each unit's group.
 - The data file is saved by the CSV format. The unit charge calculation is possible by the spreadsheet software (Microsoft® Excel, etc.).
- Imports the definition file and monthly data files that are saved by SC-SL4-BE2 (Version 2.00 or later), and converts to CSV format.
 - SL4-BE Utility imports the group definition file and the monthly data file saved by SC-SL4-BE2 via USB memory or LAN, and converts them into the CSV format.

(c) Working environment

- Operating system
 - Microsoft® Windows® XP, .NET Framework Version 2.0
 - Microsoft® Windows Vista®
 - Microsoft® Windows® 7
 - Microsoft® Windows® 8.1, .NET Framework 3.5
 - Microsoft® Windows® 10
- Hardware
 - Pentium 300 MHz CPU minimum
 - 128 MB RAM
 - At least 5 MB free hard disk space
 - 1 USB (1.1 or 2.0) port
- The screen size of SL4-BE Utility is optimized by the following setup.
 - 800 x 600 resolution display
 - Small font size

(d) End User Agreement

This software is for using SC-SL4-BE2. MITSUBISHI HEAVY INDUSTRIES THERMAL SYSTEMS, LTD. permits you to use two or more copies of this software on two or more computers.

This software and SC-SL4-BE2 do not warrant the contents of the calculation result. Please be sure to use a calculation result in the customer's responsibility.

MITSUBISHI HEAVY INDUSTRIES THERMAL SYSTEMS, LTD. or its suppliers are not liable for any damages whatsoever (including but not limited to damages for loss of business profits, business interruption, or any other pecuniary loss) which results from an inability to use this software.

Moreover, whatever the cause of failure and an obstacle, MITSUBISHI HEAVY INDUSTRIES THERMAL SYSTEMS, LTD. cannot warrant the data saved at your memory storage (a hard disk, USB Flash Memory).

(e) Installation instructions

- 1) Insert the CD-ROM "Air-Conditioners Management System" into your CD-ROM drive.
- 2) Run "setup.exe" from the CD-ROM to start the installation.

(5) Starting and quitting the software

(a) Starting the SL4-BE Utility

Double-click the short-cut icon displayed on Windows® desktop or select the program displayed on the Start menu. The Main Menu screen shown in Fig.10-1 will appear.

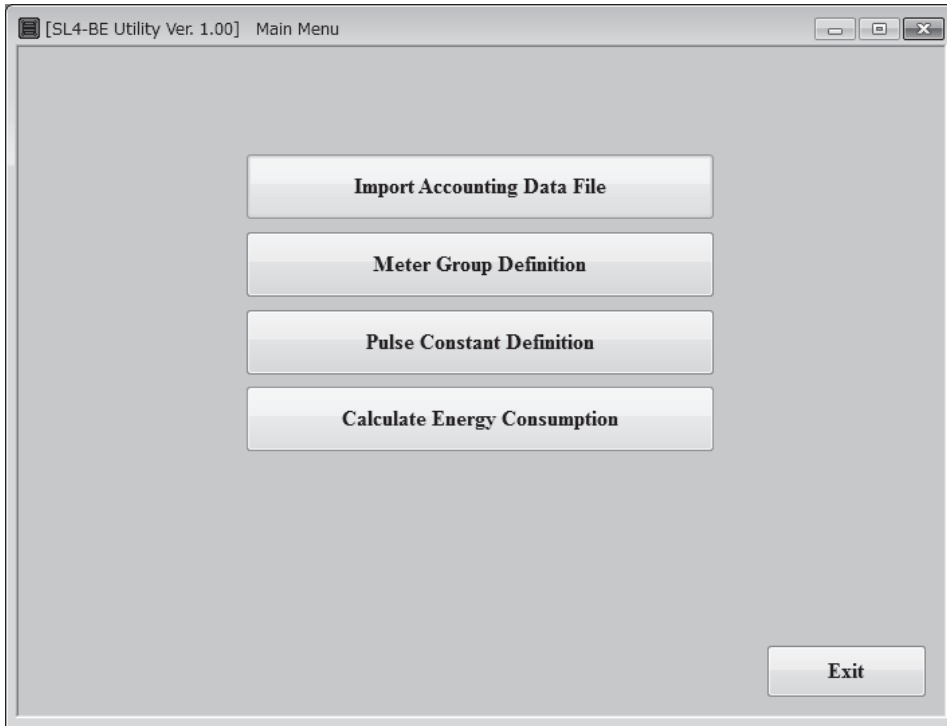


Fig.10-1 Main menu screen

(b) Quitting SL4-BE Utility

Click [Exit] button, or [x] button of a title bar.

(c) Screen changes

The screen changes are shown in Fig.10-2.

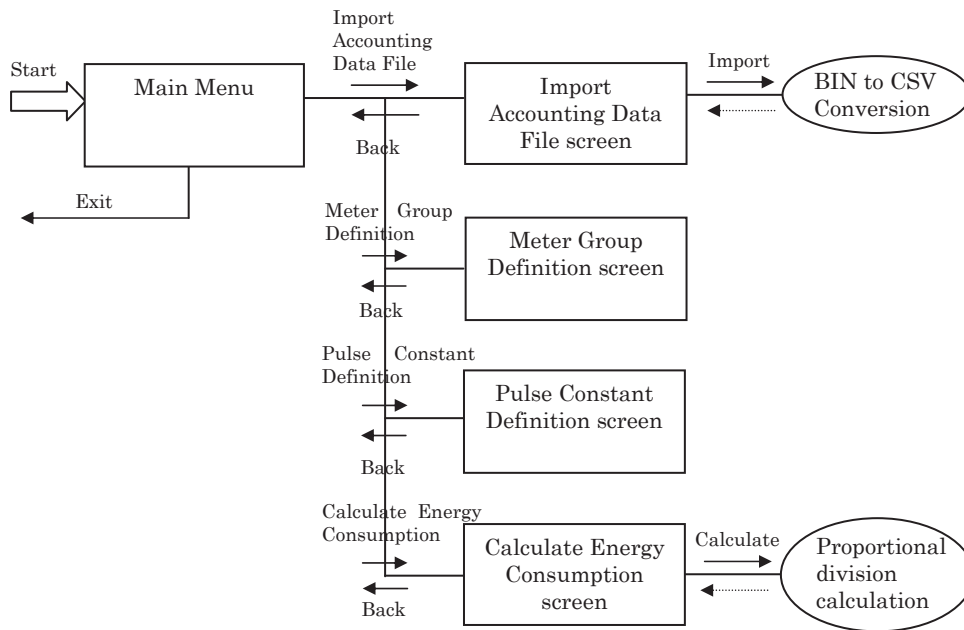


Fig.10-2 Screen changes and operation

(6) Calculating energy consumption

(a) Start the SL4-BE Utility

Double-click the short-cut icon displayed on Windows® desktop or select the program displayed on the Start menu. The Main Menu screen shown in Fig.10-3 will appear.

Step 1: Click [Import Accounting Data File] button on this screen.

Step 2: Click [Meter Group Definition] button on this screen.

Step 3: Click [Pulse Constant Definition] button on this screen.

Step 4: Click [Calculate Energy Consumption] button on this screen.

Since SL4-BE Utility memorizes the last setting of Meter Group Definition and Pulse Constant Definition, as long as there is no change in a setup, you may skip Step2 and Step3. However, we recommend that you check the contents of the setting whenever you calculate.

When you manage two or more SC-SL4-BE2s, don't skip Step2 and STEP3. You need to read (“Open”) the setting of each SC-SL4-BE2's settings in Step2 and Step3.

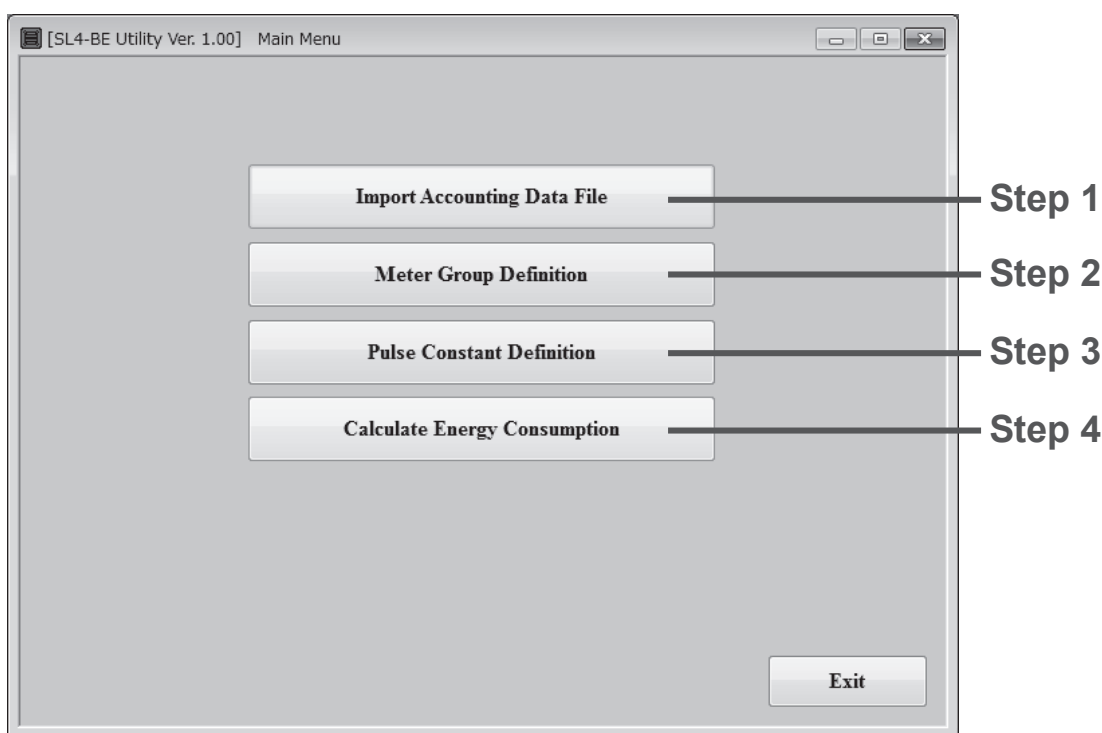


Fig.10-3 Main Menu screen

[Import Accounting Data File]: switches to the Import Accounting Data File screen.

[Meter Group Definition]: switches to the Meter Group Definition screen.

[Pulse Constant Definition]: switches to the Pulse Constant Definition.

[Calculate Energy Consumption]: switches to the Calculate Energy Consumption screen.

[Exit]: SL4-BE Utility finish and this screen close.

Step 1: Import Accounting Data File

- 1) Beforehand, export monthly data files to a USB memory by SC-SL4-BE2.
- 2) Insert the USB memory in your personal computer.
 - Operation of the above (1) and (2) can be substituted by “Download Monthly Data File” operation of the Web monitoring function.
- 3) Click a check box. Select the drive name of a USB memory, and the folder name, which exported monthly data files.
- 4) Specify the year and the month to calculate.
- 5) Click [Import] button. Reading out files will start.
- 6) Confirm the success of reading out files. Then, click [Back] button.

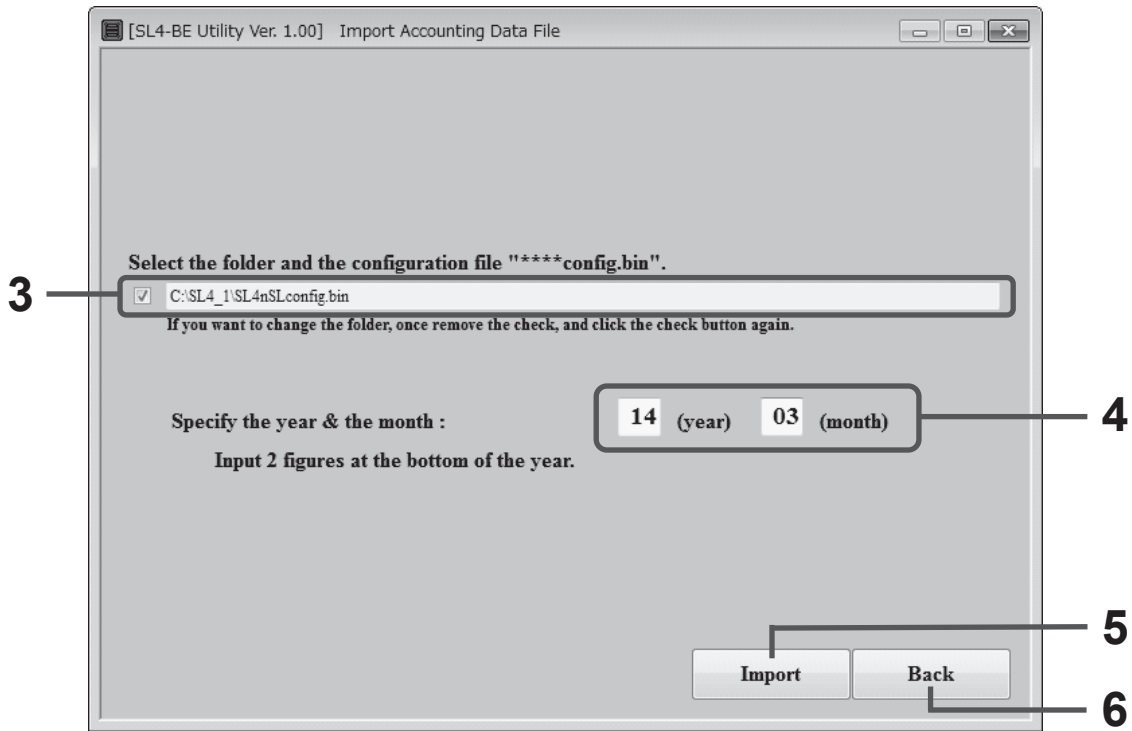


Fig.10-4 Import Accounting Data File screen

[Import]: Imports the group definition file and the monthly data files.

[Back]: Returns to the Main Menu screen.

- Selecting the configuration (Group definition) file.
Select the drive name of a USB memory as shown in Fig.10-5, and choose the file “SL4nSLconfig.bin” (New Superlink) or “SL4pSLconfig.bin” (previous Superlink).

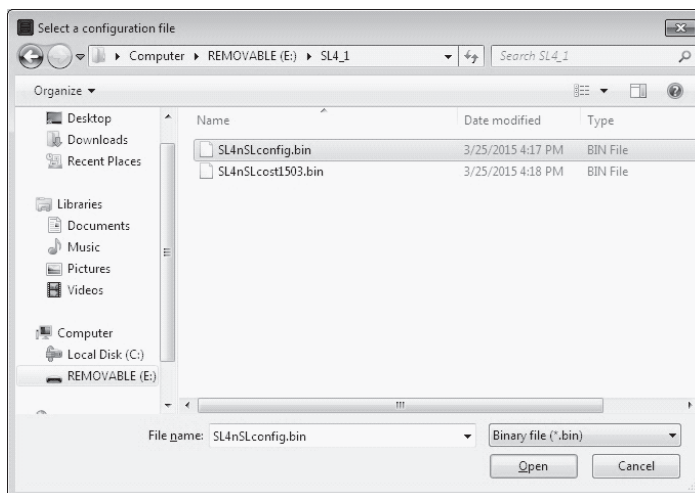


Fig.10-5 Select Group Definition File dialog box

- Importing Accounting Data Files
SL4-BE Utility reads a group definition file and the monthly data file of the month specified to the "year" and the "month", and the previous month, and converts them into the CSV files.

The converted CSV files are the following.

- a) Group definition file (file name: Grp.csv)
Group name, group composition
- b) Monthly data files
 - b-1: Daily operating time (minutes), calculated value of the air-conditioner for each period (the basis period and the overtime), in the Superlink system.
 - File name (in case of New Superlink system):
SL4NSL1costYYMM.csv, SL4NSL2costYYMM.csv,
SL4NSL3costYYMM.csv, , SL4NSL8costYYMM.csv
 - File name (in case of previous Superlink system):
SL4PSL1P1costYYMM.csv, SL4PSL1P2 costYYMM.csv,
SL4PSL2P1costYYMM.csv, SL4PSL2P2costYYMM.csv
SL4PSL3P1costYYMM.csv, SL4PSL3P2costYYMM.csv
 - b-2: Daily cumulative pulses from meters (P1-P8) for each period.
 - File name (in case of New Superlink system):
SL4NPLScostYYMM.csv
 - File name (in case of previous Superlink system):
SL4PPLScostYYMM.csv

These files are saved in the name of “DB” folder that installed the program “SL4-BE Utility”. If you have not changed the folder of the installation folder, the above files are placed into “C:/SL4BEUtility/DB”.

YYMM means the year and the month.

Since the capacity of a hard disk will be insufficient, please delete the above-mentioned file once in a year.

Step 2: Set the Meter Group Definition

SL4-BE Utility memorizes the Meter Group Definition last time, and reads it when starting. You may skip this menu, as long as there is no change.

Meter Group Definition defines to which energy system (electricity or gas) the air-conditioner belongs.

It is possible to assign two or more meter numbers to one air-conditioner's indoor unit. It is applicable to an air-conditioning system like a GHP (Gas Heat Pump) system that consumes different energy. It can apply, when measuring an outdoor unit and each indoor unit with another watt-hour meter. In this case, assign meter number of an outdoor unit to indoor units.

In case of the previous Superlink system, "Unit No." shows the "Superlink" communication line number (1 - 3) and the indoor unit number (00-47).

Input the meter number (1 - 8) without a space into "Meter No." column.

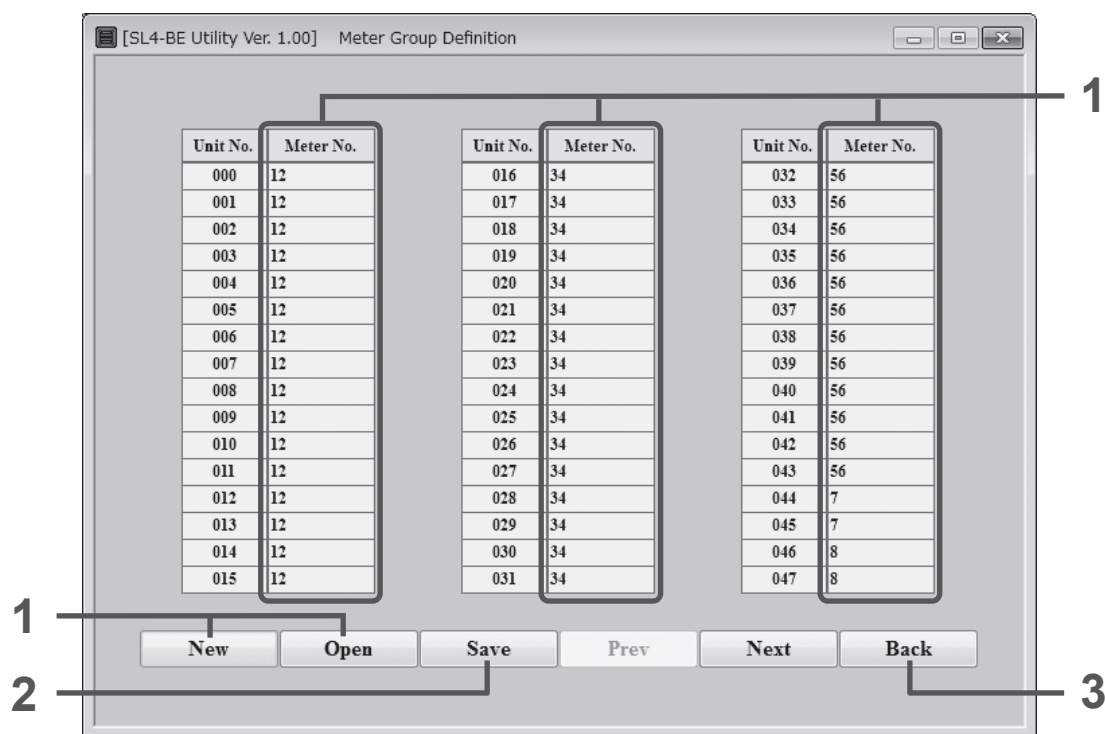


Fig.10-6 Meter Group Definition screen

[New]: Push this button when you make a new definition file.

[Open]: Push this button when the definition file already exists.

[Save]: Push this button when you want to save the current setting.

[Prev]: returns to the previous SL page. Three pages of SL1 - 3 exist in this screen.

[Next]: returns to the next SL page.

[Back]: returns to the Main Menu screen.

Caution:

Setting of this screen is important when carrying out distribution calculation of the appropriate energy consumption.

It is necessary to tie in setting with an actual installation situation. Please ask your installation contractor about setting.

- First Time

- 1) Click [New] button and input the Meter number.
- 2) Click [Save] button and input the file name.
- 3) Click [Back] button.

- 2nd hereafter

You don't have to select this menu. However, we recommend that you check the contents of the setting whenever you calculate.

- If you manage two or more SC-SL4-BE2s

If you manage two or more SC-SL4-BE2s, you need to create a definition file corresponding to each SC-SL4-BE2 beforehand. Save the definition file with a distinguishable name. Refer to "First Time" for the method to create the definition file.

- 1) Click [Open] button, select the definition file and check the settings.
- 2) Click [Back] button.

a) Opening the definition file

When you click [Open] button, Fig.10-7 dialog will appear. Choose the file saved beforehand.

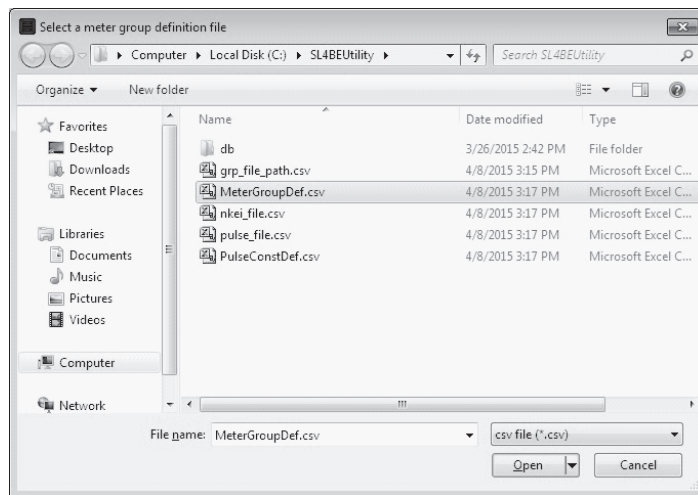


Fig.10-7 Select the definition file dialog box

b) Saving the definition file

When you click [Save] button, Fig.10-8 dialog will appear. Input the file name that is easy to discriminate, and click [Save] button.

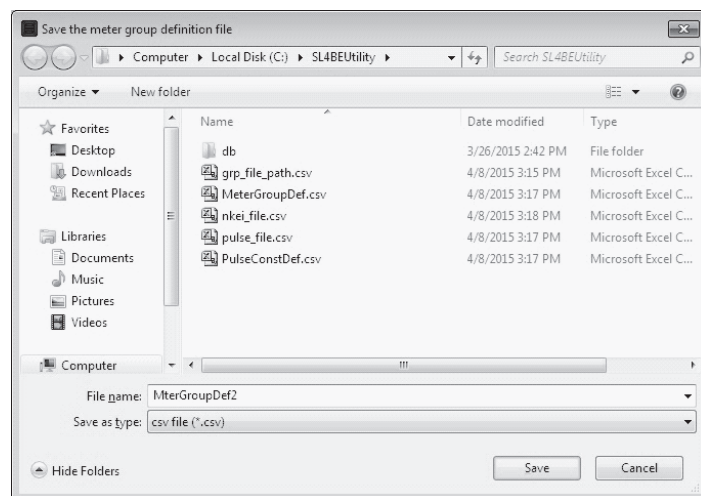


Fig.10-8 Save the definition file dialog box

Step 3: Set the Pulse Constant Definition

SL4-BE Utility memorizes the Pulse Constant Definition last time, and reads it when starting. You may skip this menu, as long as there is no change.

Pulse Constant Definition defines a pulse constant and the energy type (electricity or gas) for every meter.

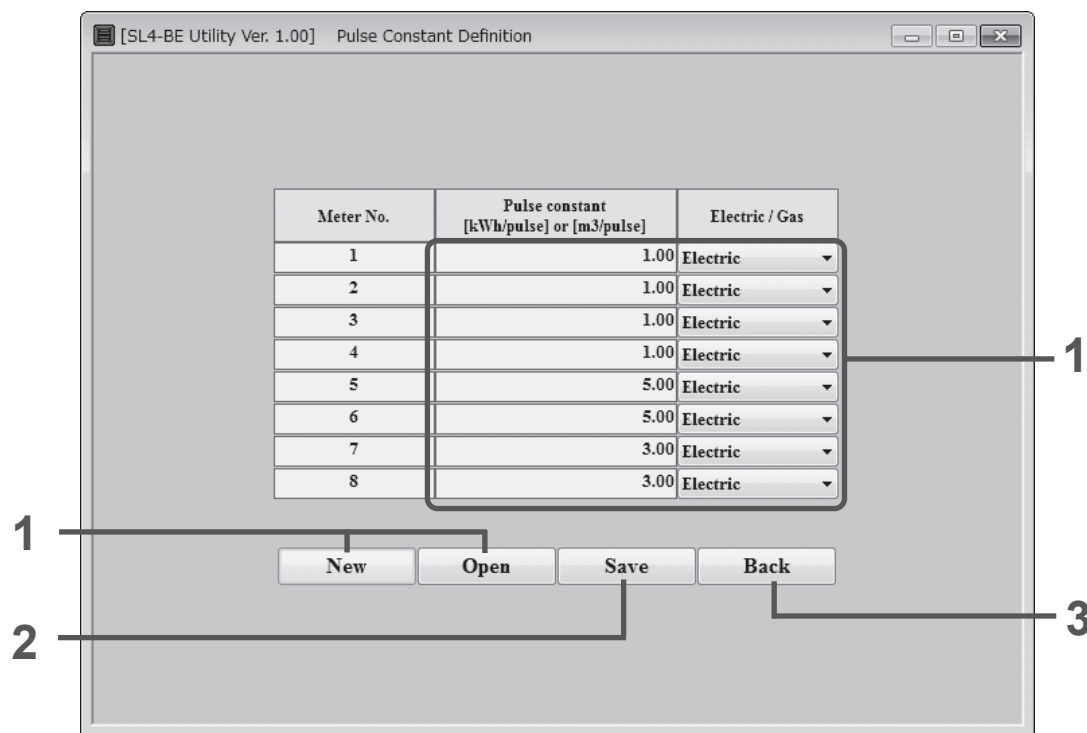


Fig.10-9 Pulse Constant Definition screen

- [New]: Push this button when you make a new definition file.
- [Open]: Push this button when the definition file already exists.
- [Save]: Push this button when you want to save the current setting.
- [Back]: returns to the Main Menu screen.

• Caution:

Setting of this screen is important when carrying out distribution calculation of the appropriate energy consumption. It is necessary to tie in setting with an actual installation situation. Please ask your installation contractor about setting.

• First Time

- (1) Click [New] button and input the pulse constant.
- (2) Click [Save] button and input the file name.
- (3) Click [Back] button.

• 2nd hereafter

You don't have to select this menu. However, we recommend that you check the contents of the setting whenever you calculate.

• If you manage two or more SC-SL4-BE2s

- 1) Click [Open] button, select the definition file and check the settings.
- 2) Click [Back] button.

The input range of the pulse constant

Range	Lower limit	Upper limit
Electricity	0.00	300.00 kWh/ pulse
Gas	0.00	10.00 m ³ / pulse

Step 4: Calculate Energy Consumption

SL4-BE Utility carries out proportional division calculation based on the Monthly Data Files that imported, the Meter Group Definition and the Pulse Constant Definition. And it calculates the energy consumption for every group.

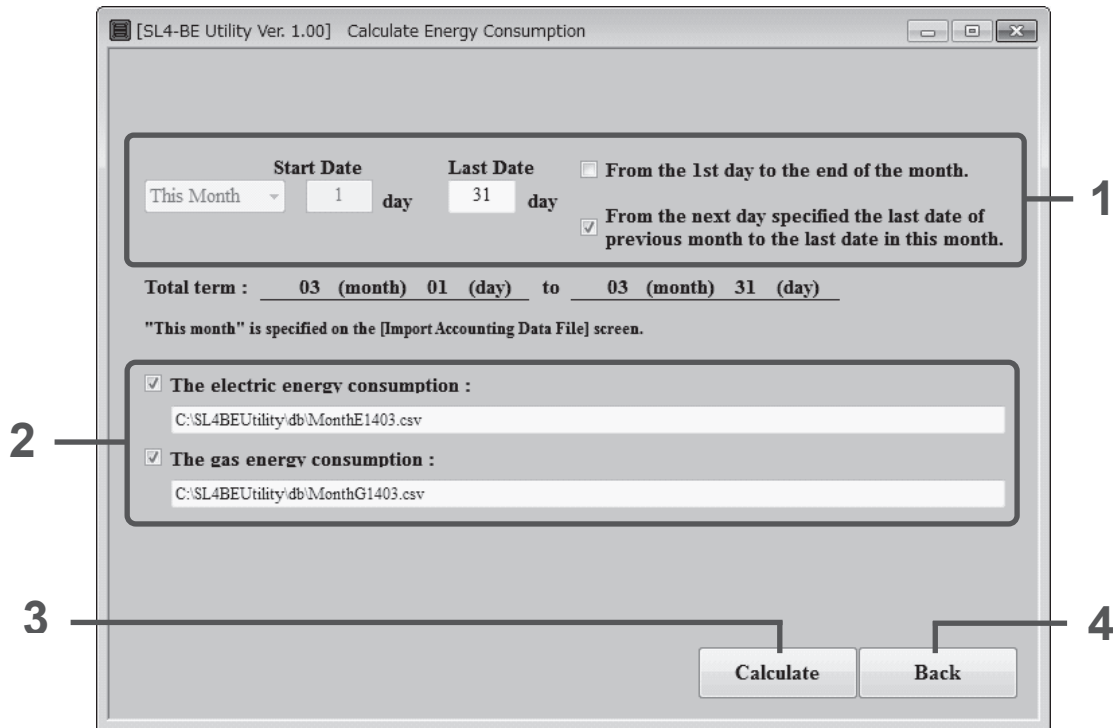


Fig.10-10 Calculate Enaergy Consumption screen

[Calculate]: calculates the energy consumption.

[Back]: returns to the Main Menu screen.

- 1) Specify the period to calculate.
- 2) Specify the name of the energy consumption data file and the folder name.
 - The folder name and file name can be changed.
 - Please specify both of file names to calculate only gas or electricity.
- 3) Click [Calculate] button.
- 4) Click [Back] button.

- a) When you click the check box “The electric energy consumption”, Fig.10-11 dialog box will appear. If you want to change the file name, the folder name and the drive name, select another drive name and the folder name, and type another file name that you want.

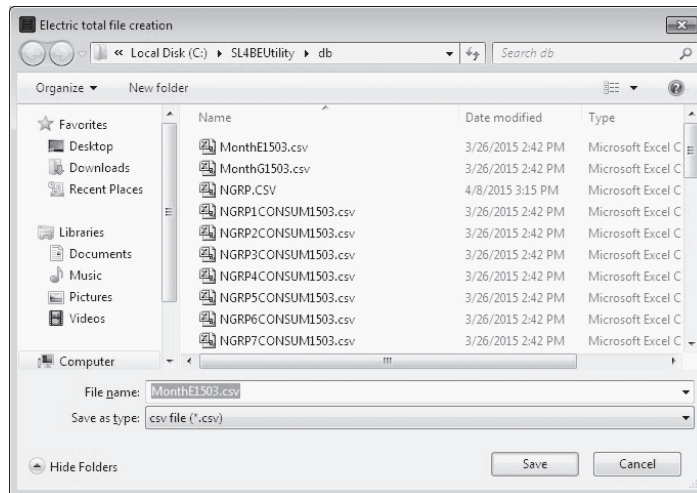


Fig.10-11 Input the file name dialog box

- b) When you click the check box “The gas energy consumption”, Fig.10-12 dialog box will appear. If you want to change the file name, the folder name and the drive name, select another drive name and the folder, and type another file name that you want.

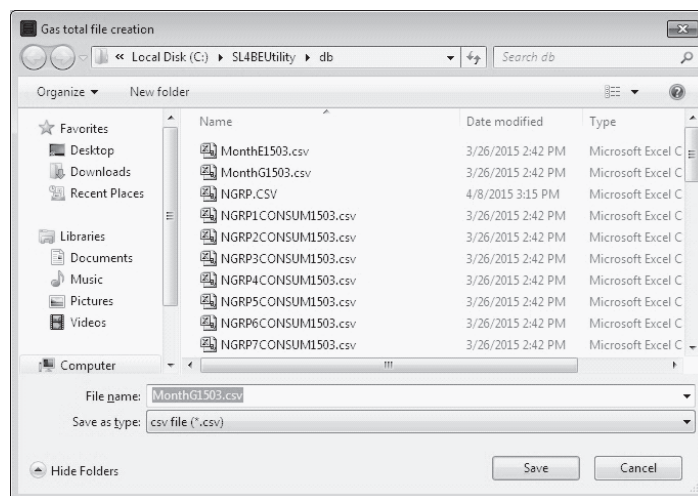


Fig.10-12 Input the file name dialog box

- c) SL4-BE Utility makes the following files as a calculation result.

- The energy consumption every Meter number:
 - File name: P1CONSUMYYMM.csv, P2CONSUMYYMM.csv, ..., P8CONSUMYYMM.csv <Note 1>
- The running time and energy consumption every indoor unit:
 - File name (in case of New Super Link system):
 - SL4N1CONSUMYYMM.csv, SL4N2CONSUMYYMM.csv, ..., SL4N8CONSUMYYMM.csv
 - File name (in case of previous Super Link system):
 - SL4PSL1P1CONSUMYYMM.csv, SL4PSL1P2CONSUMYYMM.csv, SL4PSL2P1CONSUMYYMM.csv, SL4PSL2P2CONSUMYYMM.csv, SL4PSL3P1CONSUMYYMM.csv, SL4PSL3P2CONSUMYYMM.csv <Note 1>

- The running time and energy (electricity and gas) consumption for every group:

- File name (in case of New Superlink system):

NGRP1CONSUMYYMM.csv, NGRP2CONSUMYYMM.csv,
NGRP3CONSUMYYMM.csv, NGRP4CONSUMYYMM.csv

..., NGRP8CONSUMYYMM.csv

- File name (in case of previous Superlink system):

GRP1CONSUMYYMM.csv, GRP2CONSUMYYMM.csv,
GRP3CONSUMYYMM.csv, GRP4CONSUMYYMM.csv
GRP5CONSUMYYMM.csv, GRP6CONSUMYYMM.csv <Note 1>

- The Monthly Energy Consumption file:

- Default file name (you can change): MonthEYYMM.csv, MonthGYMM.csv

These files are saved in the name of “DB” folder that installed the program “SL4-BE Utility”. If you have not changed the folder of the installation folder, the above files are placed into “C:/SL4BEUtility/DB”.

YYMM means the year and the month.

Since the capacity of a hard disk will be insufficient, please delete the above-mentioned file once in a year.

<Note 1>

When using Microsoft® Excel, it needs to divide and read out the file, since there is the restriction of a maximum of 256 columns. Refer to Appendix 2.

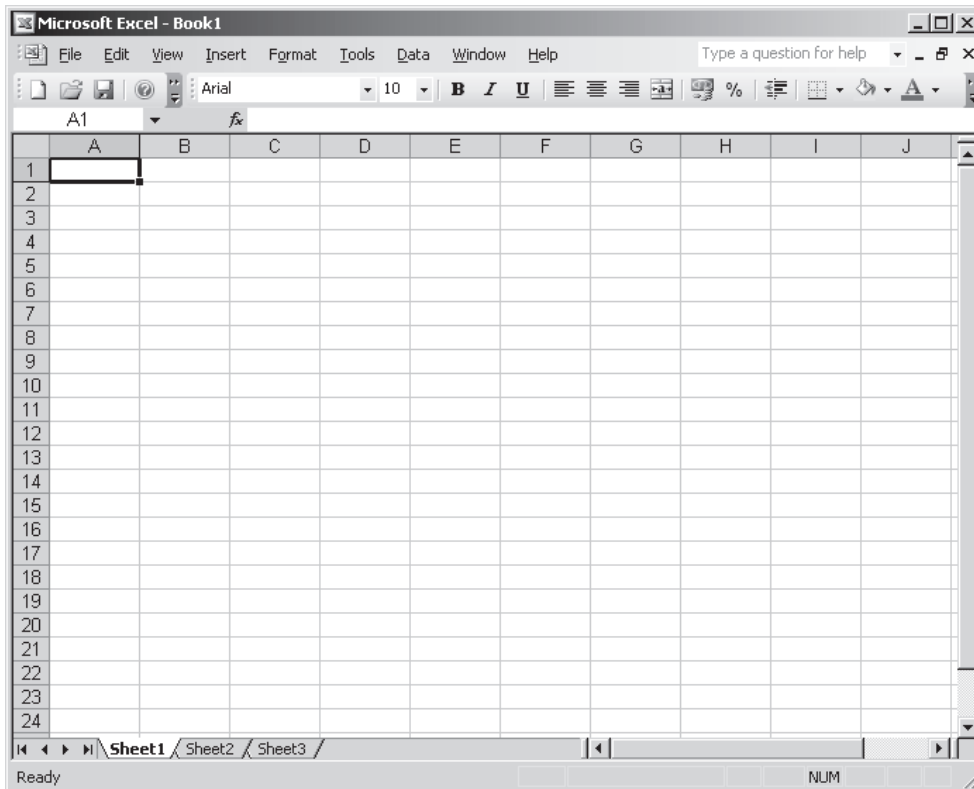
Appendix 1. The image of the Monthly Energy Consumption file

*** C:\SL4BEUtility\Ydb\MonthE1503.csv (02/21 - 03/20)									
Group No	Group Name	Time1[H]	Time2[H]	Time3[H]	Time4[H]	Time1[kWh]	Time2[kWh]	Time3[kWh]	Time4[kWh]
1	1F ENTRANCE GATE	110.0	194.7	0	25.4	408.000	51.521	0	38.293
2	1F ENT.HALL STH	110.0	194.7	0	25.4	271.302	56.062	0	27.280
3	1F ENT.HALL NRTH	110.0	194.7	0	25.4	909.693	56.062	0	80.480
4	1F ENT.HALL EST	122.0	165.1	0	23.9	1276.577	3.719	0	106.691
5	2F ENTRANCE ELV.	113.6	12.5	0	10.5	705.361	0.450	0	58.818
6	2F PASSAGE NORTH	129.0	7.2	0	11.4	1593.472	0.392	0	132.822
7	2F PASSAGE SOUTH	102.8	10.9	0	9.5	345.035	2.783	0	28.985
8	3F ENTRANCE ELV.	102.8	10.9	0	9.5	1175.759	522.612	0	141.531
9	3F PASSAGE NORTH	102.8	10.9	0	9.5	926.462	483.380	0	117.487
10	3F PASSAGE SOUTH	110.0	3.2	0	9.4	1749.201	696.767	0	203.831
11	4F ENTRANCE ELV.	110.0	3.2	0	9.4	1355.888	265.853	0	135.145
12	4F PASSAGE NORTH	110.0	3.2	0	9.4	418.319	324.363	0	61.890
13	4F PASSAGE SOUTH	110.0	3.2	0	9.4	0.000	275.486	0	22.957
14	5F ENTRANCE ELV.	110.0	3.2	0	9.4	0.000	406.346	0	33.862
15	5F PASSAGE NORTH	108.7	123.6	0	19.4	41.828	108.341	0	12.514
16	5F PASSAGE SOUTH	108.6	143.3	0	21.0	74.150	809.156	0	73.609
17	6F ENTRANCE ELV.	107.9	179.7	0	24.0	1363.968	357.670	0	143.470
18	6F PASSAGE NORTH	107.9	179.7	0	24.0	1462.844	32.784	0	124.636
19	6F PASSAGE SOUTH	108.8	179.7	0	24.0	386.437	53.513	0	36.663
20	7F ENTRANCE ELV.	99.7	97.0	0	16.4	13.586	1.029	0	1.218
21	7F PASSAGE NORTH	101.3	101.3	0	16.9	669.475	0.000	0	55.790
22	7F PASSAGE SOUTH	106.5	78.9	0	15.5	647.830	0.000	0	53.986
23	8F ENTRANCE ELV.	107.9	86.3	0	16.2	604.854	0.000	0	50.405
24	8F PASSAGE NORTH	107.9	112.5	0	18.4	628.758	0.000	0	52.397
25	8F PASSAGE SOUTH	108.9	187.0	0	24.7	991.026	0.000	0	82.586
26	MHIE OFFICE #1	98.2	201.5	0	25.0	294.984	0.000	0	24.582
27	MHIE OFFICE #2	31.6	85.5	0	9.8	1003.006	0.000	0	83.584
28	MHIE OFFICE #3	119.6	93.8	0	17.8	277.733	0.000	0	23.144
29	MHIE CONF.ROOM 1	124.8	75.1	0	16.7	403.677	0.000	0	33.640
30	MHIE CONF.ROOM 2	126.7	0.0	0	10.6	0.000	0.000	0	0.000
31	MHIE CONF.ROOM 3	142.1	0.0	0	11.8	1068.032	0.000	0	89.003
32	9-3-32	38.8	0.0	0	3.2	249.971	0.000	0	20.831
33	9-3-33	24.6	0.0	0	2.1	33.630	0.000	0	2.803
34	9-4-34	123.0	0.0	0	10.3	0.000	0.000	0	0.000

Appendix 2. Dividing and Reading out the CSV file using Microsoft® Excel

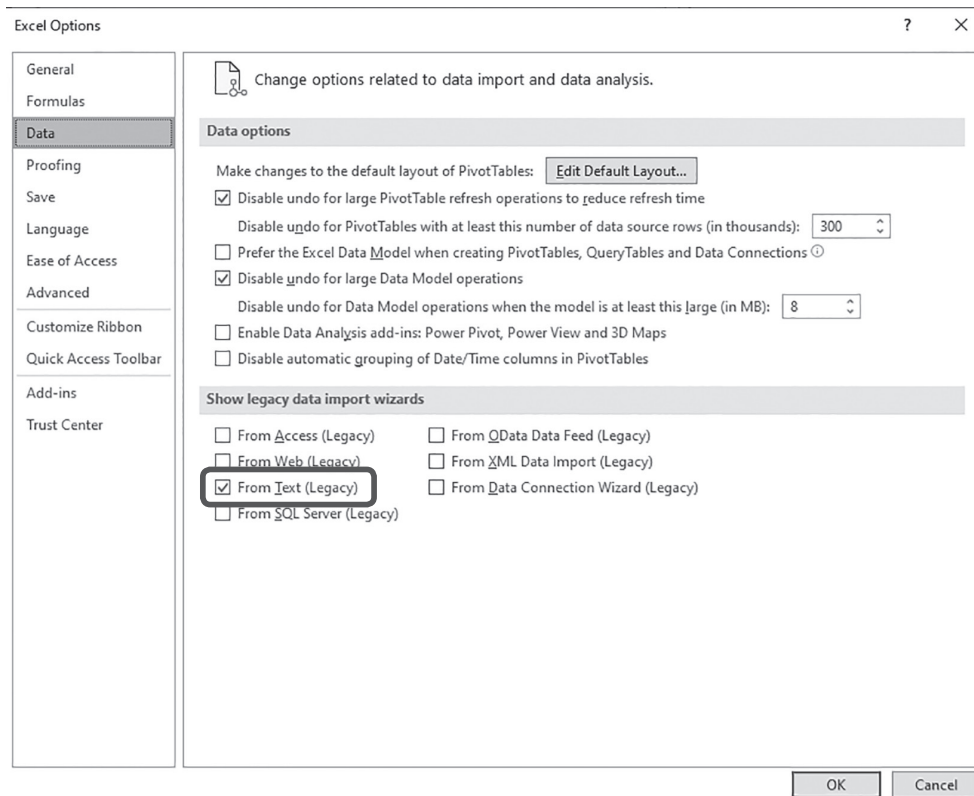
The display may differ depending on your computer.

- 1) Open a new file and move a cursor to the position where you want to locate.



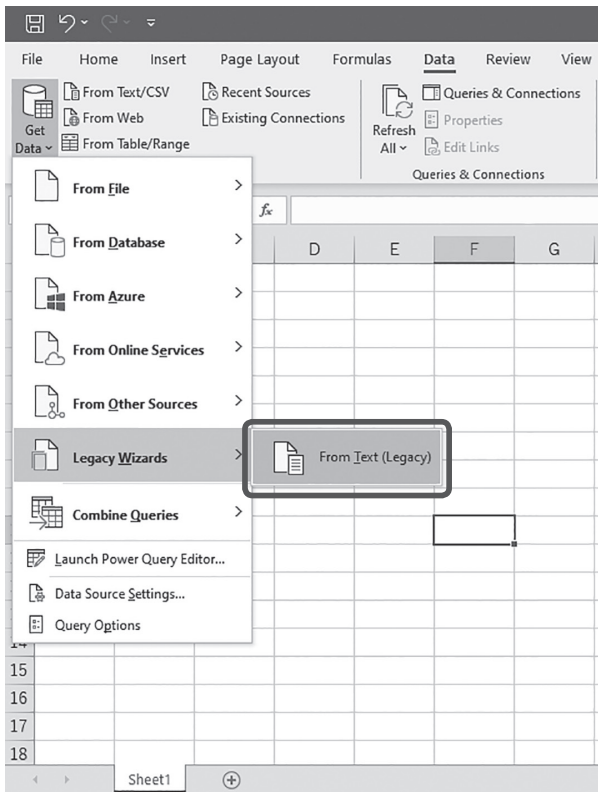
- 2) Review Excel option settings. (Required only for initial setting.)

- (i) Select "File" - "Options" to display the option screen.
- (ii) Select "Data" and check "From Text (Legacy)" in "Show legacy data import wizards".

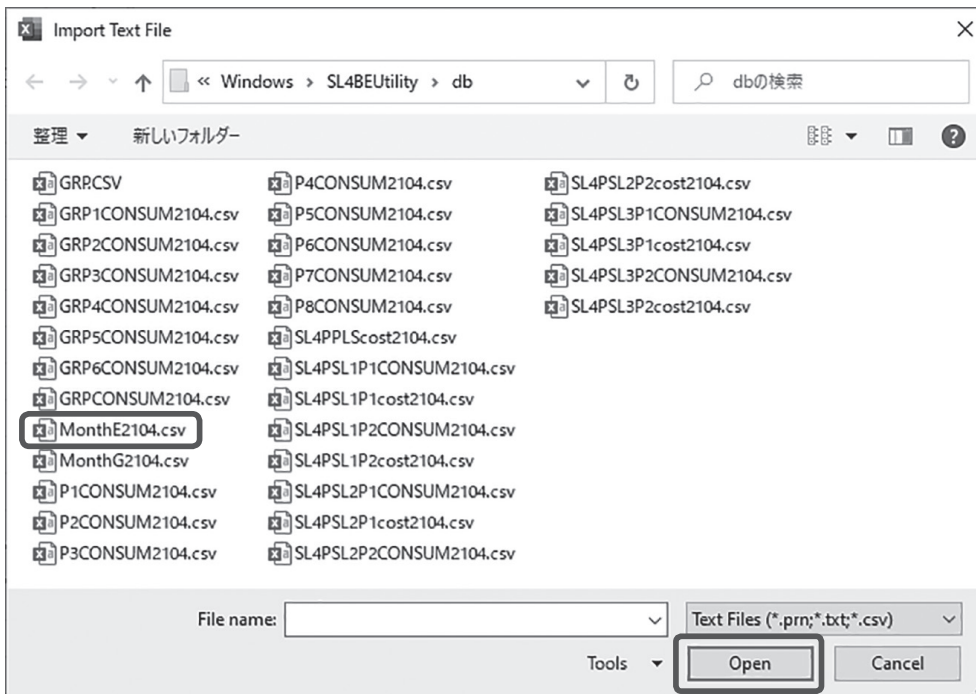


3) Open CSV file of operation data

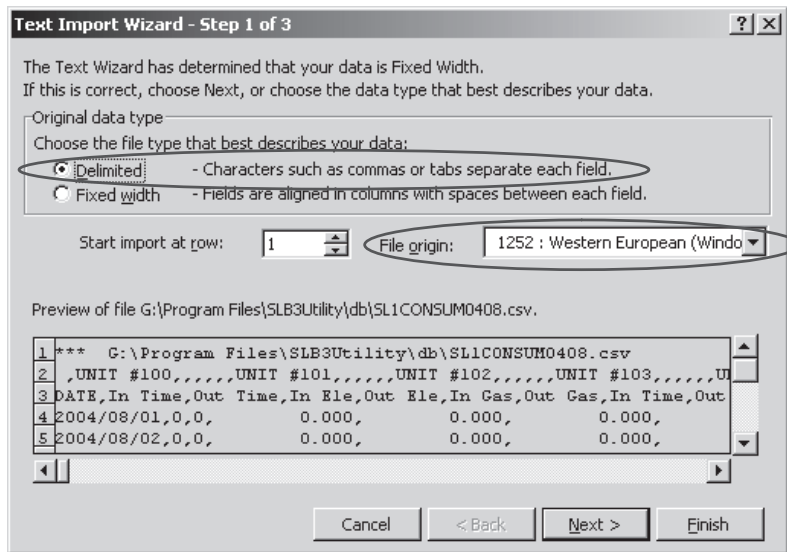
(i) Select "Data" - "Get Data" - "& Legacy Wizards" - "From & Text (Legacy)".



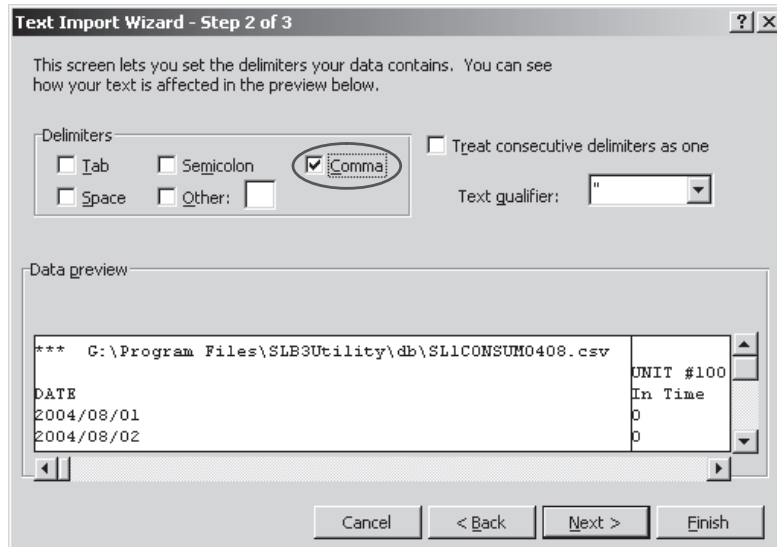
(ii) On the "Import Text File" screen, select the csv file and click "Import".



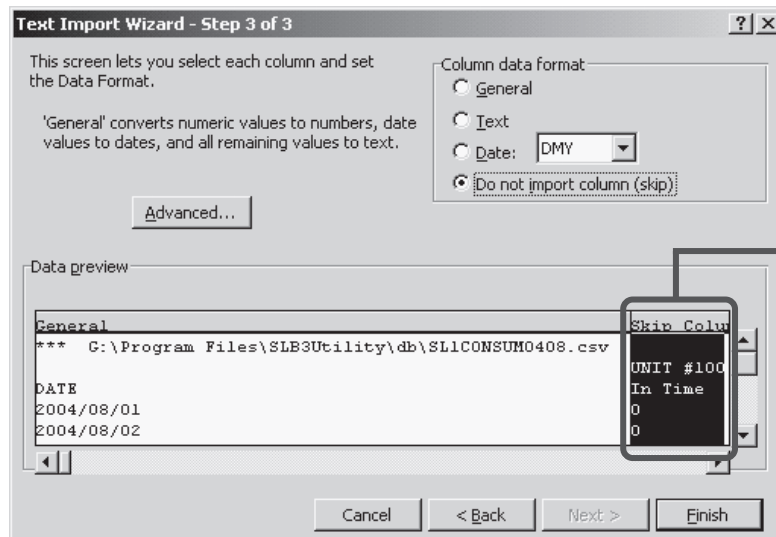
- 4) Select the “Delimited” option button and the file format “Western European” in the “File origin” drop-down, and click [Next >] button.



- 5) Select “Comma” in the “Delimiters” section of the dialog box, and click [Next >] button.

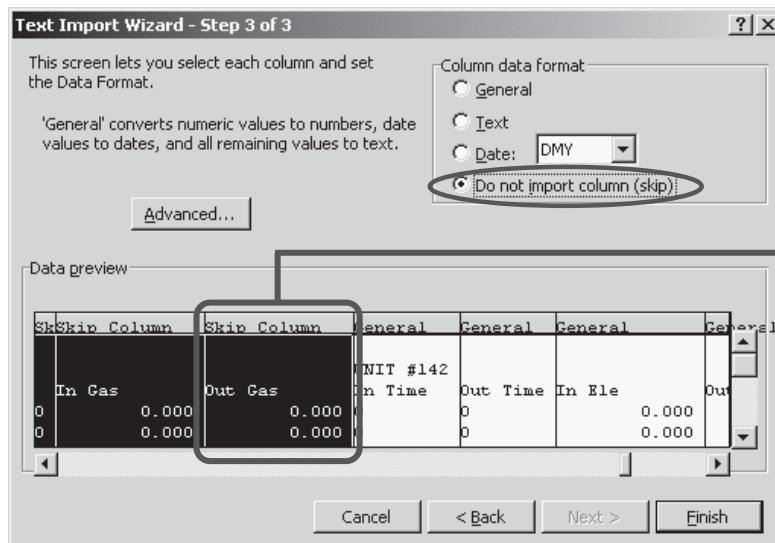


- 6) Click the head column to exclude under the “Data preview”.

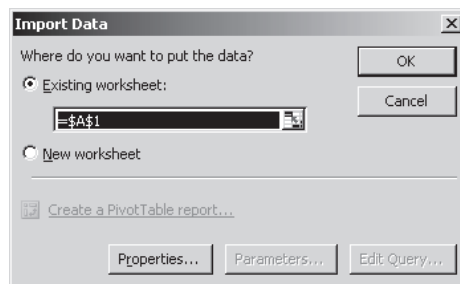


The head column

- 7) Click the last column to exclude, pressing [Shift] key (on keyboard), under the “Data preview”. Click the "Do not import column (skip)" in the “Column data format”, and click [Finish] button.



- 8) Click [OK] button. The data in the CSV file will be imported to Excel sheet.



11. TROUBLESHOOTING

(1) SC-SL4-AE2, BE2

PJZ012A206

"Each group status display" is displayed in red	A malfunction has occurred with the unit. The malfunctioning unit is stopped. Contact your dealer. The shop will need the following information : "Each group status display", "malfunction situation", "model name of the malfunctioning unit", "Error No. (E00)" etc.
"Each group status display" is displayed in yellow	A communication problem has occurred. Contact your dealer. The shop will need the following information : "Each group status display", "malfunction situation", "model name of the malfunctioning unit" etc.
The filter sign is lit.	Clean the air filter. (See the manual attached to the air-conditioner for the cleaning method.) Press the filter reset button after cleaning.
Maintenance display is lit.	Regular inspection is necessary. Contact your dealer. The shop will need the following information : "maintenance display color", "unit model name" etc.
The screen does not change when touched.	It is possible that there is malfunction due to electrostatic discharge. Turn the power off , then turn it on again (power source reset). Operability can be improved by operating with either a stylus pen or fingertip (fingernail). When it does not operate normally with the procedure above, it can be assumed that the unit was damaged, so contact your dealer with your "malfunction situation".
No screen is displayed (dark).	<ul style="list-style-type: none"> • The backlight (illumination) is turned OFF after a fixed period of time to preserve the screen. Touch the screen. (It may take a little time for the display to reappear.) • It is possible that there is malfunction due to electrostatic discharge. Turn the power off , then turn it on again (power source reset). When it does not operate normally with the procedure above, it can be assumed that the unit is damaged, so contact your dealer with the "malfunction situation".
The remote control's display and central control screen display do not match	When multiple units are registered in a group, the settings for the representative unit for the group are displayed. Check the status display for each of the units. Run/Stop displays "Run" if one or more units in the group are running, and it displays "Stop" if all units are stopped.
Unit operates on its own.	Check the schedule settings. The group settings that have been scheduled can be changed.
The central control feels warm to the touch.	The central control may get warm, but this is not a problem. When the room is hot, it gets warm more readily. Use in an environment where the temperature around it is 40°C or lower.
The calculating results are not accurate. (SC-SL4-BE2 only)	Because running units are only calculation target, standby electricity cannot be calculated and a calculated result does not match real electric power consumption. If the calculated value is different from the measured value, please perform re-division using a spreadsheet in reference to the calculation result.
"Importing a configuration file from USB memory has failed. Check the configuration file in the USB memory." message appears.	It is possible that either the definition file has not been saved to the USB memory or there is an error in specifying the folder to be read. Check again and then perform the operation again. If this message appears again, contact your dealer.
"Exporting a configuration file to USB memory has failed." or "Exporting monthly data files to USB memory has failed" message appears.	There is a possibility that the USB memory has been damaged or the files in the USB memory have been damaged. Delete all the files in the USB memory and create them again. If this message appears again, contact your dealer.

<p>"USB memory was not found." message appears.</p>	<p>The USB memory may not have been fully inserted. Remove the USB memory, and reinsert it. If this message appears again, it is possible that the USB memory is damaged or the USB memory is not the attachment. Replace it with the bundled USB memory and try the operation again. If this message appears again, contact your dealer.</p>
<p>"SL-0X-self address duplication error was detected." " SL-0X- self transmission data read error was detected." " SL-0X- data transmission error was detected." "The fatal error occurred to the system. SL process was forced to finish." "Initialization of a communication device failed." "pulse data read error was detected." "SL-0X-self address duplication error was detected." message or "E74" appears.</p>	<p>Contact your dealer. (Re-check the communications line connections of the units.)</p>
<p>Error messages other than the above are displayed.</p>	<p>Perform operations according to the messages on the screen or turn the power off and then on (power source reset). If the message appears again, contact your dealer</p>
<p>The room temperature display does not change from "--".</p>	<p>When the room temperature is 0°C or less, "--" is displayed. When it differs from the display of remote control, contact your dealer.</p>
<p>The outdoor unit temperature display does not change from "--".</p>	<p>When outdoor unit is not set for outdoor unit definition, outdoor unit temperature is not displayed. Please set outdoor unit. If it is not displayed when you set outdoor unit, contact your dealer.</p>
<p>When you select "Valid" for the Individual Lock/Unlock on the Function Setting screen, the function of permitting and prohibiting the individual operation of the remote control do not work.</p>	<p>This function can be applied to the indoor units, which are the model KXE4 or later, and to the remote control, which is the model RC-E1 or later. Make sure to select "Invalid" for the Individual Lock/Unlock on the FUNCTION SETTING screen.</p>
<p>In case that operating condition of a part or all of units which are set to a group, does not display.</p>	<p>There may be inadequacy for communication line or the setting of this center console. Contact your dealer.</p>
<p>The screen of this central control is not returned to normal display even if you press the reset switch.</p>	<p>It is possible that the central control or power system has malfunction. Contact your dealer.</p>
<p>When you can not log in.</p>	<p>Contact maintenance user or your dealer.</p>
<p>The setting of the individual Lock/ Unlock by remote control isn't displayed.</p>	<p>The setting of the individual Lock/Unlock by SL4 will override the setting by remote control.</p>

Caution that performing of the monthly calculation (SC-SL4-BE2 only)

- We will consult about the compensation when the monthly calculation was not possible by the trouble of this central control within the limits of this central control purchased amount. Please understand that we do not compensate for the expense more than the purchased amount.
- Because the monthly calculation by this data does not conform to OIML, we cannot apply to public business.
- Please prepare the PC, spreadsheet such as EXCEL, printer, watt-hour meter, and gas meter that are required for calculation.

(2) Web function

PJZ012A207

Forgot the IP address	Refer to the SL4 central control setting.
Forgot the IP address, made an incorrect setting	
Forgot the ID/password	
A connection error occurs	Check whether the entered address was correct. Click the "Refresh" button in Internet Explorer. If this will not fix the problem, restart Internet Explorer.
The monitoring PC freezes every few months.	Restart Internet Explorer regularly.
On-screen operation goes smoothly, but the actual unit does not operate.	Check whether you are operating in virtual mode. Check the setting in the SL4 central control.
Temperature settings (10 deg. C to 17.5 deg. C and 30.5 deg. C to 35 deg. C) cannot be changed.	Some units may not allow the temperature settings to be changed. Contact your dealer for advice.
Scheduled operation does not work	Check whether the schedule settings (Today's schedule and detailed daily schedule) are configured correctly.

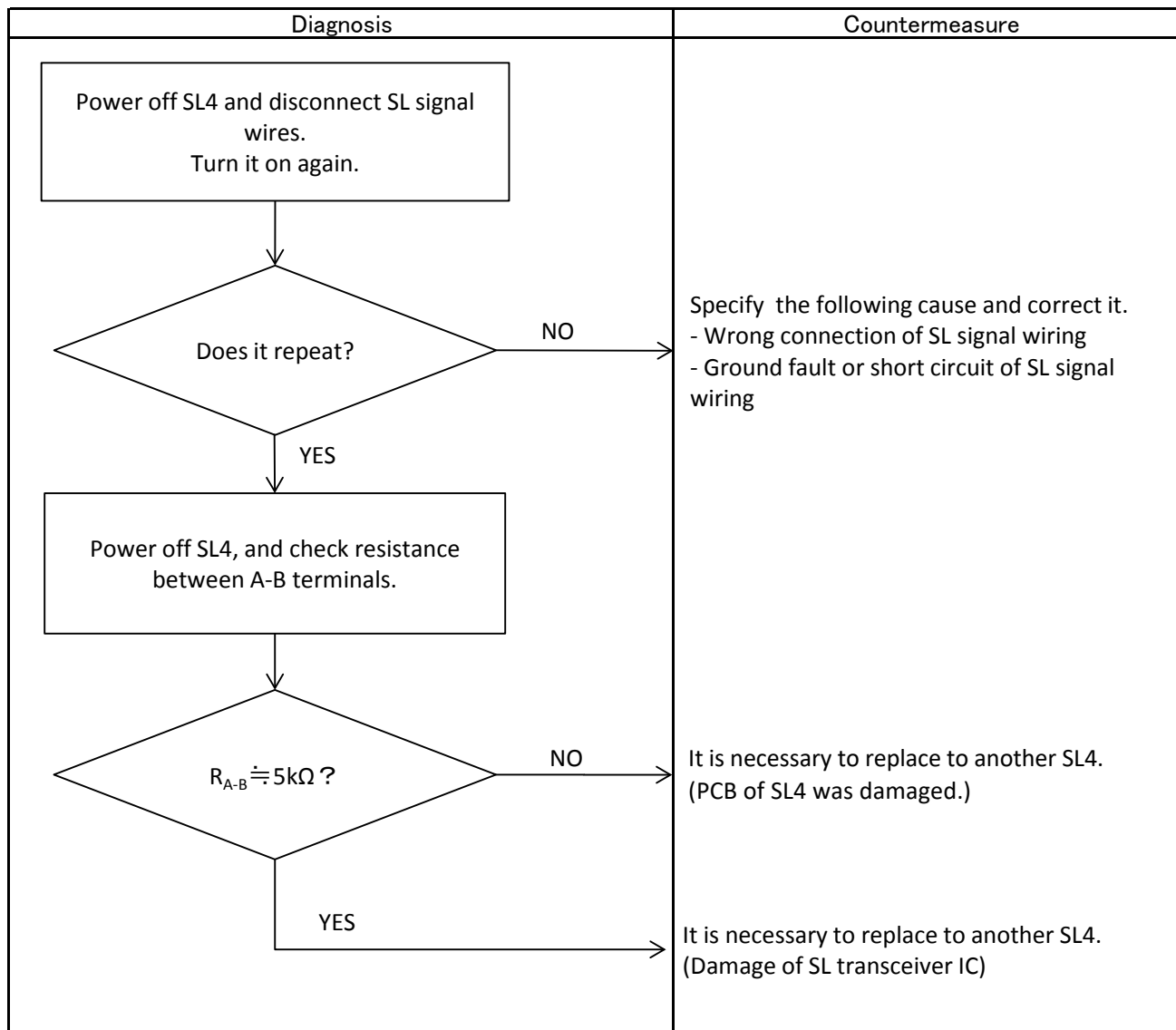
(3) Trouble shooting

1. Error messages appear (1)

(1) Messages or error indication (X=1-3)

- SL-0X- self transmission data read error was detected.
- SL-0X- data transmission error was detected.
- E75

(2) Troubleshooting

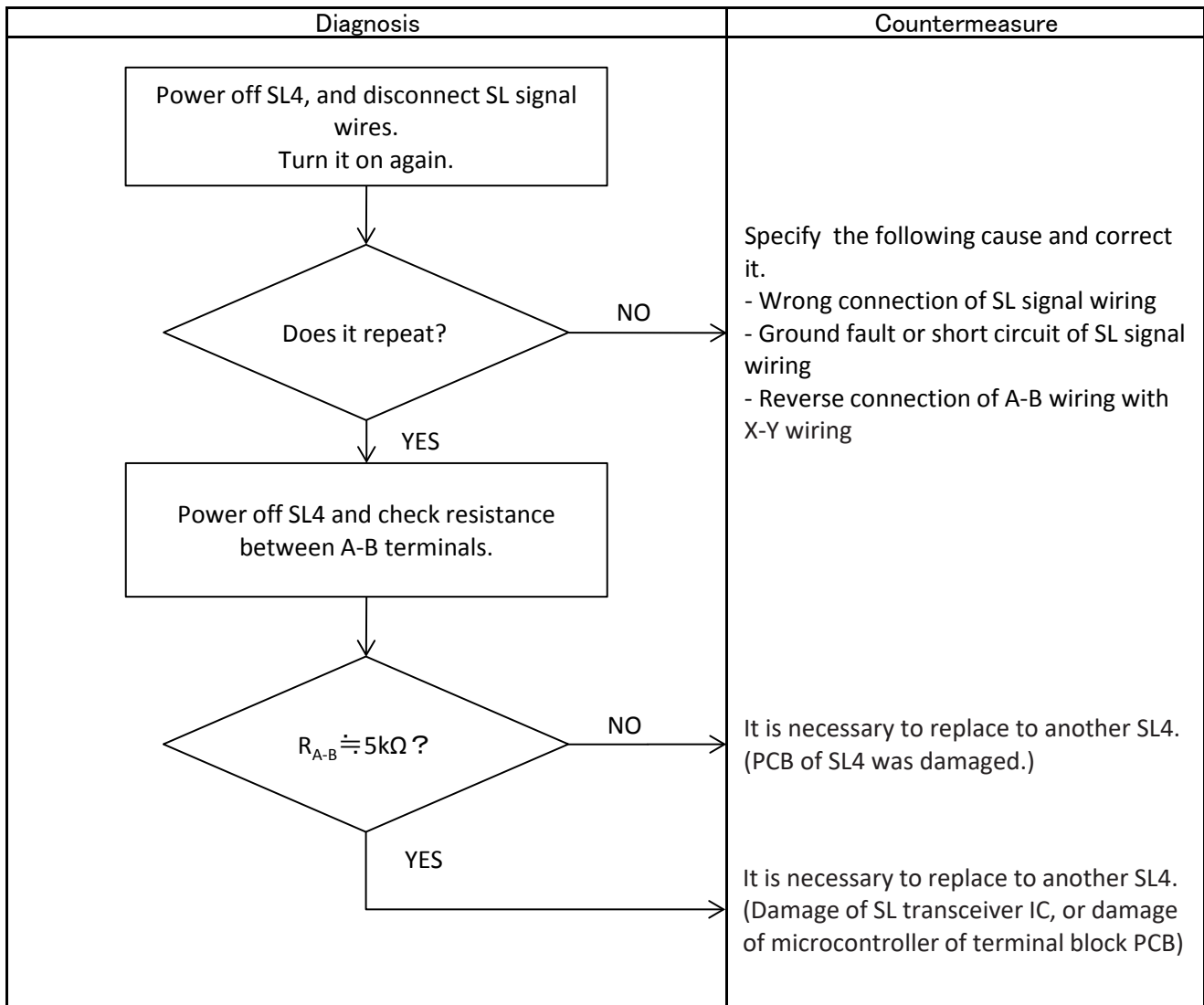


2. Error messages appear (2)

(1) Messages

- The fatal error occurred to the system. SL process was forced to finish.
- Initialization of a communication device failed.
- pulse data read error was detected.

(2) Troubleshooting



3. Error messages appear (3)

(1) Messages or error indication

- SL-0X-self address duplication error was detected. (X=1-3)
- E74

(2) Presumable cause

Plural central controls (SL3, SL4, BGW, WGW or LGW) are connected to 1 previous Superlink system. (including the false connection)

(3) Troubleshooting

Diagnosis	Countermeasure
<p>Are plural central controls (SL3 or SL4) connected to 1 Superlink system?</p>	<p>NO</p> <p>Specify the wrong connection of SL signal wiring, and correct it.</p> <p>YES</p> <p>Connect one SL3, SL4, BGW, WGW or LGW to 1 Superlink system.</p>

4. Display error (1)

(1) Condition

No screen is displayed. The screen remains black.

(2) Troubleshooting

Diagnosis	Countermeasure
<pre> graph TD A[Touch the screen.] --> B{Does it repeat?} B -- NO --> C[It is normal. (The backlight (illumination) is turned OFF after a fixed period of time to preserve the screen. It may take a little time for the display to reappear. Refer to "Display setting" in the user's manual.)] B -- YES --> D[Press the reset switch at the lower side of front cover.] D --> E{Does it repeat?} E -- NO --> F[It is normal. (It is possible that there is malfunction due to electrostatic discharge.)] E -- YES --> G[Turn the power off, then turn it on again (power source reset).] G --> H{Does it repeat?} H -- NO --> I[It is normal. (It is possible that there is malfunction due to electrostatic discharge.)] H -- YES --> J[It is necessary to replace to another SL4.] </pre>	<p>It is normal. (The backlight (illumination) is turned OFF after a fixed period of time to preserve the screen. It may take a little time for the display to reappear. Refer to "Display setting" in the user's manual.)</p> <p>It is normal. (It is possible that there is malfunction due to electrostatic discharge.)</p> <p>It is normal. (It is possible that there is malfunction due to electrostatic discharge.)</p> <p>It is necessary to replace to another SL4.</p>

5. Display error (2)

(1) Condition

The screen does not change when touched.

(2) Troubleshooting

Diagnosis	Countermeasure
<pre> graph TD A[Press the reset switch at the lower side of front cover.] --> B{Does it repeat?} B -- NO --> C[It is normal. (It is possible that there is malfunction due to electrostatic discharge.)] B -- YES --> D[Turn the power off, then turn it on again (power source reset).] D --> E{Does it repeat?} E -- NO --> C E -- YES --> F[It is necessary to replace to another SL4.] </pre>	<p>It is normal. (It is possible that there is malfunction due to electrostatic discharge.)</p> <p>It is normal. (It is possible that there is malfunction due to electrostatic discharge.)</p> <p>It is necessary to replace to another SL4.</p>

6. Communication error

(1) Display

The state of air conditioner is communication error. (Any error message is not displayed.)

(2) Troubleshooting

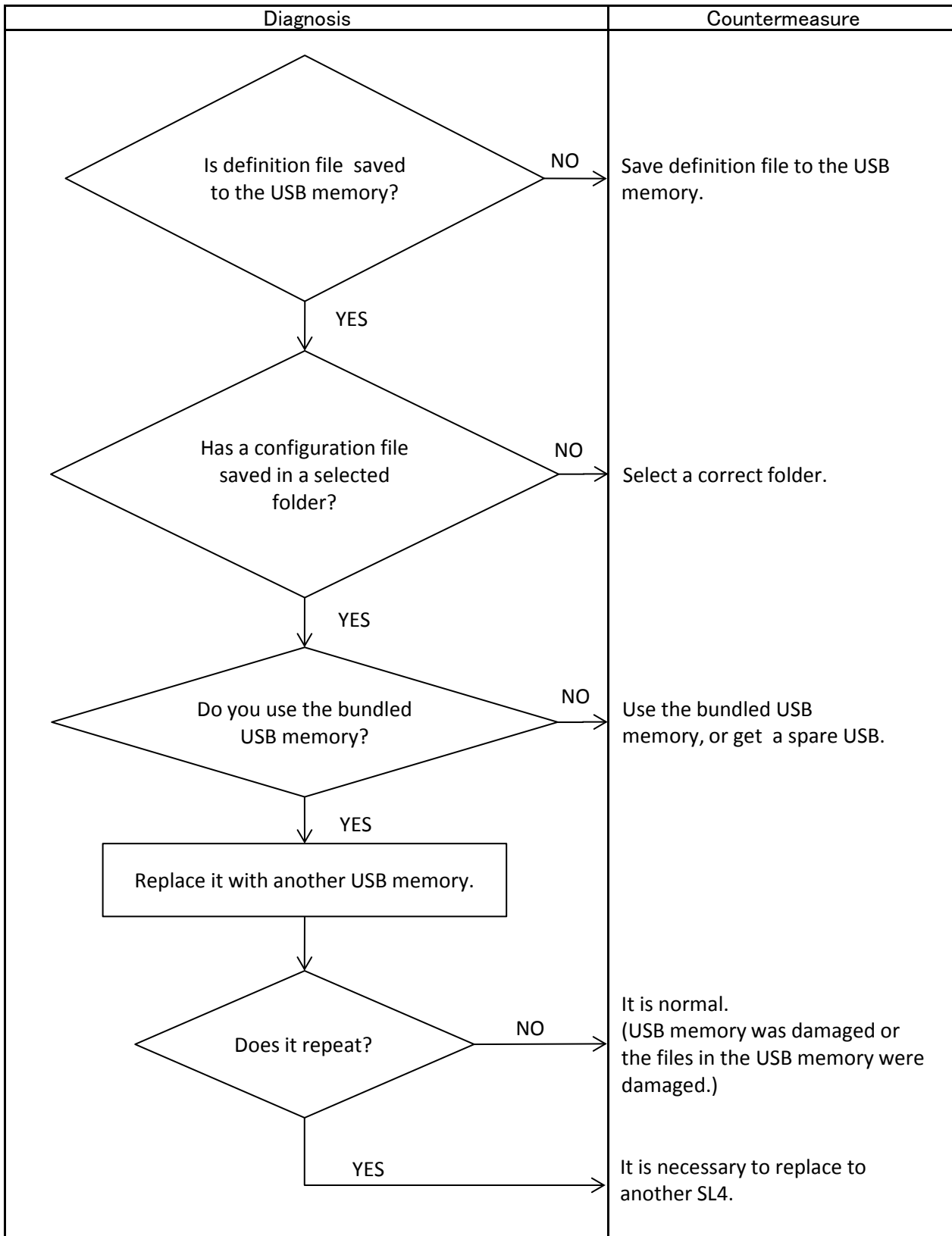
Diagnosis	Countermeasure
<pre> graph TD D1{All units?} -- YES --> C1 D1 -- NO --> D2{All units of 1 Superlink system?} D2 -- YES --> C2 D2 -- NO (Some units of 1 Superlink system) --> C3 </pre>	<p>Specify the following cause and correct it.</p> <ul style="list-style-type: none"> - Wrong setting of SL (New or Previous) - Ground fault or short circuit of SL signal wiring - Wrong connection of SL signal wiring <p>Specify the following cause and correct it.</p> <ul style="list-style-type: none"> - Wrong group settings - Wrong address settings of indoor units - Ground fault or short circuit of SL signal wiring - Wrong connection of SL signal wiring <p>Specify the following cause and correct it.</p> <ul style="list-style-type: none"> - Wrong group settings - Wrong address settings of indoor units - Ground fault or short circuit of SL signal wiring

7. USB memory error (1)

(1) Messages

- Importing a configuration file from USB memory has failed.
Check the configuration file in the USB memory.

(2) Troubleshooting

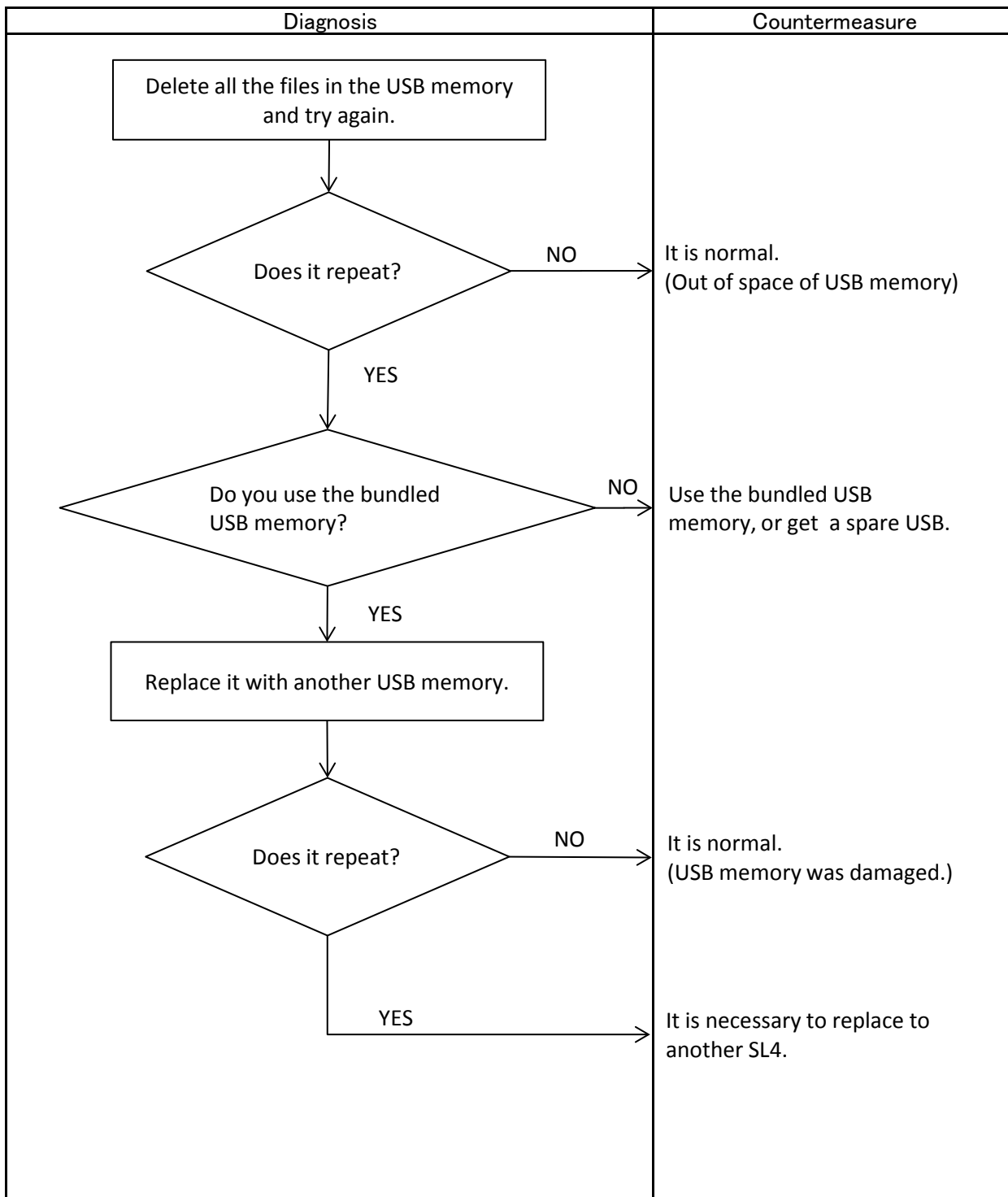


8. USB memory error (2)

(1) Messages

- Exporting a configuration file to USB memory has failed.
- Exporting monthly data files to USB memory has failed.

(2) Troubleshooting

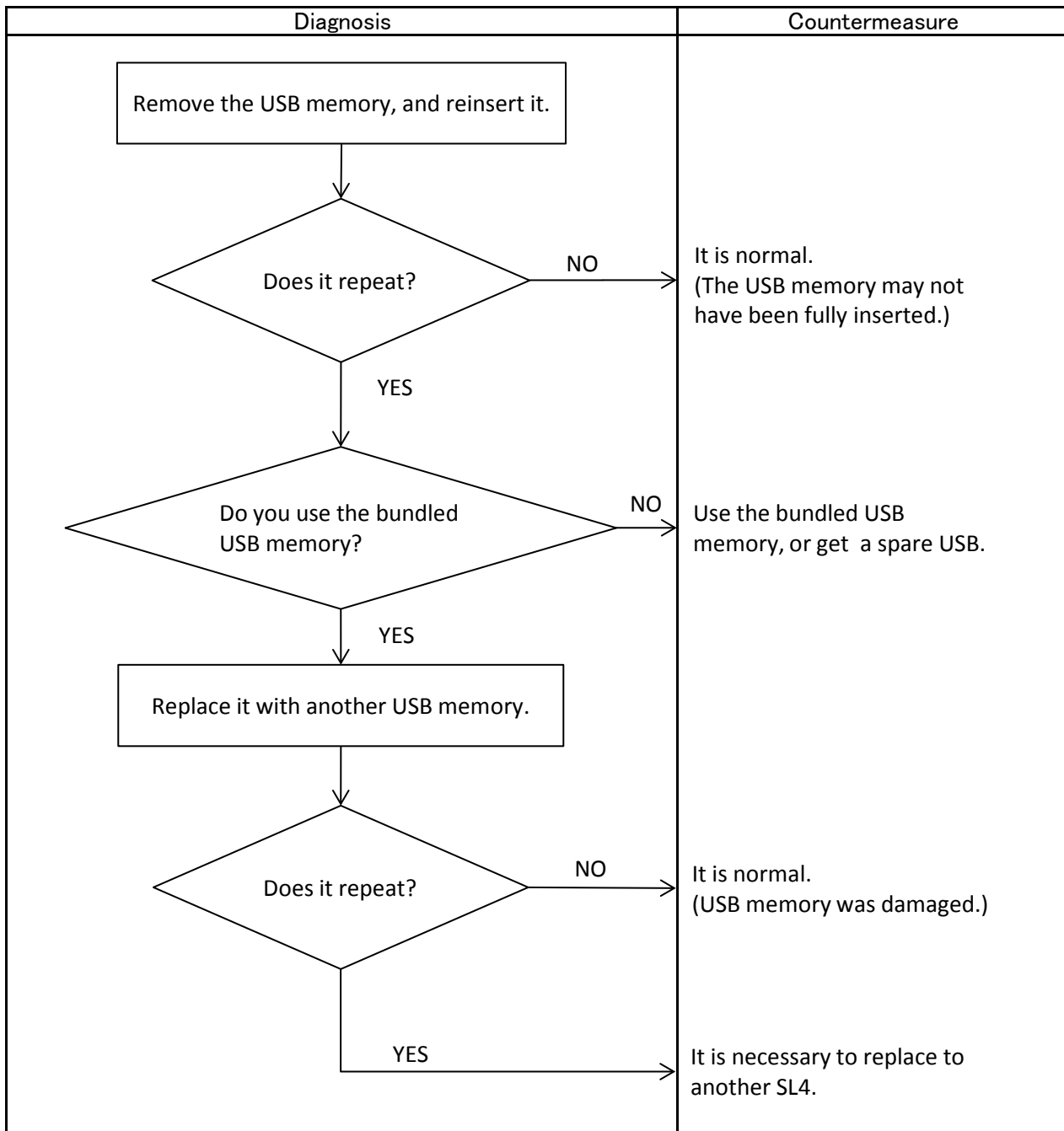


9. USB memory error (3)

(1) Message

USB memory was not found.

(2) Troubleshooting



10. Other

(1) Condition

Messages other than the following appear. (X=1-3)

- SL-0X- self transmission data read error was detected.
- SL-0X- data transmission error was detected.
- The fatal error occurred to the system. SL process was forced to finish.
- Initialization of a communication device failed.
- pulse data read error was detected.
- SL-0X-self address duplication error was detected.
- Importing a configuration file from USB memory has failed.
Check the configuration file in the USB memory.
- Exporting a configuration file to USB memory has failed.
- Exporting monthly data files to USB memory has failed.
- USB memory was not found.

(2) Troubleshooting

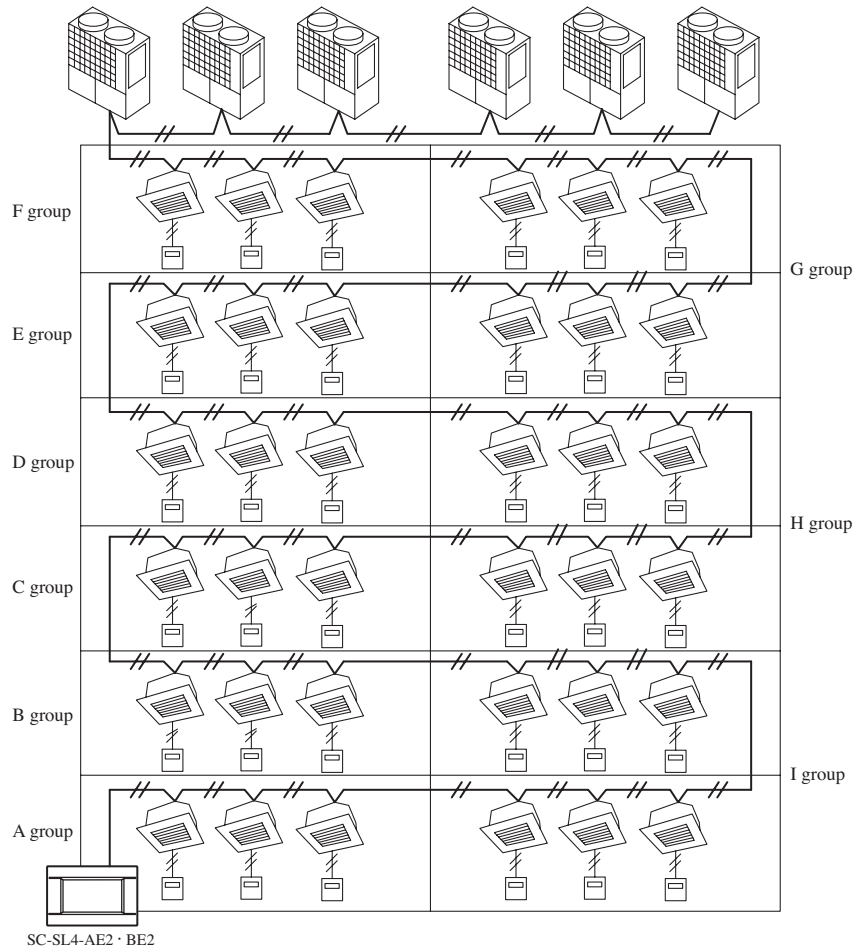
Perform operations according to the messages on the screen or turn the power off and then on (power source reset).

If the message appears again, contact MHIAE or MACO.

12. CONNECTION EXAMPLE

Example : Up to 128 groups, which are set optionally with the central control SC-SL4-AE2, BE2 can be controlled on the basis of each group.

- Notes (1) A pair of central control SC-SL4-AE2, BE2 may be connected on the Superlink.
 (2) Part or whole remote controls may be abbreviated.



13. ID AND PASSWORD

In order to prevent unauthorized settings changes, user access levels are established. This restricts access to screens and operations depending on the level. The factory default IDs and passwords below can be changed.

- Building manager access level

Default ID : OPERATOR

Default Password : 999999

- Maintenance User access level

Default ID : MHI

Password : 123456

(2) Installation manual of interface for heat pump water heater

PJZ012D141

This installation manual describes the installation methods and precautions related to the interface. Use this manual together with the user manuals for the heat pump unit, remote control and other option equipment. Please read this manual carefully before starting the installation work to install the device correctly.

Safety precautions

- Please read this manual carefully before the installation work to install the device correctly. All of the following instructions are important and they are to be strictly followed.
 - ⚠WARNING** Failure to follow these instructions may result in serious consequences such as death, severe injury, etc.
 - ⚠CAUTION** Failure to follow these instructions may cause personal injury or property damage. It could have serious consequences depending on the circumstances.
- The pictograms used in the text have following meanings.
 - Never do.
 - Always follow the instructions given.
- Keep this manual in a safe place where you can refer to it whenever necessary. Show this manual to the installer when moving or repairing the device. When the ownership of this device is transferred, this "Installation Manual" should be given to the new owner.

⚠WARNING	
<ul style="list-style-type: none"> ● This device shall be installed in accordance with national wiring regulations. 	<ul style="list-style-type: none"> ● Do not install the device where water vapour is generated excessively or condensation occurs. It could cause electric shocks, fire or break-down.
<ul style="list-style-type: none"> ● Ask a professional contractor to carry out the installation work according to this installation manual. Improper installation work may result in electric shocks, fire or break-down. 	<ul style="list-style-type: none"> ● Use the specified cables for wiring, and connect them securely with care to protect electronic parts from external force. Improper connections or fixing could cause heat generation, fire, etc.
<ul style="list-style-type: none"> ● Shut off the main power source before starting any electrical work. Otherwise, it could result in electric shocks, break-down or malfunction. 	<ul style="list-style-type: none"> ● When installing the device in a hospital, telecommunication facility, etc., take measures to suppress noise interference. It could cause malfunction or break-down due to hazardous effects on inverters, in-house power generators, high frequency medical equipment, etc.
<ul style="list-style-type: none"> ● Do not install this device in an inappropriate environment or where inflammable gas could generate, flow in, accumulate or leak. This device should not be used in places where the air contains dense oil mist, steam, organic solvent vapour, corrosive gasses (such as ammonium, sulfuric compounds, and acid), or places where acidic or alkaline solutions or special sprays, etc. are used. Doing so may cause electric shocks, break-down, smoke or fire due to corrosion or deterioration of the device performance. 	<ul style="list-style-type: none"> ● The influences transmitted from the device to medical or communication equipment could disrupt medical activities, video broadcasting or cause noise interference. ● Use the accessory parts and specified parts for installation. If any parts are used that do not match the specifications, it may result in electric shock or fire.

⚠CAUTION	
<ul style="list-style-type: none"> ● Do not install the device in following places. It could cause break-down or deformation of the device. <ol style="list-style-type: none"> (1) Where it is exposed to direct sunlight (2) Near any equipment that generates heat (3) Where the surface is not flat (4) Where machinery generates radio waves. 	<ul style="list-style-type: none"> ● The device is not to be used by children or persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given the correct supervision and/or instruction. Children must be supervised not to play with device.
<ul style="list-style-type: none"> ● Provide ground connection. The ground line should never be connected to the gas supply piping, the water supply piping, the lightning conductor rod, or the telephone ground. If the grounding is incorrect, it may result in electric shock. 	<ul style="list-style-type: none"> ● Children must be supervised not to play with device.

1 Application

Heat pump water heater (ESA30EH or later) and remote control (RC-Q1EH or later)

2 Accessories

PCB	Metal box	Metal cover	Screw for Ground	Pan head screws	Locking supports	Binding band	Grommet
			M4x8 2 pieces 	φ 4x8 2 pieces 	To secure the print board and the metal box Made of nylon 4 pieces 		

3 Function

Provides communication access for a Heat pump water heater on to Modbus RTU or Superlink network.

4 Control switching

Settings can be changed by the switch SW3 on the PCB as per the following.

Switch	Symbol	Switch	Remark
SW3	1,2,3	ON	See below
		OFF (default)	
SW3	4	ON	Select Software
		OFF (default)	Superlink Modbus

<When SW3-4 is OFF>

Switch	Symbol	Switch	Remark
SW3	1	ON	19200 bps (Baud rate)
		OFF (default)	9600 bps (Baud rate)
	2, 3	See right table	

<When SW3-4 is ON>

Switch	Symbol	Switch	Remark
SW3	1	ON	Fixed Previous Superlink protocol
		OFF (default)	Automatic adjustment of Superlink protocol
	2	ON	The hundredth address activated "1"
		OFF (default)	The hundredth address activated "0"
3	(Hold in the Off)		

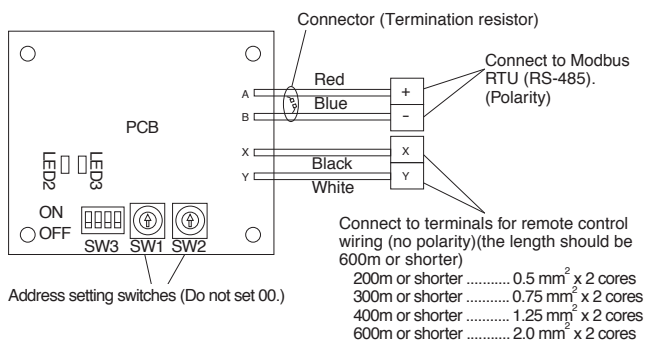
SW3-2	SW3-3	Function
ON	ON	Stop bit 1 (even parity)
ON	OFF	Stop bit 1 (odd parity)
OFF	ON	(Do not make this setting)
OFF (default)	OFF (default)	Stop bit 2 (no parity)

5 Connection Outline

<When SW3-4 is OFF>

Note for setting the address

- Set the address between 01 and 99.
- Do not set the address 00.



Switch	Description
SW1	Tens place (0:Initialization value)
SW2	Ones place (1:Initialization value)

Signal line specification

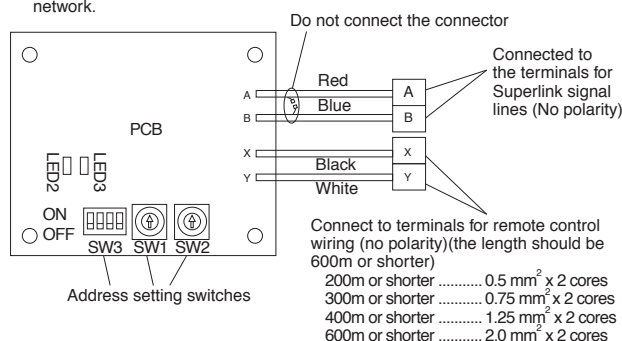
Line type	MVVS
Line diameter	0.75 - 1.25mm ²
Signal line	up to 1200m

Connect grounding on both ends of the shielding wire.
For the grounding method, refer to the section "6 Installation".

<When SW3-4 is ON>

Note for setting the address

- Set the address between 00 and 47 for the previous Superlink connection and between 000 and 127 for the new Superlink connection. (*1)
- Do not set the address overlapping with those of the other devices in the network.



Switch	Description
SW1	Tens place (0:Initialization value)
SW2	Ones place (1:Initialization value)

When SW3-2 is ON, the hundredth address activated "1".

(*1) Whether the actual link is either the new Superlink or the previous Superlink depends on the models of the connected units. Consult the agent or the dealer.

Signal line specification

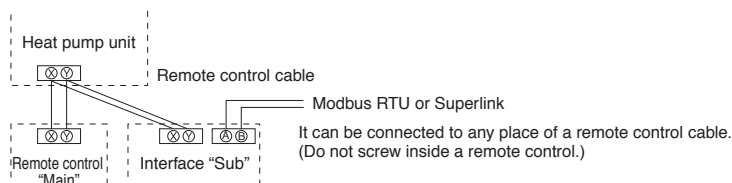
Communication method	Previous Superlink	New Superlink
Line type	MVVS	MVVS
Line diameter	0.75 - 1.25mm ²	0.75/1.25mm ²
Signal line (total length)	up to 1000m	up to 1500/1000m (*2)
Signal line (maximum length)	up to 1000m	up to 1000m

(*2) Up to 1500m for 0.75mm², and up to 1000m for 1.25mm².
Do not use 2.0mm². It may cause an error.

(*3) Connect grounding on both ends of the shielding wire.
For the grounding method, refer to the section "6 Installation".

(1) Set address with switch.

(2) Set the remote control to "Main" in accordance with the manual of remote control. Do not connect multiple interfaces to a remote control "Main".

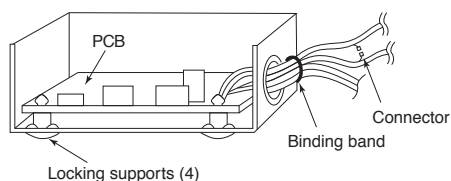


6 Installation

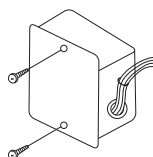
- (1) Mount the PCB in the metal box using the locking supports.
- (2) Fit the grommet into the hole of the metal box and insert the wires through it. Secure the wires with the binding band as shown in the below figure.

[Note]

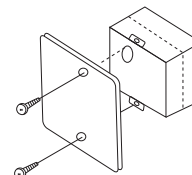
Please fix the grommet which is attached to a metal box later through the wiring to the hole of the metal box.



▲ Put the metal cover on.



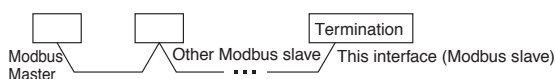
▲ When installed on the back of the remote control, mount it directly on the remote control bottom case.



- (3) <When SW3-4 is OFF>

Do not use wiring methods other than (a) or (b) below.

(a) Connect the connector in case of termination as shown in the below figure.



(b) Do not connect the connector when this interface is not a termination as shown in the below figure.



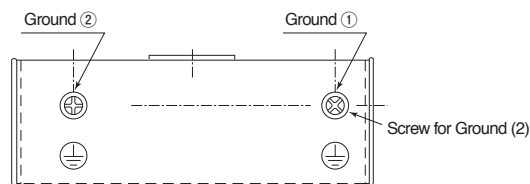
<When SW3-4 is ON>

Do not connect the connector.

Electrical shock hazard

Make sure to turn the power source off before servicing.
 Be cautious so that no abnormal force should be applied to the wiring.
 Do not let the PCB hang by the wiring.
 Do not damage the board with a screwdriver.
 The board is sensitive to static electricity. Release the static electricity from your body before servicing.
 (You can do this by touching the control board which is grounded).

Connect grounding for the power line to Ground ①, and grounding for the signal line to Ground ②.



Location of installation

Install the device at the location where there are no electromagnetic waves or where there is any water and dust. The specified temperature range of the device is -20 to 60°C. Install the device at the location where the ambient temperature stays within the range. If it exceeds the specification, make sure to provide a solution such as installing a cooling fan. When used outside of the range, it may cause abnormal operation.

7 Indicator display

Check the LED 3 (green) and LED 2 (red) on the PCB for flashing.

<When SW3-4 is OFF>

PCB LEDs		Inspection mode
Red	Green	
Off	Flashing	Normal communication
Off	Off	<ul style="list-style-type: none"> • Disconnection of the remote control communication line (X or Y) • Short-circuit in the remote control communication line (between X and Y) • Faulty heat pump unit remote control power • Faulty remote control communication circuit • Faulty CPU on PCB
1-flash	Flashing	• Faulty address setting for interface (Set the address 00)
2-flash	Flashing	• Faulty remote control communication circuit

<When SW3-4 is ON>

PCB LEDs		Inspection mode	Display on the integrated network control device
Red	Green		
Off	Flashing	Normal communication	
Off	Off	<ul style="list-style-type: none"> • Disconnection in the remote control communication line (X or Y) • Short-circuit in the remote control communication line (between X and Y) • Faulty heat pump unit remote control power • Faulty remote control communication circuit • Faulty CPU on PCB 	No corresponding unit number
1-flash	Flashing	<ul style="list-style-type: none"> • Disconnection in the Superlink signal line (A or B) • Short-circuit in the Superlink signal line (between A and B) • Faulty Superlink signal circuit 	
2-flash	Flashing	• Faulty address setting for the interface (Set up the address for previous SL : more than 48 new SL : more than 128)	
3-flash	Flashing	• Faulty remote control communication circuit	E1
4-flash	Flashing	• Address overlapping for this interface and other unit connected the Superlink network	E2
Off	Flashing	• Number of connected devices exceeds the specification for the multiple heat pump unit control	E10

AIR-CONDITIONING CONTROL SYSTEM



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Because of our policy of continuous improvement, we reserve the right to make changes in all specifications without notice.

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