

MHI

TECHNICAL MANUAL

Collection data

Manual No. '08-SC-T-119

updated December 22 ,2009

AIR CONDITIONING CONTROL SYSTEM

CENTRAL CONTROL

SC-SL1N-E

SC-SL2N-E

SC-SL3N-AE

SC-SL3N-BE

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■ Number of units in combinations of SC-SL1N-E, SC-SL2N-E and SC-SL3N-AE, BE (per system)

● In case of new SL (Super Link)

SC-SL3N-AE, BE	0	0	0	0	0	0	1	1	1	1	1	2	2	2	2	2	2
SC-SL2N-E	0	1	2	3	4	5~8	1	2	3	4	5~8	0	1	2	3	4	5~8
SC-SL1N-E	12	8	4	0	0	0	8	4	0	0	0	8	4	0	0	0	0

● In case of previous SL

SC-SL3N-AE, BE	0	0	0	0	1
SC-SL2N-E	0	1	2	3	1(×3) ⁽¹⁾
SC-SL1N-E	6	3	2	0	0

Notes (1) In case of previous SL, since SC-SL3N is for connection of 3 Super Link systems, one unit of SC-SL2N-E can be connected to each system.

(2) Number of units in combination as shown above is applicable to when the indoor units being controlled by each central control are not duplicated. When controlling the same indoor units with a plural number of central controls, it may affect the allowable number of indoor units for connection. For further details, please consult your dealer.

■ Check indicator table

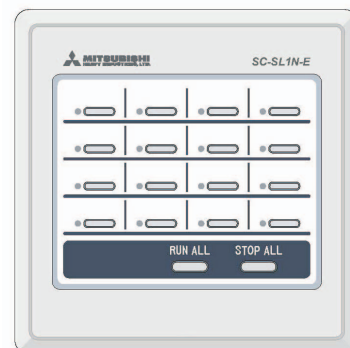
Error code	SL-1N-E SL-2N-E SL-3N-E	Indoor unit control PCB		Outdoor unit control PCB		Location of trouble	Description of trouble	Repair method
	Red LED	Red LED	Green LED	Red LED	Green LED			
E 75	Keeps flashing	Stays OFF	Keeps flashing	Stays OFF	Keeps flashing	SL-1N-E SL-2N-E SL-3N-E	• Communication error (Defective communication circuit on the main unit of SL1N-E, SL2N-E or SL3N-E)	Replacement

1 CENTRAL CONTROL SC-SL1N-E

(1) Specifications

Description		CENTRAL CONTROL SC-SL1N-E
Model name		SC-SL1N-E
Applicable model		Super Link compatible indoor unit
Ambient temperature at operation		0 ~ 40°C
Power supply		1 phase, AC 230 V, 50/60 Hz
Power consumption		1.7W
External dimensions (H×W×D)		120mm×120mm×(15+62)mm ⁽²⁾
Net weight		1kg
Max. number of connectable indoor units		16 units
Input	SL (Super Link) signal input	1 system
	External timer input ⁽¹⁾	1 point, Non-voltage contact “a” input, continuous input (Open → Close: RUN, Close → Open: STOP)

Appearance



Notes (1) For the input signal device being procured at site, select a product of which the specification of relay used is of the minimum contact (switch) current at 4 mA or under.

(2) +62 in () indicates the embedded dimension.

(3) Where the connecting network consists of previous Super Link, it is necessary to set the control selector switch SW23-3 to ON. (Factory default is OFF.)

Definitions of new and previous Super Links (new and previous SL)

New Super Link (new SL):

All units connected to the network are models compatible new Super Link (KXE6 or later models. Central control and I/F are “N” or later models.), and the SL setting is unchanged from the shipment (“New” or “Auto”).

Previous Super Link (previous SL):

Units that do not meet the conditions of new SL. When the equipment connected to the network include even one unit of model earlier than KXE4 or not with new SL. Setting of Note (3) is required.

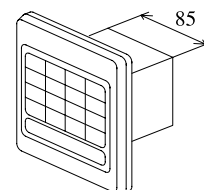
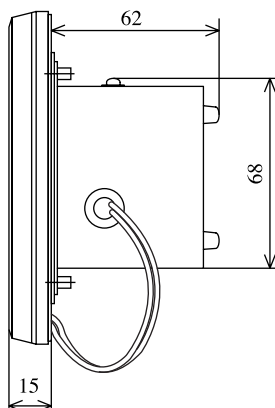
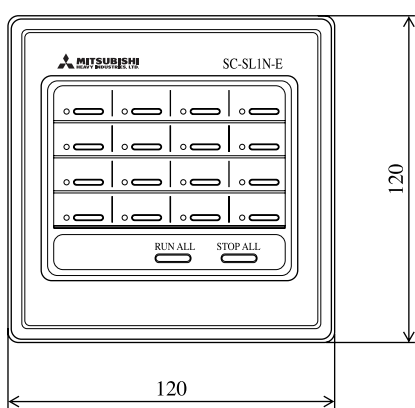
(2) Functions

Start/stop operation	Simultaneous/individual start/stop of max. 16 units of air-conditioner
Monitoring	Operation/Inspection display for each unit of air-conditioner
Power failure compensation (Power restoration control)	Upon restoration of power supply, operation starts if it was in the operating condition at the time of power failure.
Center/Remote setting	None (Operable always)
External RUN/STOP (optional function)	Possible with a timer on the market, etc

Notes (1) SC-SL1N-E is limited to the function of operation/stop. It is necessary to use with a remote controller capable of the room temperature setting, etc, SC-SL2N-E, or other.

(2) If SW23-2 is set at OFF, the power restoration control can be invalidated. (Factory default is ON.)

(3) Outline drawing

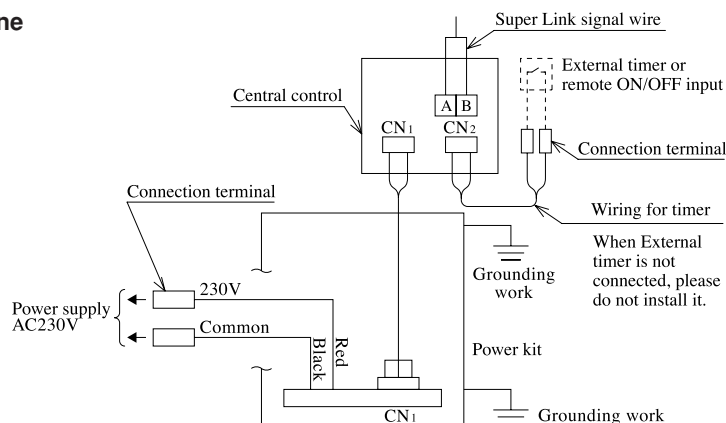


●Resin color: Pearl white
(close to Munsell N-8.5)

(4) Electrical wiring

- 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 supply (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 supply.
- Please be sure to build the breaker which is easily accessible with building equipment's wiring.
- Please use the signal input device which comply with a relevant IEC safety standard.

(a) Wiring outline



For the relay attached with local signal input device, please use the relay whose smallest contact point (ON/OFF) current is less than 4mA.

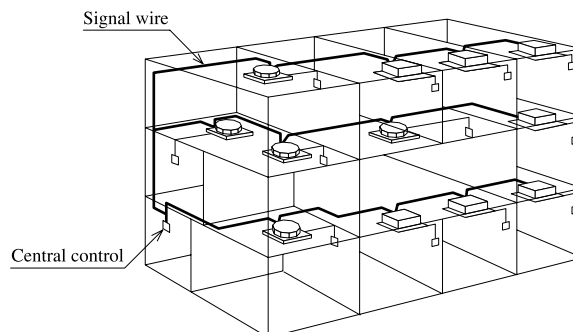
Caution

Please do not connect power supply line to other terminals.

Misconnection may cause damage of electrical component and burnout, which is very dangerous. Check the wiring again before turning on the power.

(b) Wiring specifications

Power supply wire	1.25mm ²
Local switch	10A
Super Link signal wire (Note 1, Note 2)	Shielded wire (MVVS 2 - cores) 0.75mm ² - 1.25mm ² Max. 1000m per network (Max. distance: 1000m, Total wire length: 1000m)
Wiring for timer input	CVV CPEV (2 - cores) 0.75mm ² - 1.25mm ² Max. 200m
Grounding wire	0.75mm ² - 6mm ²



Notes (1) When this central control is used, use a shielded wire for the Super Link signal wire. Ground both ends of the shielded wire.

(Wire the grounding position indicated as "⊕" on the main body. Please refer to **(5) Installation work** **Installation procedure**.)

(2) If the indoor and outdoor units connected to the network are all compatible units with New Super Link, 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.

(3) Where the connecting network consists of previous Super Link, it is necessary to set the control selector switch SW23-3 to ON. (Factory default is OFF.)

(5) 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.

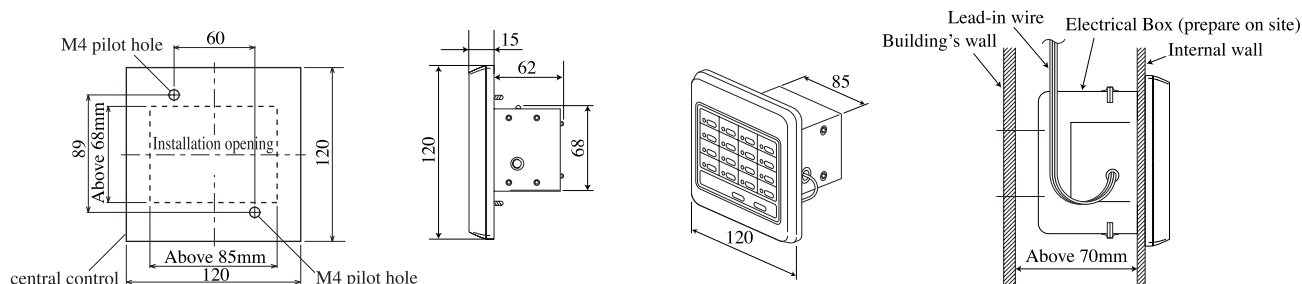
Be careful that you do not damage the PCBs when using a screwdriver and other tools. The PCBs can be damaged by static electricity, and so be sure to discharge any static electricity accumulated on your body before starting the work. (Static electricity can be discharged by touching the control board and other grounded parts.)

(a) 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.

(b) Space required for installation



The dotted lines show the installation opening section for installation on the control board (the dimensions are only an example).

1) In case of installing on the control board

Please be sure to lock the control board 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.

2) In case of embedding in a wall

Please check that the sufficient space is available in the wall. If the temperature inside the wall exceeds 40°C, install the central control on the control board.

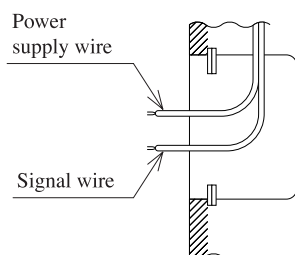
Caution

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

(c) Installation procedure

- 1) In case of embedding in a wall, first, embed the power supply wire, signal wire, and electrical box.

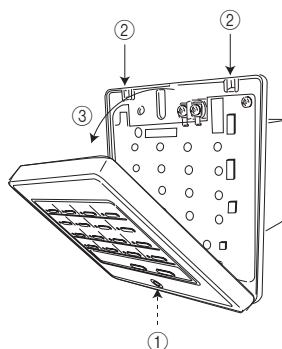
Keep the power supply wire and signal wire separated to prevent malfunctions.



Note: When external timer etc. is connected, please connect the supplied 2 (wiring for timer) to the wiring of field election work.

- 2) Please remove the upper case with the following procedure.

- ① Remove the screw (M2.5) by philips-head screwdriver. (Please be careful not to lose the screw.)
- ② Open it in the direction of ③ while pushing the upper part lightly.



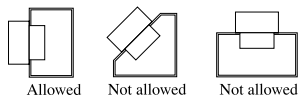
- 3) Please connect the power supply wire.

Caution

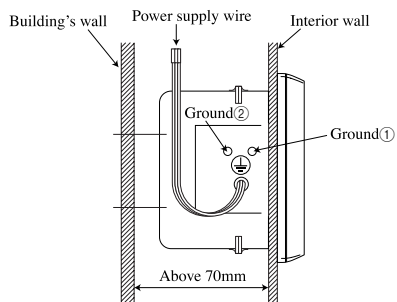
Please confirm the voltage of power supply, and then connect the common or 230V correctly.

Caution

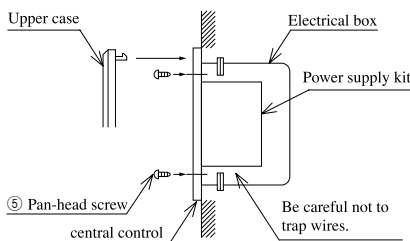
Please do not install facing upward or at a slant.



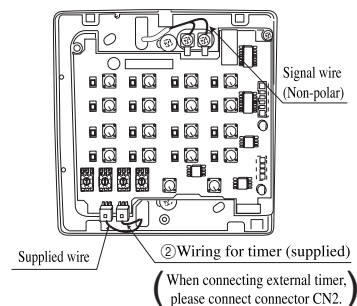
- 4) Please connect the grounding wire.
Connect the grounding wire for power supply wire to “Ground ①”, connect the grounding wire for signal wire to “Ground ②”.



- 5) Please fix the central control on the Electrical box or the wall by supplied ⑤ pan-head screw

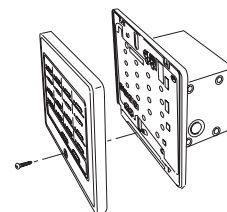


- 6) Please connect the signal wire (A, B terminal)



- 7) Please do group setting by a precise driver (For the details, please refer to “(6) Control switch selection” and “(7) Setting the control target units”).

- 8) Please cover the upper case onto the lower case and attach the case by the screw.
(Follow the reverse procedure of (2)) round type label can be used to cover the screw. This completes the installation procedure. (There are 3 round type label, 2 of which are for standby.)



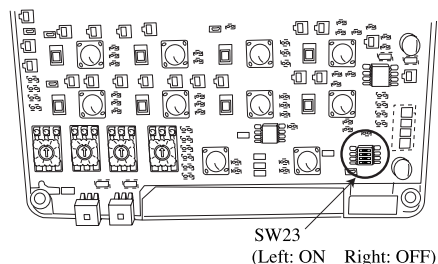
Caution

The case and power supply kit are integrated unit. Please do not separate them.

(6) Control switch selection

It is possible to change the setting as follows by setting switch SW23 on the printed circuit board of this central control. Please change the control on site as necessary. It is recommended to change the setting by using a precise driver.

Switch	No.	Setting	Control content
SW23	1	ON	The hundreds digit of control unit start address is 1
		OFF (Factory default)	The hundreds digit of control unit start address is 0
	2	ON (Factory default)	Power failure compensation valid (When the power comes back on, sends ON/OFF state before power failure.)
		OFF	Power failure compensation invalid
	3	ON	Previous Super Link connection (*)
		OFF (Factory default)	New Super Link connection



(*) Switching is needed if the connection is previous Super Link.

Actual type of network connection (Previous or new Super Link) depends on the models of indoor units and outdoor units, etc. Please contact your dealer.

(7) Setting the control target units

For this central control, please set the unit number as follows.

(a) Setting start address



Please set initial number of units controlled by the central control.

Example 1: When initial number is 000

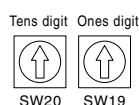
Example 2: When initial number is 005



Caution

For start address, please set from 00 to 47 for previous Super Link (SW23-3 is ON) or set from 00 to 127 for new Super Link (SW23-3 is OFF).

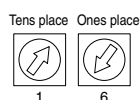
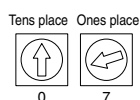
(b) Setting of connection number



Please set connection number of unit by central control.

Example 3: When connection number is 7

Example 2: When connection number is 16



Caution

One central control can connect up to 16 units. So the maximum number of connecting unit is 16. Please set the value (Start address + number of connection unit) ≤ 48 when the previous Super Link system is applied, set the value (Start address + number of connection unit) ≤ 128 when new Super Link system is applied.

(c) When this central control controls more than 17 air conditioners

Please use multiple central control of this type.

1) It is possible to connect more than one central control in the network.

Example: Address-setting example when 6 central controls (a - f) are used

	Start address	Setting value for multiple units	Number of controlled units
a	000	05	000-004
b	005	05	005-009
c	010	06	010-015
d	016	08	016-023
e	024	10	024-033
f	034	02	034-035

2) It is possible to repeat the unit number when multiple central controls are applied.

Example: Address-setting example when 3 central controls (a - c) are used

	Start address	Setting value for multiple units	Number of controlled units
a	000	15	000-014
b	010	15	010-024
c	023	06	023-028

No.10 — No. 14 units can be controlled by both central control a and b.

No.23 — No. 24 units can be controlled by both central control a and c.

2 CENTRAL CONTROL SC-SL2N-E

(1) Specification

Description		CENTRAL CONTROL SC-SL2N-E
Model name		SC-SL2N-E
Applicable model		Super Link compatible indoor unit ⁽¹⁾
Ambient temperature in operation		0 ~ 40°C
Power supply		1 phase, 100 ~ 240 V, 50/60 Hz
Power consumption		7W
External dimensions (H W D)		120mm 215mm (25 35)mm ⁽⁴⁾
Net weight		1kg
Max. number of connectable indoor units		New SL: Max. 64 units, previous SL: Max. 48 units
Input	External timer input ⁽²⁾	1 point, Non-voltage contact “a” input (Open / Close: RUN, Close / Open: STOP)
	Emergency stop signal input ⁽²⁾	1 point, Non-voltage contact point “a” input, continuous input (Close; Center & Stop all units)
	Demand signal input ⁽²⁾	1 point, Non-voltage contact “a” input, continuous input (Close; Center & Fan mode)
Output	Operation output ⁽³⁾	All indoor units at STOP; Open If there is any unit operating; Close
	Error output ⁽³⁾	All indoor units normal: Open If there is any abnormal unit; Close

Notes (1) Some of functions may not be used depending on the indoor unit. (See P9 (2).)

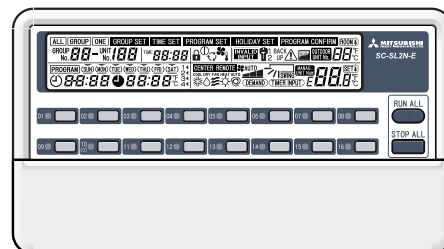
(2) For the specification of relay being procured at site, select a product that can assure the minimum application load of DC 12 V, 10 mA or less.
Even if it is reset within 2 minutes after input, the input state is retained.

(3) For the specification of relay being procured at site, select a product with the rated voltage at DC 12 V, max. power consumption at DC 0.9 W or under (80 mA or under).

(4) Dimension +35 in () indicates the embedded dimension.

(5) When the connecting network consists of previous Super Link, it is necessary to set the control selector switch SW5 to OFF.
(Factory default is ON.)

Appearance



Definitions of new and previous Super Link (new and previous SL)

New Super Link (new SL): All units connected to the network are models compatible with New Super Link (KXE6 model or later models. Central controller and I/F are from “N” models.) and SL setting is unchanged from shipment (“New” or “AUTO”).

Previous Super Link (previous SL): Units do not meet the conditions of New SL. When even a single unit connected to the network is an earlier model than KXE4 or the connected model is not compatible with New SL. Setting explained in *6 is required.

The diagram below shows the central control with its cover open.
Also, for the sake of the explanation, all the contents of the LCD display section are shown.

REMOTE CONTROL OPERATION ENABLE / DISABLE display
Displays items for which remote controller operation is disabled.

PROGRAM SET display
Displayed when a program is being set.

TIME SET display
Displayed when the current date and time are being set.

TIME display
Displays the time.

GROUP SET display
Displayed when the units to be managed are being set.

Program days of the week display
— is displayed above today's day of the week and — is displayed under each day of the week for which the program has already been set.

ALL / GROUP / ONE display
Displays whether operations on this central control are for all units, one group of units, or one unit.

GROUP No. / UNIT No. display
Displays the group number and indoor unit number being set or monitored.

PROGRAM display
Displays the contents of the program set.

PROGRAM No. display
Displays the numbers of the programs that have been set.

MODE display
Displays the operation mode.

DEMAND display
Displayed during demand input.

MENU button
This button selects the setting mode.

ALL / GROUP / ONE button
This button selects ALL, GROUP, or ONE to be operated.

SELECT (▲ or ▼) button
This button is primarily used for selecting the group number or unit number.

SET button
This button confirms settings.

RESET button
Pressing this button during a setting operation cancels the last step

CENTER / REMOTE button
This button selects centralized control or local remote controller.

MODE button
This button selects the operation mode.

FAN SPEED button
This button adjusts the fan speed.

DEMAND SET button
This button sets the indoor unit for demand.

CENTER / REMOTE display
Displays which is in effect, the central control or the local remote controllers.

HOLIDAY SET display
Displayed when a program for holidays is set.

INVALID INPUT display
Displayed when a button input is invalid.

FAN SPEED display
Displays the fan speed.

MAINTENANCE display
Displayed when there is a managed unit requiring a check.

PROGRAM CONFIRM display
Displayed when a set program is displayed.

CHECK display
Displayed when there is a unit being managed in which an error has occurred.

CLEAN FILTER display
Displayed when there is a unit being managed whose filter needs to be cleaned.

ROOM TEMPERATURE display
Displays the room temperature.

OUTDOOR UNIT No. display
Displays the outdoor unit number in the ROOM TEMPERATURE display section.

MANAG. UNIT NUM display
Displays the number of units managed in the SET TEMPERATURE display section.

SET TEMPERATURE display
Displays the set temperature.

LOUVER display
Displays the louver direction.

TIMER INPUT display
Displayed when an external timer is being input.

RUN button
This button runs indoor units.

STOP button
This button stops indoor units.

CHECK button
This button is for service.
During normal operation, do not press this button.

FILTER RESET button
This button resets the CLEAN FILTER display.
Press this button after cleaning the air filter.

TEMP (▲ or ▼) button
This button sets the temperature.

LOUVER button
This button adjusts the louver direction.

TIMER INPUT SET button
This button sets an indoor unit for which operation by external timer is enabled.

(2) Operation and setting

Operation or setting is implemented individually, in the unit of group or in a batch for air-conditioners up to 64 units or 16 groups.

No.	Item	Description
1	RUN/STOP	Performs operation or stop control.
2	Operation mode	Sets Auto ⁽¹⁾ , Cool, Dry, Fan or Heat.
3	Temperature setting	Sets temperature in the range of 18 ~ 30°C (0.5°C interval) ⁽²⁾
4	Center/remote	Sets the center, remote or center remote.
5	Individual Lock/Unlock settings enabled in Function Setting of remote controller.	Sets the permission/prohibition on the basis of remote controller function. Sets the permission or prohibition for RUN/STOP control, operation mode setting, temperature setting or each functions. ⁽³⁾
6	Fan speed	Sets Hi, Me or Lo.
7	Fan direction	Sets the auto swing ON/OFF and positions 1 ~ 4.
8	Filter reset	Controls the filter sign reset.
9	Error reset	Puts out the error sign with the RUN or STOP operation

Notes (1) Don't use the auto mode on any indoor unit other than those connected to the simultaneous heating & cooling 3-pipe system or single PAC.

(2) Do not set the set point at 0.5°C intervals in case this product is used with RCD type wired remote controller.

It would cause malfunction of the wired remote controller. Please make sure to set at 1°C intervals.

(3) This function can be applied to the indoor units, which are the model KXE4 or later, SC-ADN-E or later and to the remote controller, 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 controller cannot receive the instruction even though the setting can be displayed.)

Since setting is overwritten in SL2N-E even if setting is done from the remote controller, set using SL2N-E.

(3) Status monitor

Status monitor may be applied in the unit of group or air-conditioner.

No.	Item	Description
1	RUN/STOP status	Monitors the RUN/STOP status of unit No. on display. With LED for each group, it monitors the RUN/STOP status of each group.
2	Operation mode	Displays the operation mode of unit No. on display.
3	Temperature setting	Displays the setting temperature of unit No. on display.
4	Room temperature	Displays the suction temperature of unit No. on display.
5	Permission/prohibition on the basis of remote controller function	Displays the status of permission/prohibition setting for each remote controller function of unit No. on display. Display the permission/prohibition of the RUN/STOP control, operation mode setting and temperature setting. Permission/prohibition setting for each function as set from the remote controller is not reflected because it is overwritten from SC-SL2N-E.
6	Fan speed	Displays the fan speed of unit No. on display.
7	Fan direction	Displays the auto swing ON/OFF setting and position setting of unit No. on display.
8	Filter sign	When the filter cleaning time is exceeded on one or more indoor units, the filter sign icon is turned on. When it corresponds to the unit No. on display, the icon blinks.
9	Maintenance ⁽²⁾ , (Inspection, Inspection 1, Inspection 2 and Backup)	When there is one or more indoor units requiring maintenance, the maintenance icon is turned on. There are 4 types of operation of Inspection, Inspection 1, Inspection 2 and Back up. Inspection : There is an indoor unit requiring maintenance. Inspection1 : The operation time (GHP outdoor unit) exceeds 10000 hours Inspection2 : The operation time (GHP outdoor unit) exceeds 9800 hours Backup : Connected outdoor unit is on backup operation. Preference order of display is as shown below. Backup > Inspection 1 > Inspection 2 > Inspection When it corresponds to the unit No. on display, the icon blinks.
10	Trouble (Error)	When any error is detected on one or more controlled indoor units, the error icon is turned on. If it corresponds to the unit No. on display, the icon blinks and the display shows the error code, date/time of error occurrence, connected outdoor unit No. (KXE6 type or later).

Notes (1) If "Check" button is pressed when the icon is turned on by 8, 9 and 10, display will change automatically to the display of corresponding unit No.

When 8, 9 and 10 are mixed, 10 takes the highest priority. When all of 10 is reset, display is in the order of 9 to 8.

(2) When the operation time exceeds 9,800 hours, it displays Inspection 2 and, if it exceeds 10,000 hours, Inspection 1 is displayed. (GHP only)

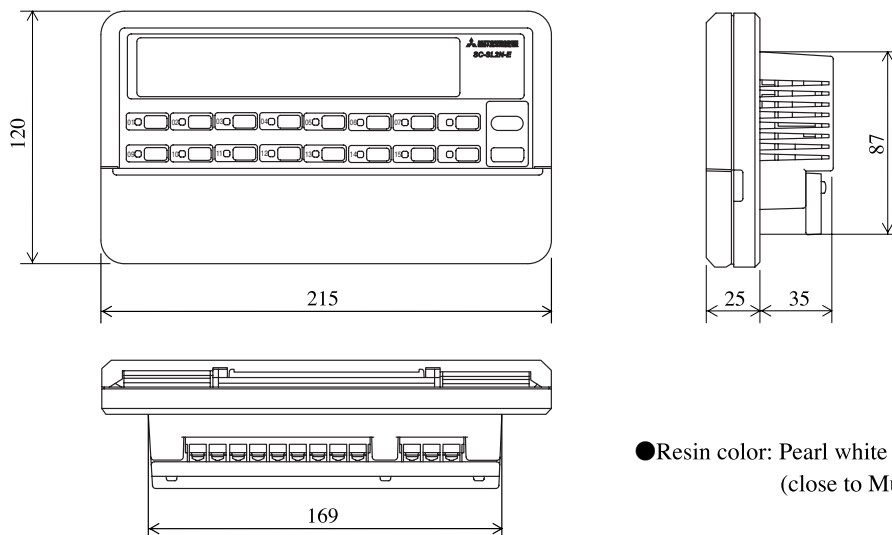
(4) Program setting

Operation program can be set in the unit of group. It is possible to register the ON/OFF time or ON time + Temperature setting at 4 times a day. Operation time can be designated in the unit of minute.

(5) Administration and control

No.	Item	Description
1	Group setting	Registers controlled air-conditioners (max. 64 units) to max. 16 groups.
2	Individual setting	Sets air-conditioners which are subject to the control of SC-SL2N-E, but are not registered to any group.
4	Time & date setting	Sets the clock used for program timer or other. • Year/Month/Date/Hour (24-hour basis) /Minute
5	Alarm history	Displays the error history of around. 100 cases for each air-conditioner.
6	Demand control	Changes preset air-conditioners to "Fan" and "Center" with external demand signals. When the demand signal is cancelled, it returns to the state just before entering the demand control (operation mode and center/remote setting).
7	Emergency stop	Sets all air-conditioners connected to this unit at "Stop" and "Center" with an external emergency signal. As the emergency signal is cancelled, the center/remote setting is returned to original state but all units stay "Stopped"
8	Power restoration control	Allows changing the power restoration process setting. ①Program timer preferred: When SW1 and SW2 are turned ON, RUN/STOP and setting temperature returns to the program timer just before the time of power restoration on the day when the power supply is restored, or other states (operation mode, etc) return automatically with the priority given to the states before the power failure (See ②). When no program timer is set before the power restoration on the day of power restoration, it is restored with the priority given to the states before the power failure (See ②). ②State before power failure preferred: When SW1 is turned ON and SW2 is turned OFF. Each indoor unit returns automatically to the state before the power failure. Any indoor unit running before the power failure starts its operation. ③No power restoration processing: When SW1 and SW2 are turned OFF, SC-SL2N-E does not perform timer the power restoration processing upon restoration of the power supply.
9	Power failure compensation	The group setting, individual setting, program timer setting, holiday setting, external timer setting, demand setting and operating condition (RUN/STOP, operating mode, temperature setting, Center/Remote, remote controller permission/prohibition and airflow volume) are retained regardless of the length of power failure. The clock time is compensated if the power interruption is not longer than 48 hours. If the current time is not displayed after the power restoration following a power interruption exceeding 48 hours, set again the current time. Since the clock time is not retained at the power restoration after a power interruption exceeding 48 hours, the power restoration control in Item No. 8(a) does not operate.

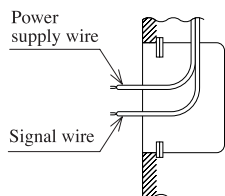
(6) Outline drawing



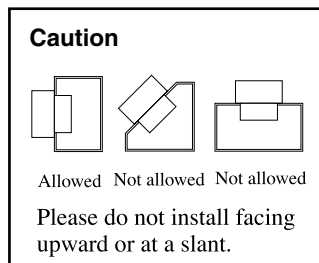
●Resin color: Pearl white
(close to Munsell N-8.5)

(7) Installation procedure

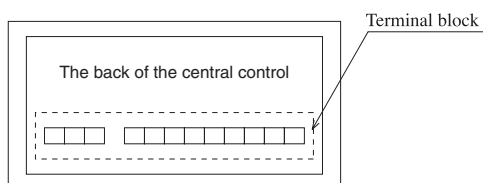
- (a) In case of embedding in a wall, first, embed the power supply wire, signal wire, and electrical box.
Keep the power supply wire and signal wire separated to prevent malfunctions.



Note: Before connecting an external timer or emergency stop input, be sure to connect the wiring at the worksite first.



- (c) Connect the power supply wire to the terminal.
(See section (8) **Electrical wiring**.)



Caution

Check the supply voltage, and make the correct connection.

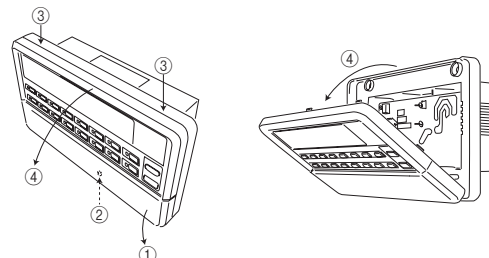
- (e) Use a precision screwdriver to make the control selector settings.
(For details, see section (10) **Control switch selection**.)
(f) Peel off the protective sheet on the screen of central control.

Important

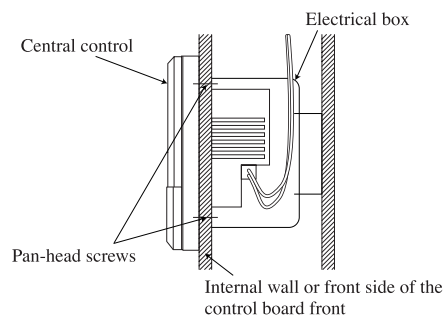
Please peel off the protective sheet on the air conditioner screen when transferring the central control to the customer. Peel off before mounting the top case.

- (b) Open the top case by following the procedure below.

- ① Grasp the indentations on the right and left sides, and pull forward to open the cover downward.
- ② Use a phillips-head screwdriver to remove the screw.
(Be careful not to lose the screw.)
- ③ Open the top section in the direction 4 while gently pressing the top section.



- (d) Use the supplied pan-head screws to secure the central control to the electrical box or control board.



- (g) Insert the top case back into its original location in the bottom case as before, and tighten the case mounting screws [(b), ②].

This completes the installation procedure.

Caution

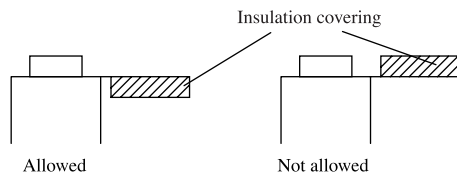
The case and power supply kit are an integrated unit. Please do not separate them.

(8) Electrical wiring

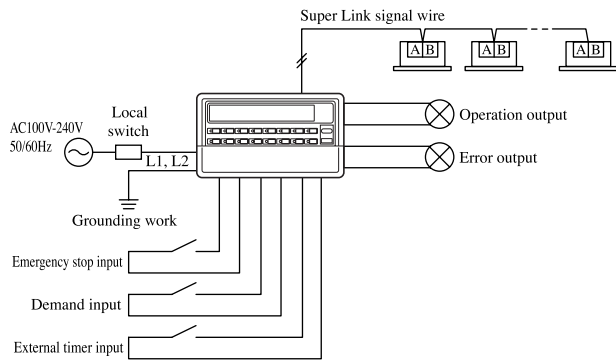
For safety reasons, please use the round crimping terminals with insulated sleeves for connecting all wires to the central control.

- 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 supply (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 supply.
- Except for the central control in the figure, all of the components are obtained at the site (wires, switches, relays, power supply, lamps, etc.).
- Please be sure to build the breaker which is easily accessible with building equipment's wiring.
- Please be sure to use the supplied round crimping terminals when connecting wires to the power supply terminal block and Super Link terminal block.
- Please use demand input device, emergency stop input device and external timer input device comply with a relevant IEC safety standard.

Refer to the figure below for the terminal orientation.



Wiring Outline



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.

Wiring specifications

Power supply wire	1.25mm ²
Local switch	10A
Super Link signal wire (Note 1, Note 2)	Shielded wire (MVVS 2-core) 0.75mm ² - 1.25mm ² Max. 1000m per network (Max. distance: 1000m, Total wire length: 1000m)
Operation output, Error output, Demand input, Emergency stop input, External timer input wire	CCV, CPEV (2-core) 0.75mm ² - 1.25mm ² Max. 200m
Grounding wire	0.75mm ² - 6mm ²

Notes (1) Use a shielded wire for the Super Link signal wire.

Ground both ends of the shielded wire.

(Connect the ground for the central control to the \perp section in "System wiring".

(2) If the indoor and outdoor units connected to the network are all compatible units with New Super Link, 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.

(9) 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.

Control PCBs (printed circuit boards) are mounted to both the top and bottom cases.

Be careful that you do not damage the PCBs when using a screwdriver and other tools.

The PCBs can be damaged by static electricity, and so be sure to discharge any static electricity accumulated on your body before starting the work.

(a) Installation place

Please install in an indoor location that is not exposed to electromagnetic waves, water, dust, or other foreign substances.

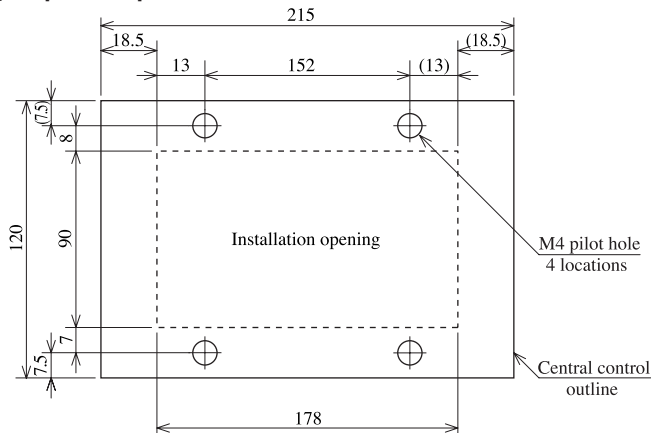
The operating temperature range of this product is from 0°C to 40°C.

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 of this central control outside the operating temperature range can result in operation problems.

(b) Space required for installation



The dotted lines show the installation opening section for installation on the control board (the dimensions are only an example).

Service space

Front of central control

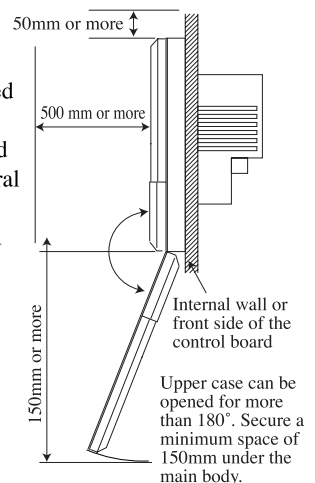
500mm or more is needed

Bottom of central control

150mm or more is needed

Left, right and top of central control

50mm or more is needed



(c) In case of installing on the control board

Please be sure to lock the control board to protect persons from the electric shock.

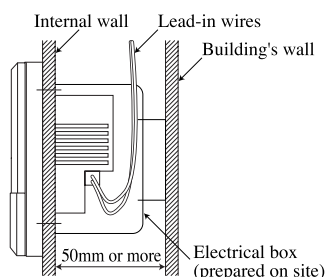
Avoid usage of heat-retaining materials and heat-insulating materials because these can result in heat buildup and adversely affect the operation of the central control.

(d) In case of embedding in a wall

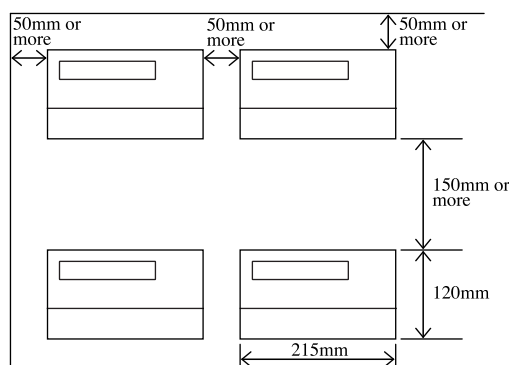
Please check that there is sufficient space inside the wall. If the temperature inside the wall exceeds 40°C, install the central control on the control board.

Caution

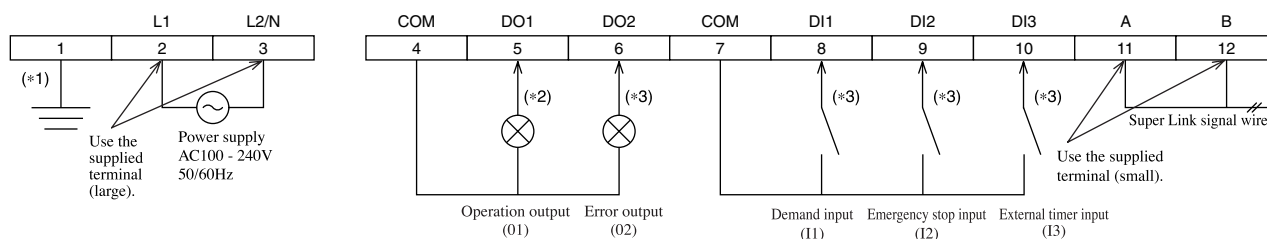
Please do not install devices that can cause the ambient temperature to rise in the same control board. Also, do not install multiple controllers in the same control board. These can cause heat to build up and result in false operation. If multiple central control must be installed in the same control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



When performing the continued installation of multiple controllers, be sure to obtain the distance between units and service space as shown in the figure.



System wiring



(*1) Please connect to ground for signal wire and power supply wire.

(*2) The selected relay obtained at the site should have the following specifications:
rated voltage of DC 12V and maximum power consumption of DC 0.9W or less (80mA or less)

(*3) The selected relay obtained at the site should have the following specifications:
Non-voltage "a" contact input and capable of withstanding a minimum applied load of DC12V and 10mA or less.

The DO and DI terminals are polar.

Do not connect three or more wires to the same terminal.

Note Do not connect the power supply wire to another terminal. Making the wrong connection can result in damage or burning of electrical parts and is extremely dangerous. Please check the wires again before turning on the power supply.

(10) Control switch selection

It is possible to change the setting as follows by settings of the PCB switches SW1 to SW10, J1, J2, and J3 on the central control. Please change the control on site as necessary. It is recommended to change the setting by using a precise driver.

(a) Switch

SW No.	Default	ON	OFF	Description
1	ON	See table at right	See table at right	Power failure compensation function
2	ON			
3	OFF	Auto mode can be set	Auto mode cannot be set	Automatic mode display
4	ON	Display	No display	Filter sign display on/off
5	ON	New	Previous	New/Prev. Super Link^{(*)1}
6	ON	Center & Fan	Center	Sending of data during demand input
7	OFF	—	—	(Keep at OFF)
8	OFF	Time Month.Day	Month. Day Time	Error history display
9	OFF	Return to the original status	The units have stopped	Operation after emergency stop cancel
10	OFF	—	—	(Keep at OFF)

Power failure compensation function selector

SW-1	SW-2	Function
ON	ON	Sending of program settings when power comes back on (The operation status before the power failure is sent if there is no program when power comes back on.)
ON	OFF	Sending of operation status before power failure
OFF	ON	(Do not make this setting.)
OFF	OFF	No data is sent when power comes back on

(b) Jumper wires

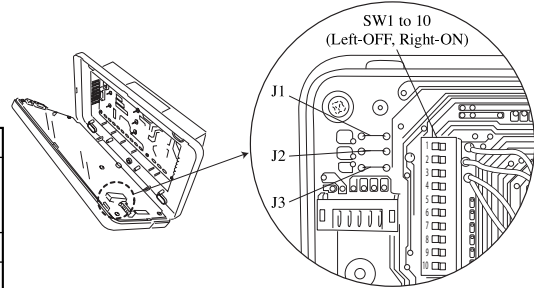
	Short circuit (default)	When disconnected	Function
J1	Setting possible	Setting not possible (Including during external input.)	Center/ Remote setting ^{(*)2} (Including the allowed/prohibited settings of each remote control function)
J2	—	—	(Do not disconnect.)
J3	—	—	(Do not disconnect.)

(*)1 Switching is needed if the connection is previous Super Link.

Actual type of network connection (New or previous Super Link) depends on the models of indoor units and outdoor units, etc. Please contact the agency or the Sales representative.

(*)2 When J1 is disconnected, the Center/Remote does not be set from this central control. Please disconnect if multiple central controls are installed and another main central control exists.

When J1 is disconnected, data is sent for the blower only during demand input (nothing is performed when SW6 is off) and for stop only during emergency stop input.



(11) Setting the control target units

Make the settings for the units to be controlled by the central control.

For the setting procedure, see the user's manual attached to the central control.

At shipping, none of the units are set as target units for control, and so the units to be controlled by this central control must be set as control target units.

Three types of settings are available.

- ① Units are selected as control targets for central control and controlled as a group →Group setting
 - ② Units are selected as control targets for central control but not grouped →Individual setting
 - ③ Units are not selected as control targets for central control →Not target units for control
- (or units will be controlled by another central control)

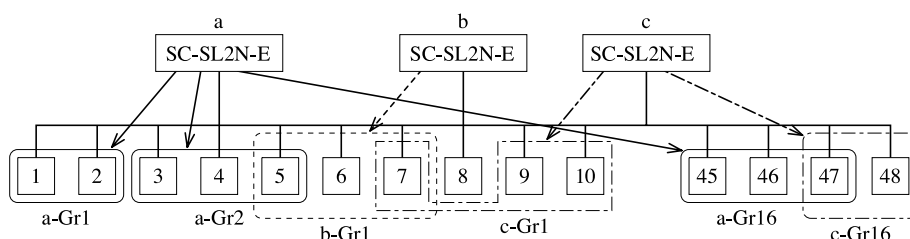
Be sure to set the current time. This is needed for the program settings and error history display.

Turn on the power and press the three buttons (MENU, RESET, GROUP No. 10) at once more than five minutes, that can initialize the setting contents.

• Group control when using multiple units

This central control can control up to 64 target units (up to 48 units when using the previous Super Link setting). Multiple central controls must be installed to control 65 or more air conditioner units.

When connecting multiple central controls on a single network, any group settings can be made for each central control.

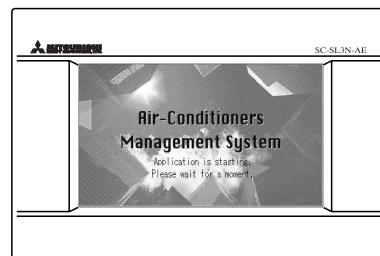


3 CENTRAL CONTROL SC-SL3N-AE and SC-SL3N-BE

(1) Specifications

Description		CENTRAL CONTROL SC-SL3N-AE	CENTRAL CONTROL SC-SL3N-BE
Model name		SC-SL3N-AE	SC-SL3N-BE
Applicable model		Super Link compatible indoor unit ⁽¹⁾	
Ambient temperature at operation		0 ~ 40°C	
Power supply		1 phase, 100 ~ 240 V, 50/60 Hz	
Power consumption		17W	
External dimensions (H×W×D)		162mm×240mm×(40+70)mm ⁽²⁾	
Net weight		2kg	
Max. number of connectable indoor units		New SL: Max. 128 units×1 network, Previous SL: Max. 48 units×3 networks = Max. 144 units	
LCD touch panel, ⁽⁵⁾ ⁽⁶⁾		Color LCD, 7 inch wide	
Input	Super Link input	New SL: 1 network, Previous SL: 3 networks	
	Gas, power pulse input ⁽³⁾	—	8 points, pulse width 100 ms or more
	Emergency stop signal input ⁽³⁾	1 point, Non-voltage contact point “a” input, Continuous input (Open → Close: Stop & Center)	
	Demand signal input ⁽³⁾	1 point, Non-voltage contact point “a” input, Continuous input (Open → Close Demand control (Fan & Center))	
Output	Operation output	1 point, Maximum rated current 40 mA. DC24V All indoor units at stop: Open, If there is any unit operating: Close	
	Error output	1 point, Maximum rated current 40 mA. DC24V All indoor units at normal: Close, If there is any error unit: open ⁽⁷⁾	

Appearance



- 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) The receiving side power supply is DC12V (10 mA).
(4) When the energy consumption calculation is required, use SC-SL3N-BE.
(5) The life of LCD backlight is around 20000 hours, though it depends also on the setting of backlight OFF time. After that its brightness decreases to 1/2 of normal condition (ambient temperature at 25 °C).
(6) Durability of touch panel is around 1 million times.
(7) On the “Function Setting” screen, it is possible to change the batch error output to normally Open and Close at error occurrence.
(8) The energy consumption calculated by this unit does not conform to OIML, and there are no guarantees concerning the results of the calculations. This unit calculates only energy consumption distribution (gas, electric power). You need to calculate the air-conditioning rates.

(2) Operation and setting

Operation and setting is implemented in group or in a batch for the maximum 128 groups (144 for previous SL).

Note (1) Operation or setting cannot be done in block.

No.	Item	Description
1	RUN/STOP	Performs operation or stop control.
2	Operation mode	Sets ☉ Auto ⁽¹⁾ , ❄️ Cool, ☀️ Dry, 🌀 Fan or 🔥 Heat.
3	Temperature setting	Sets temperature in the range of 18 ~ 30°C (0.5°C interval)
4	Lock/Unlock settings enabled in Function Setting of remote controller.	Sets the permission/prohibition based on remote controller function. Sets the permission/prohibition for RUN/STOP control, operation mode setting, temperature setting or respective functions. ⁽³⁾
5	Fan speed	Sets Hi, Me or Lo.
6	Fan direction	Sets the auto swing ON/OFF and positions 1 ~ 4.
7	Filter reset	Controls the filter sign reset.
8	Error reset	Puts out the error sign with the RUN or STOP operation.

- Notes (1) Don't use the auto mode on any indoor unit other than those connected to the simultaneous heating & cooling 3-pipe system or single.
(2) Do not set the set point at 0.5°C intervals in case this product is used with RCD type wired remote controller. It would cause malfunction of the wired remote controller. Please make sure to set at 1°C intervals.
(3) This function can be applied to the indoor units, which are the model KXE4 or later, SC-ADN-E or later and to the remote controller, 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 controller cannot receive the instruction even though the setting can be displayed.)
Since setting is overwritten in SL3N-AE (SL3N-BE) even if setting is done from the remote controller, set using SL3N-AE (SL3N-BE).
However, “ALL Lock” and “ALL Unlock” can be set for old indoor models. (Same to “Center” or “Center & Remote”)

Definitions of new and previous Super Links (new and previous SL)

- New Super Link (new SL): All units connected to the network are models compatible with New Super Link (KXE6 model or later models. Central controller and I/F are from “N” models.) and SL setting is unchanged from shipment (“New” or “AUTO”).
- Previous Super Link (previous SL): Units do not meet the conditions of New SL. When even a single unit connected to the network is an earlier model than KXE4 or the connected model is not compatible with new SL.

Use the “Function setting” screen of main unit to set new or previous Super Link (new or previous SL). When the connecting network consists of previous Super Link, it is necessary to change the selection.

(3) Control selection setting

It is possible to change the setting as follows by setting on the “Function Setting”

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 Super Link.
4	Auto mode setting	“@ Auto” mode can be set or not.
5	Remote controller Permission/Prohibition setting	In case of managing with two or more central control, it is possible to prohibit the validity or invalidity of the manual remote controller operation from SL3N-AE (SL3N-BE) so as not to contradict the remote controller operation permission/prohibition setting. At prohibition setting, remote controller function permission/prohibition setting is also invalid.
6	Remote controller function Permission/prohibition setting	It is possible to invalid permission/prohibition setting of the remote controller function can be prohibited from SL3N-AE (SL3N-BE). If this item be set “Invalid”, it can not be set remote controller function permission/prohibition setting and can be set “ALL Lock” (Center) or “ALL unlock” (Center & Remote) only.
7	Remote controller timer setting	It is possible to invalid timer setting of the remote controller.
8	Folder name specification	It is possible to specify the folder to transfer the calculated data to USB memory. (SL3N-BE only)

(4) Status monitor

Status monitor can be applied in the unit of block, group or air-conditioner.

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 air-conditioner.
3	Temperature setting	Displays the temperature setting of the representative air-conditioner.
4	Room temperature	Displays the suction temperature of the representative air-conditioner.
5	Lock/Unlock setting of remote controller	Displays the status of permission/prohibition setting for remote controller of the representative air-conditioner. Permission/prohibition setting for each function, as set from the remote controller is not reflected because it is overwritten from SL3N-AE (SL3N-BE).
6	Fan speed	Displays the fan speed of the representative air-conditioner.
7	Fan direction	Displays the auto swing ON/OFF setting and position setting of the representative air-conditioner.
8	Filter sign	When the filter cleaning time is exceeded on one or more indoor units, the filter sign icon is turned on. When it corresponds to the unit No. on display, the icon blinks.
9	Maintenance (*) (Inspection, Inspection 1, Inspection 2 and Backup)	When there is one or more indoor units requiring maintenance, the maintenance icon is turned on. There are 4 types of operation of Inspection, Inspection 1, Inspection 2 and Backup. Preference order of display is as shown below. Backup > Inspection 1 > Inspection 2 > Inspection It is possible to confirm on the “UNIT INFORMATION” screen which maintenance has been generated.
10	Error	When any error is detected on one or more controlled indoor units, the error icon is turned on.

* When the operation time (GHP outdoor unit) exceeds 9,800 hours, it displays Inspection 2, or Inspection 1 if it exceeds 10,000 hours.

(5) Schedule setting

This schedule can be set by each group every one minute.

It is possible to register the RUN/STOP time, operation mode, remote controller Lock/Unlock setting, temperature setting at 16 times a day.(*)

No.	Item	Description
1	Yearly schedule	Specify the date and select/specify the weekday, holiday, special day 1 or special day. It is possible to set for a year. However, it will not be reflected the next year so it is necessary to set it at least once every year.
2	Today's schedule	Set the schedule that is effective on 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.

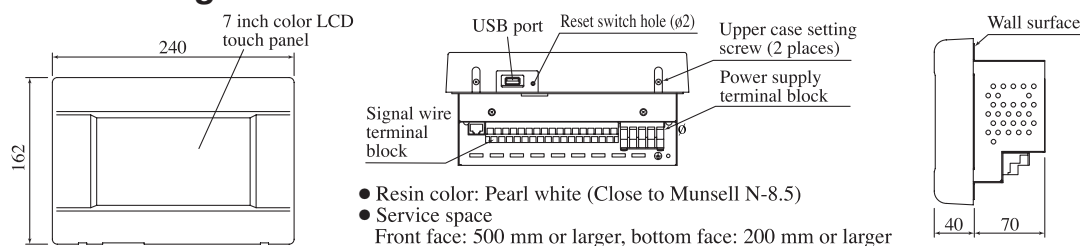
(6) Management and control

No.	Item	Description
1	Block definition	Sets the block name and constituting groups. Groups for the block registration need to be registered with the group definition beforehand. Any groups not set for blocks are not fit to the detail setting or status display from the all blocks display. Initially, all blocks is not defined. • Max. number of blocks is 16 blocks; max. number of groups per block is 9 groups. Max. number of characters in a block name is 16 characters.
2	Group definition	Sets the group name and constituting air-conditioners (max. 16 units/group), representative air-conditioner, setting or non-setting air-conditioners for batch control and demand control. Any air-conditioners not set to a group are excluded from the control of SL3N-AE (SL3N-BE). Initially, one air-conditioner is allotted to one group and the air-conditioner address No. is assigned to the group name. • Max. number of groups is 144 groups; max. number of air-conditioners per group is 16 air-conditioners. • Max. number of characters in a group name is 16 characters.
3	Unit definition ⁽¹⁾	Sets the calculation type and capacity of air-conditioners connected to this unit.
4	Time and date setting	Sets the clock (Hour (24-hour basis)/minute/date/month/year) used for schedule, etc.
5	Alarm history	Displays a maximum of 300 cases for the history of error occurrence and restoration in the unit of air-conditioner. This is erased if the power is turned off after restoring the power supply.
6	Accounting time zone setting ⁽¹⁾	Set the period for "Basic Period" used for calculation. All day of the week of all group becomes same setting.
7	Calculation data file update ⁽¹⁾	Run time and amount of operation for each air-conditioner are divided to "Basis Period" and "Overtime" accumulated at each minute and saved in the file at each 10-minute.
8	Demand control	Changes preset air-conditioners to "FAN" and "ALL Lock (Center)" with external demand signal. When the demand signal is cancelled, it returns to the state just before entering the demand control (operation mode and Lock/Unlock setting).
9	Emergency stop	Sets all air-conditioners connected to the unit at "STOP" and "ALL Lock (Center)" with external emergency signal. When the emergency signal is cancelled, Lock/Unlock setting is returned to original state and all units stay "STOP". But the group whose schedule is set follows the closest schedule before cancellation time. If there is no setting (displayed as "—") for RUN/STOP, operation mode, remote controller Lock/Unlock and temperature setting in the closest schedule time, the closest schedule before cancellation time is followed.
10	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 "—") for RUN/STOP, operation mode, remote controller Lock/Unlock and temperature setting 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 SL3N-AE (SL3N-BE) and so the display is updated according to the setting of air-conditioner. However, the remote controller Lock/Unlock setting is changed to ALL Unlock.
11	Power failure compensation ⁽²⁾	It compensates with the non-volatile memory the group definition, block definition, unit definition, yearly schedule setting, special date setting, "Basis Period" setting, function setting and accounting data files for 12 months.
12	System information	You can confirm system version, number of blocks, groups, air-conditioners and the current day's pulse input count from gas meter or wattmeter (*1) at "System Information" screen.

Notes (1) In case of SC-SL3N-BE

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

(6) Outline drawing



(7) 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.

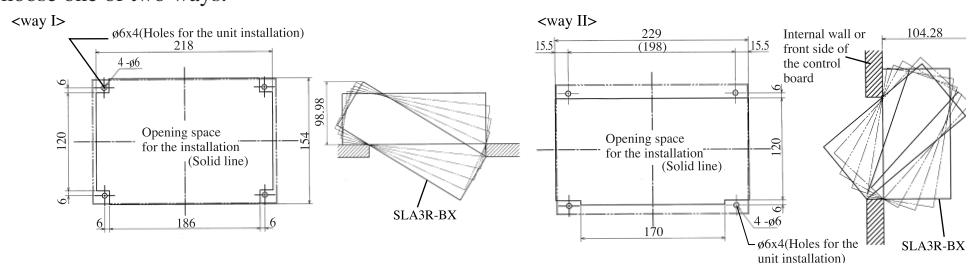
(a) Installation place

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.

(b) Space required for installation

Please choose one of two ways.

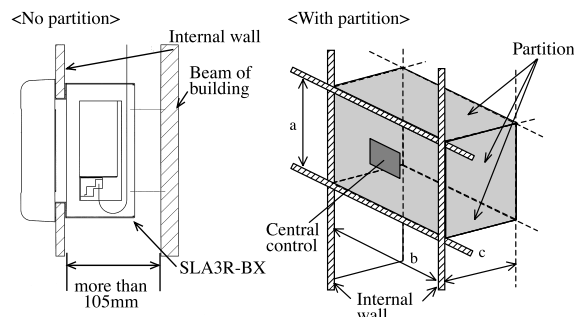


1) In case of installing on the control board

- Please use the control board of the size of 300mm x 400mm x 120mm or larger.
- Please be sure to lock the control board to protect persons from the 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 board. Also, do not install multiple controllers in the same control board. These can cause heat to build up and result in false operation. If multiple central control must be installed in the same control board, take corrective measures to ensure that the temperature in the control board does not rise above 40°C such as by installing cooling fans.



	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	

2) In case of embedding in a wall

Please be sure to use the special box, SLA3R-BX (sold separately) to secure sufficient air circulation space. If the box is unused, the central control will not work properly because of heat buildup inside the box.

Please be sure to use for protecting persons from the electric shock.

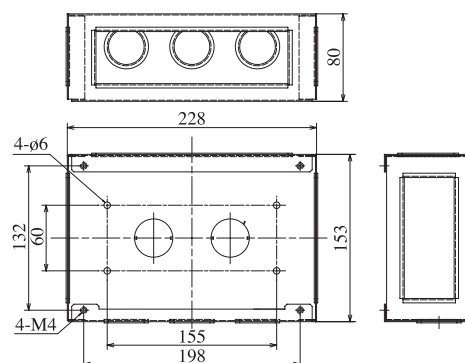
Please check that the sufficient space is available in the wall.

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 no partition on the left, right, top and bottom of the central control, please create a space that is 105mm or deeper.

When you cannot create the sufficient space or thickness of the wall is above 15mm, please install the central control on the control board.

● Outline drawing of SLA3R-BX



Wiring Specifications

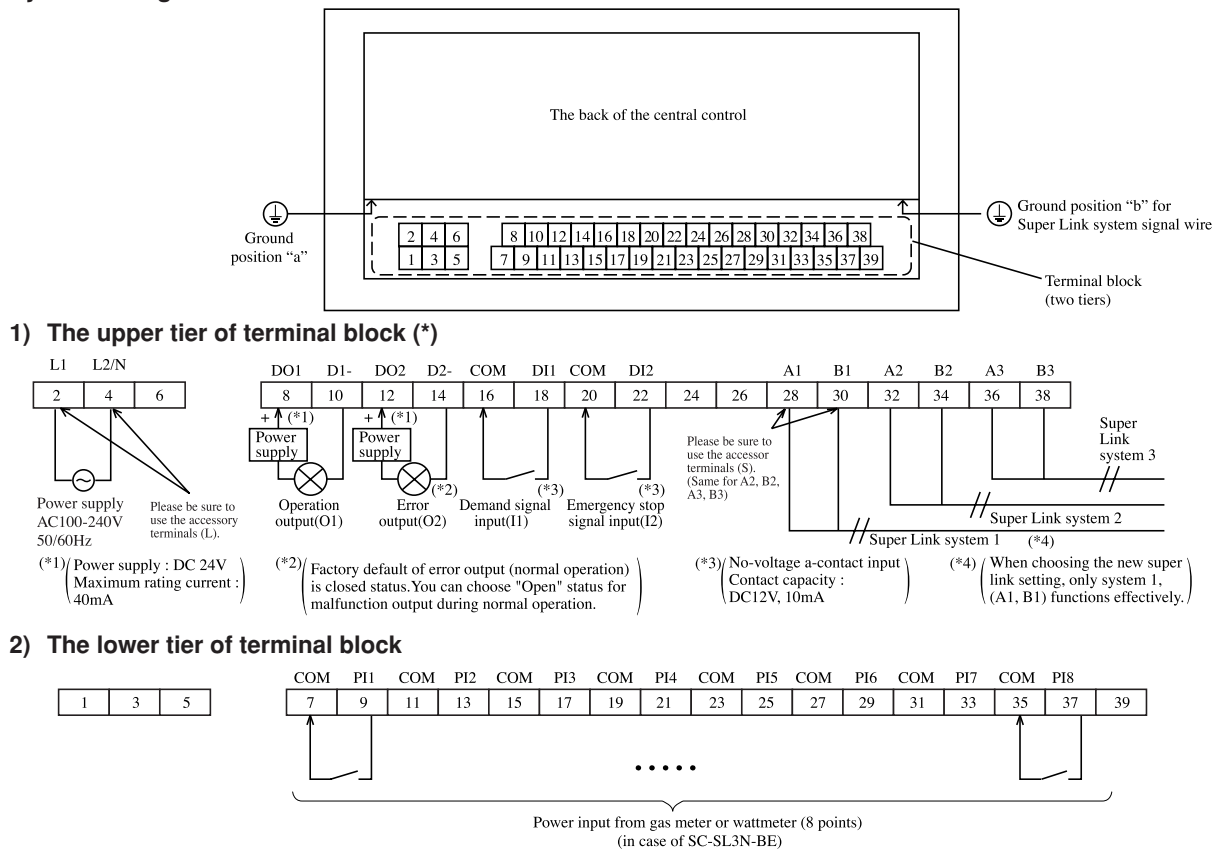
Power supply wire	1.25mm ²
Local switch	10A
Super Link signal wire (Note 1, Note 2)	Shielded wire (MVVS 2 - cores) 0.75mm ² - 1.25mm ² . Max. 1000m per network (Max. distance: 1000m, Total wire length: 1000m)
The wire for operation output, error output, emergency stop and demand input	CVV CPEV (2 - cores) 0.75mm ² - 1.25mm ² . Maximum length: 200m per system
The wire for gas meter or wattmeter	CVV CPEV (2 - cores) 0.75mm ² - 1.25mm ² . Maximum length: 200m
Grounding wire	0.75mm ² - 6mm ²

Notes (1) Ground both ends of the shielded wire.

(Please wire the ground of the central control at ⊕ Ground position "a" of "system wiring" in the diagram)

Notes (2) If the indoor and outdoor units connected to the network are all compatible units with new Super Link, a total wire length of 1500m per network 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 dealer.

(b) System wiring



Caution

Do not connect power supply 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 it turns on power.

Caution

Please connect the gas meter or the wattmeter 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 Super Link (SL) in the display of SL3N-AE (SL3N-BE). (See user's manual) It is necessary to change if the connection network is for previous Super Link. Whether the real connection network is new Super Link or previous Super Link depends on the type of connected indoor unit, outdoor unit, etc. Inquire the agents or dealers for more information.

When the new Super Link setting, 1 system can connect up to a maximum of 128 units. Be sure to connect wiring to the Super Link terminal 1 (A1, B1). Be careful not to connect to the Super Link system 2 or 3, as SL3N-AE (SL3N-BE) will not be recognized.

(c) **Reset switch**

There is a switch to reset the power supply when the screen freezes.

Data is never deleted with this switch.

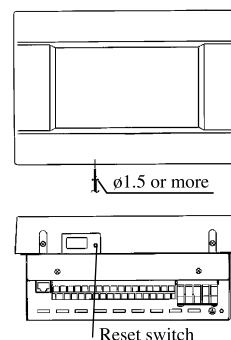
This central control will be reset in about 1 second.

Operating method

Please push the button which is the inner part of the small hole of the underside of the upper case using the clip which is extended straight or the tool which is similar to that.

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.



After checking the wiring and doing reset 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 this instruction manual stating.

(d) **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, and an action that does not require any external auxiliary energy source of electrical supply for its intended 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.
- The definitions of types of control are electrical control, automatic control, and operating control.
- The lifetime of the keying of touch panel is one million times. The lifetime of LCD is about 20,000 hours. (The brightness will become half of the starting value.)

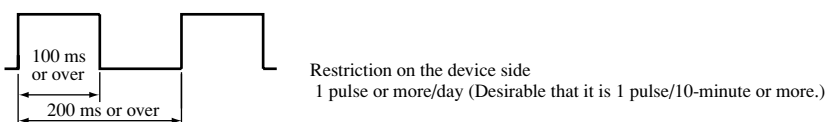
(9) About the accounting calculation

(a) **Selection of watt-hour meter (Gas flow-meter)**

To calculate the account, it is necessary to procure a watt-hour meter (gas flow-meter) at site. Select a meter according to the following items.

(b) **Selecting the pulse unit**

1) **Restrictions on the pulse input receiving side**



2) **Selecting the pulse unit**

- ① Calculate the total of power supply capacity required for the air-conditioners to be connected.
- ② Select provisionally an integrated wattmeter that fits to the requirement.
- ③ Maximum operating status of air-conditioner: Estimated overload condition expected in the summer season, for example:
If it is assumed to be the total power consumption $\times 1.2$;
Example) Provided the total power consumption status = 100 kW and the power factor = 90%
If max. operating status = $100 \times 1.2 = 120 \text{ kW}$, 3-phase, 200 V
 $I = 120 \times 1,000 / (1.732 \times 200 \times 0.9) = 385 \text{ A}$
→ The watt-hour meter needs to have a capacity of 400 A.
If we select an oscillation device from Mitsubishi's products of 400 A:
 - 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 a further small pulse unit, consult a watt-hour meter manufacturer.
- ④ Check for when the power consumption is 120 kWh (Example)
 - If 0.1 kWh/P is selected when the pulse input is the largest: 1,200 P/h = 20 P/min, which means it is 20 pulses/min, and so this is acceptable.
 - If the duty cycle decreases to 1/10 (12 kWh), for example; If 10 kWh/P is selected, 1.2 P/h = 0.02 P/min, which means that there is no pulse within 10 minutes. It becomes 28.8 pulses for a day. If 1 kWh/P is selected, it is 12 P/h = 0.2 P/min, which means that there are 2 pulses/10 minutes.
Since it is sufficient for the calculation if there is 1 pulse a day, it is possible to use 10 kWh/P. However, since it is likely to produce calculation errors depending on the duty cycle, it is better to use 1 kWh/P.

a) Maximum count number of power pulse input

Watt-hour pulse unit	0.01kWh/P	0.1kWh/P	1kWh/P	10kWh/P
Maximum measurable watt-hour	4,320kWh/day	43,200kWh/day	432,000kWh/day	4,320,000kWh/day
	180kWh/h	1,800kWh/h	18,000kWh/h	180,000kWh/h

b) Maximum count number of gas pulse input

Gas volume pulse unit	0.01m³/P	0.05m³/P	0.1m³/P	0.5m³/P
Maximum measurable flow rate	4,320m³/day	21,600m³/day	43,200m³/day	216,000m³/day
	180m³/h	900m³/h	1,800m³/h	9,000m³/h

If 2 m³/h is consumed at 0.05 m³/P, it is 40 pulses/h. If 10 m³/h is consumed at 0.5 m³/P, it is 20 pulses/h.

(c) Energy consumption calculation method

The base of calculation data is output as a file, which can be edited using one of spreadsheet software available from market, via USB memory. The base data are created on the monthly basis.

< Calculation procedure >

- Accumulate operation times of respective air-conditioners. (Per minute)
- Obtain the amount of operation for each air-conditioner (K_i) and accumulate it on the basis of time zone (within business hours, overtime hours) (Per minute)

$$K_i = K_i + K_M$$

K_M = : Amount of operation for air-conditioner per minute

Amount of operation is calculated with the following 3 methods. (Set the calculation method on the air-conditioner definition screen of SC-SL3N-BE.)

Amount of operation when the value converted to the rated expansion valve aperture of air-conditioner is E:

- MULTI 1 (Refrigerant flow rate):** Add a conversion value that takes into consideration the flow rate of refrigerant flowing through the indoor unit. ($\sum E_j$)
(E_j : Conversion value of indoor unit expansion valve aperture per minute)
- MULTI 2 (Thermostat ON/OFF):** Convert the time when refrigerant is flowing through the indoor unit and add. (Thermostat ON time $\times E$)
- RUN/STOP (Operation time):** Convert the state when the remote controller is turned ON and add the value. (Operation time $\times E$)
(E : Conversion value of indoor unit capacity per minute)

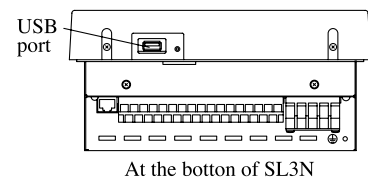
* Set the same watt meter (gas meter) system at the same type.

* If it is set at MULTI 1 or MULTI 2, indoor units in the fan mode are excluded from the proportional distribution.

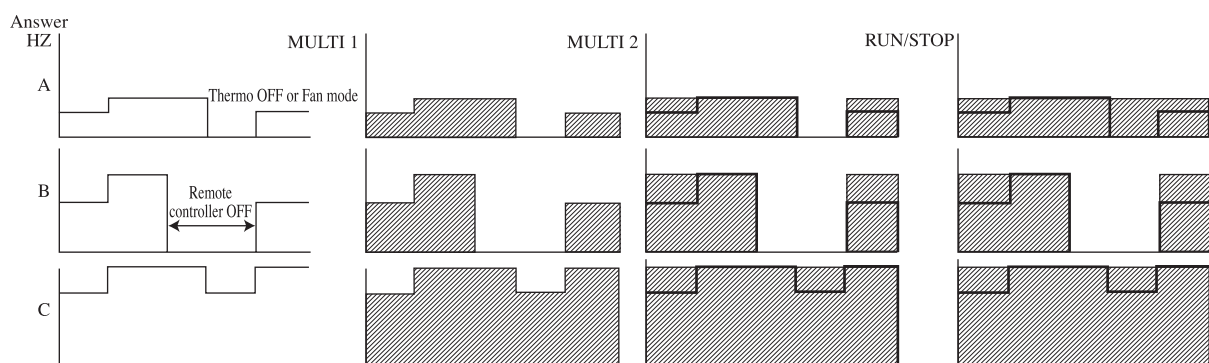
If you need to include the indoor units under the fan mode in the proportional distribution, set it to RUN/STOP.

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

- A simplified software to edit the accounting data is included in the accessories. Regarding the operating method, refer to the manual attached to it.
- The accounting data can be output via the attached USB memory.



(Example) Method of proportional distribution in case of indoor units A, B, C operating as follows
(the shaded part indicates the accumulated operating volume).



- ① In case of MULTI 1 setting: Conduct proportional distribution according to the results of a accumulated answer Hz. Accumulation is not performed when the thermo is OFF or during the Fan mode operation.

Indoor unit A	Indoor unit B	Indoor unit C
25Hz	40Hz	60Hz

Total value of operating volume

(Total value of answer Hz)

Operating volume of indoor unit A = accumulated pulse counts × power consumption per pulse × 25/125 (25 + 40 + 60)

Operating volume of indoor unit B = accumulated pulse counts × power consumption per pulse × 40/125

Operating volume of indoor unit C = accumulated pulse counts × power consumption per pulse × 60/125

- ② In case MULTI 2 setting: Conduct proportional distribution according to the Hz corresponding to the air conditioner capacity (capacity equivalent Hz: fixed value) and thermo ON operating time.

Capacity equivalent Hz: equivalent value of answer Hz when exerting the indicated capacity of indoor unit (fixed value determined according to capacity).

Different from ①, the fixed value is accumulated irrespective of the answer Hz. Accumulation is not performed when the thermo is OFF and during the Fan mode operation.

Indoor unit A	Indoor unit B	Indoor unit C
30Hz	50Hz	70Hz

Total value of operating volume

(capacity equivalent Hz × thermo On time)

Operating volume of indoor unit A = accumulated pulse counts × power consumption per pulse × 30/150 (30 + 50 + 70)

Operating volume of indoor unit B = accumulated pulse counts × power consumption per pulse × 50/150

Operating volume of indoor unit C = accumulated pulse counts × power consumption per pulse × 70/150

- ③ In case of RUN/STOP setting: Conduct proportional distribution according to the Hz corresponding to the air conditioner capacity (capacity equivalent Hz: fixed value) and remote controller ON time.

Same as ②, the capacity equivalent Hz (fixed value) is accumulated according to the remote controller ON time only. Accumulation is also performed when the thermo is OFF and during the air supply operation.

Indoor unit A	Indoor unit B	Indoor unit C
40Hz	60Hz	70Hz

Total value of operating volume

(capacity equivalent Hz × remote controller ON time)

Operating volume of indoor unit A = accumulated pulse counts × power consumption per pulse × 40/160 (40 + 60 + 70)

Operating volume of indoor unit B = accumulated pulse counts × power consumption per pulse × 60/160

Operating volume of indoor unit C = accumulated pulse counts × power consumption per pulse × 70/160

★User login

For owners the fee apportionment for multi machine air conditioners is more complicated and harder to explain to customers. In many cases it's best to use simple explanations.

In addition, consumption for multi machines are calculated based on volume, making it easy for excessive cooling and differences in building load to lead to discrepancies in electricity consumption. These different values are hard to explain. Therefore, it is easier to explain how many horsepower were used for how long.

At this point, recommend [RUN/STOP] registration

Both multi machines and single machines use [RUN/STOP] registration.

Recommend that separate electricity meters be installed for single machine and multi machine systems.

Display every unit of electricity (kW) on the electricity consumption board. For example, register P280H as 28.0.

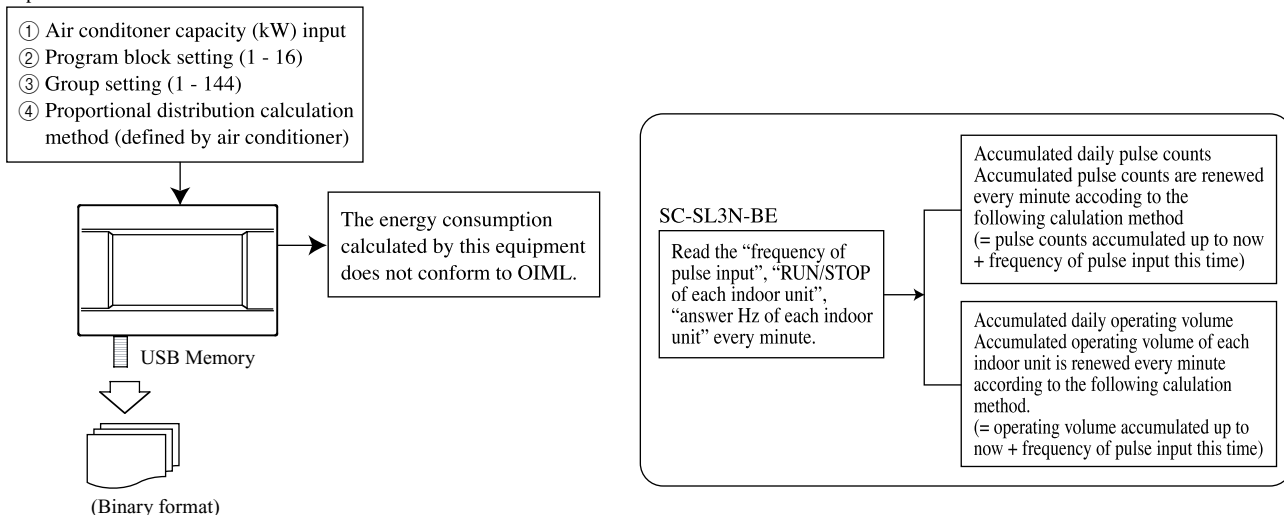
Current operational value = electricity volume × time of operation, calculated according to the electricity volume ratio.

(d) Software overview (SC-SL3N-BE Utility)

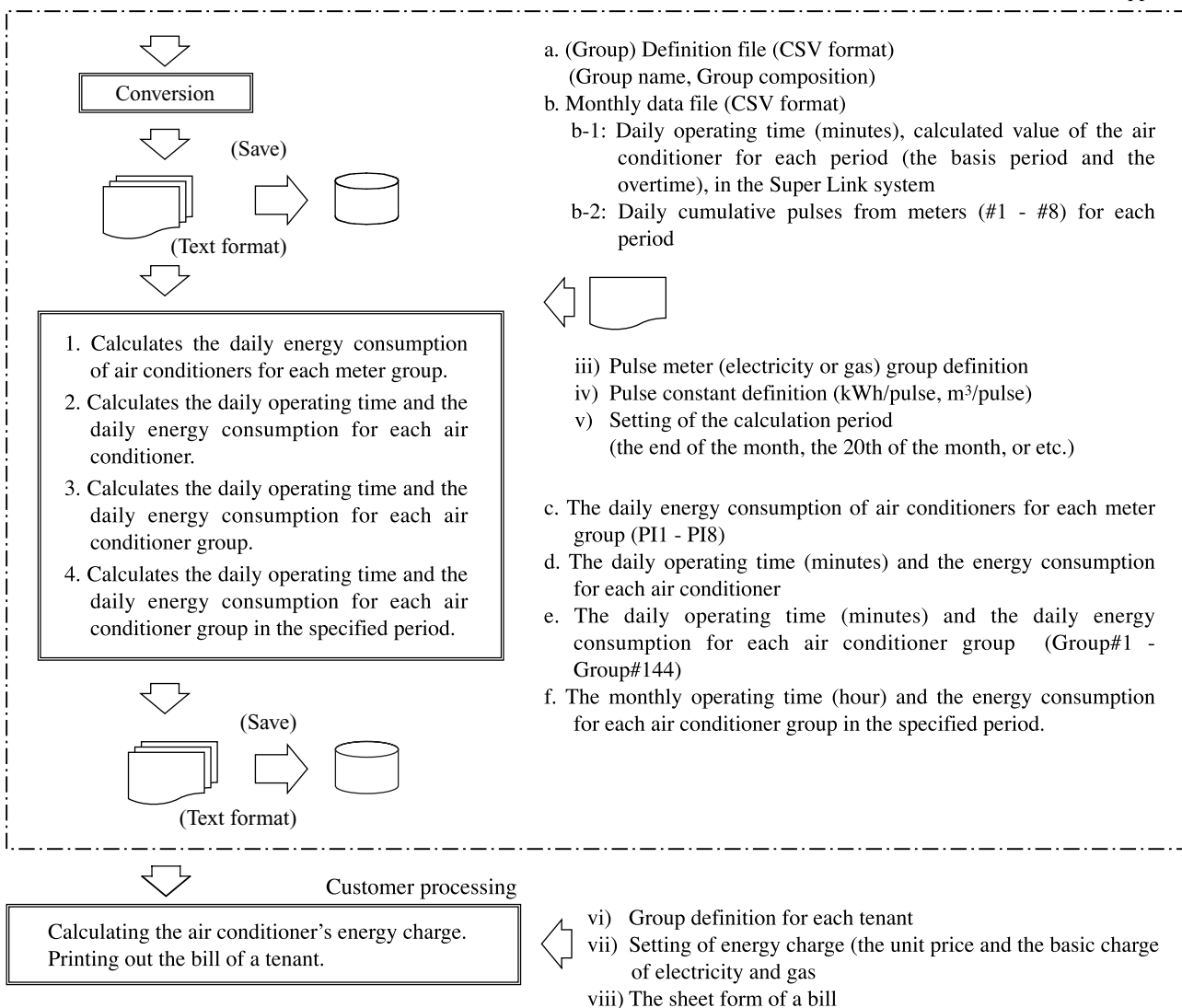
SL3N-BE Utility calculates the amount of energy consumption with air conditioner's running data saved by SC-SL3N-BE. The amount of energy consumption is divided proportionally day by day according to the operating ratio of the air conditioner, and it is calculated as the group total amount of energy consumption for every period.

1) Flow of data processing

Input to SC-SL3N-BE



This software supports.



2) Function outline

- Calculates and makes the monthly data file of the air conditioner's group energy consumption in the specified period.
 - The operating time and the energy (electricity and gas)consumption for each air conditioner's group.
 - The data file is saved by the CSV format. The air-conditioning charge calculation is possible by the spreadsheet software (Microsoft® Excel, etc.).
- Imports the definition file and monthly data files that are saved by SC-SL3N-BE, and converts to CSV format.
 - SL3N-BE Utility imports the group definition file and the monthly data file saved by SC-SL3N-BE via USB memory, and converts them into the CSV format.

3) Working environment

- Operating system
 - Microsoft® Windows® 2000 SP3, 4
 - Windows® XP
 - Windows Vista®
- Hardware
 - Pentium 300 MHz or greater
 - 128 MB RAM
 - 5 MB free hard disk space
 - 1 USB (1.1 or 2.0) port
- The screen size of SL3N-BE Utility is optimized by the following setup.
 - 800 × 600 resolution display
 - Small font size

4) End user agreement

This software is for using SC-SL3N-BE. Mitsubishi Heavy Industries, Ltd. (MHI) permits you to use two or more copies of this software on two or more computers.

This software and SC-SL3N-BE do not warrant the contents of the calculation result.

Please be sure to use a calculation result in the customer's responsibility.

MHI 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, MHI cannot warrant the data saved at your memory storage (hard disk, USB memory).

5) Installation instructions

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

(e) **Starting and quitting the software**

1) Starting the SL3N-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.1 will appear.

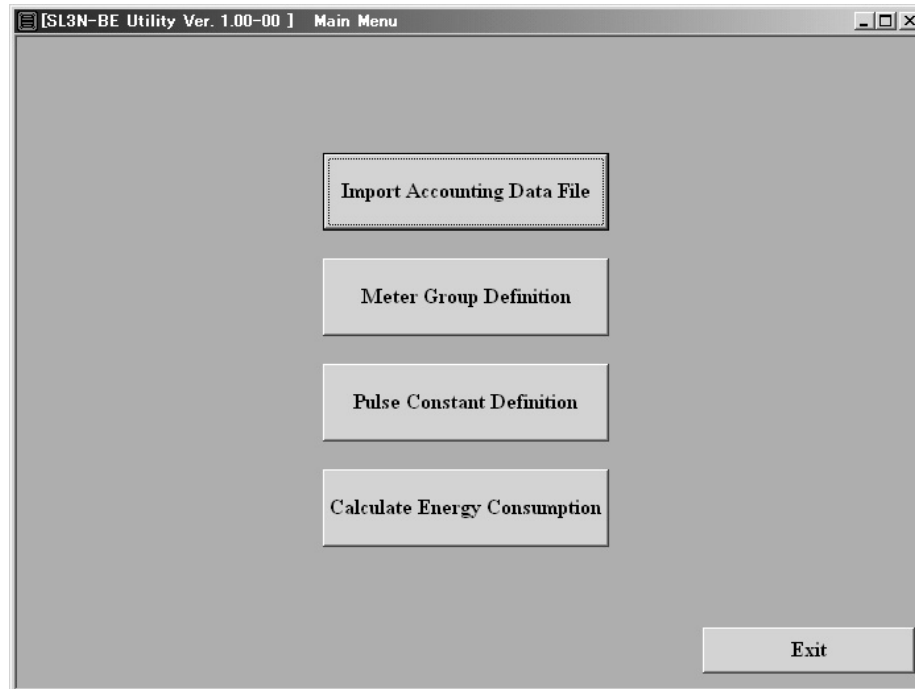


Fig.1 Main Menu screen

2) Quitting SL3N-BE Utility

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

3) Screen changes

The screen changes are shown in Fig.2.

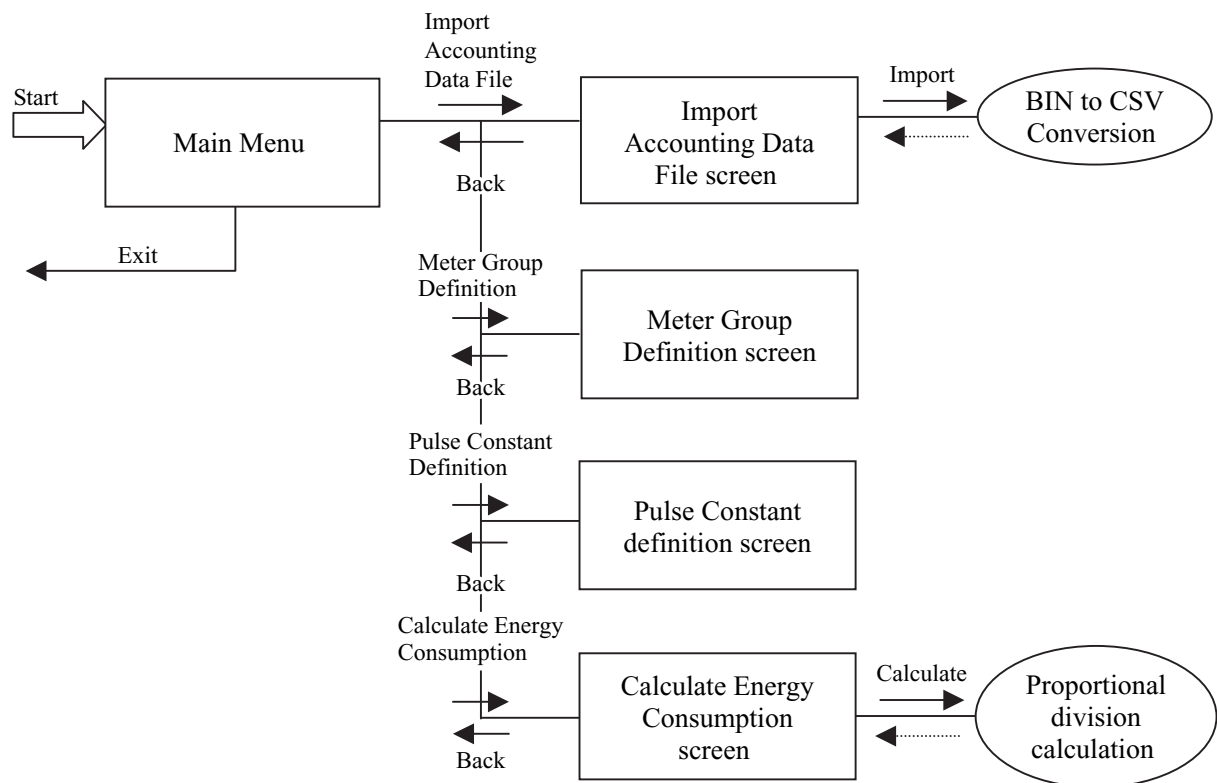


Fig.2 Screen changes and operation

6) Calculating energy consumption

a) Start the SL3N-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.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 SL3N-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-SL3N-BEs, don't skip Step2 and STEP3. You need to read ("Open") the setting of each SC-SL3N-BE's settings in Step2 and Step3.

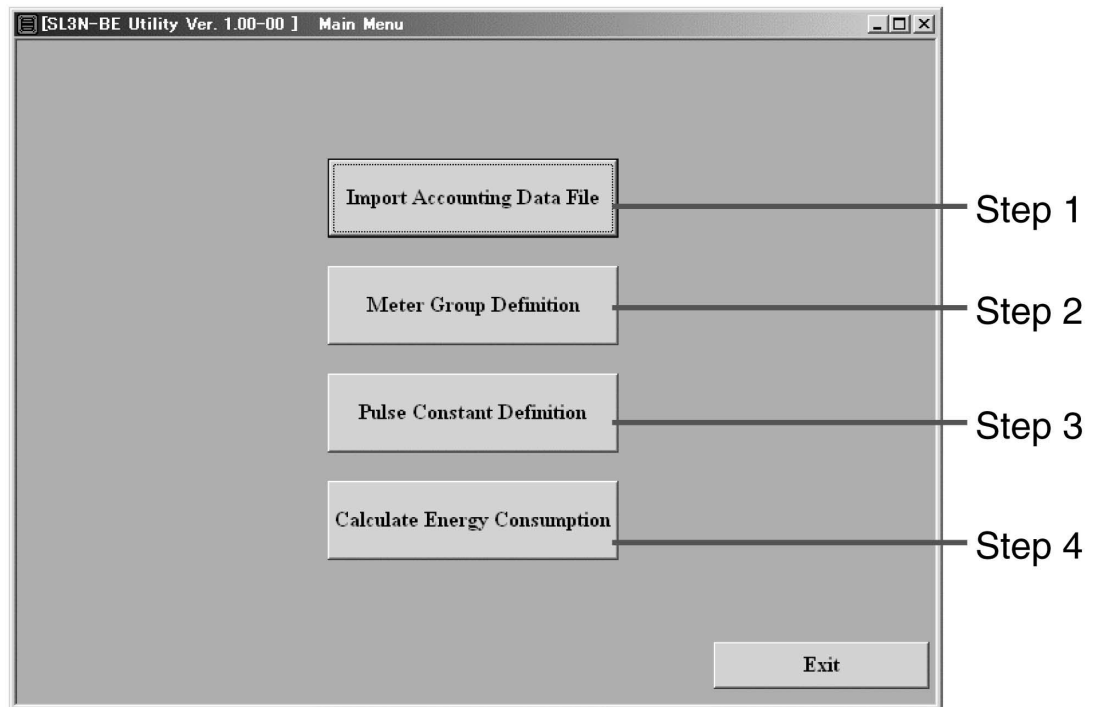


Fig.3 Main Menu screen

[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]: SL3N-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-SL3N-BE.
- (2) Insert the USB memory in your personal computer.
- (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.

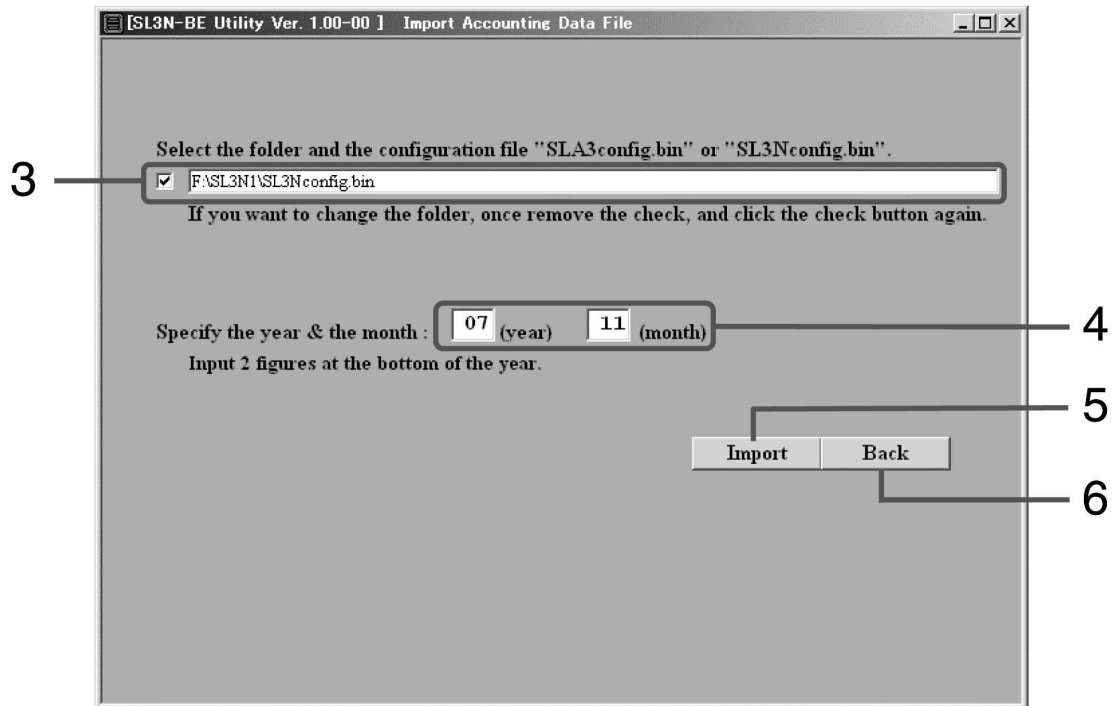


Fig.4 Import Accounting Data File screen

[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.5, and choose the file “SL3Nconfig.bin” (New Super Link) or “SLA3config.bin” (Previous Super Link).

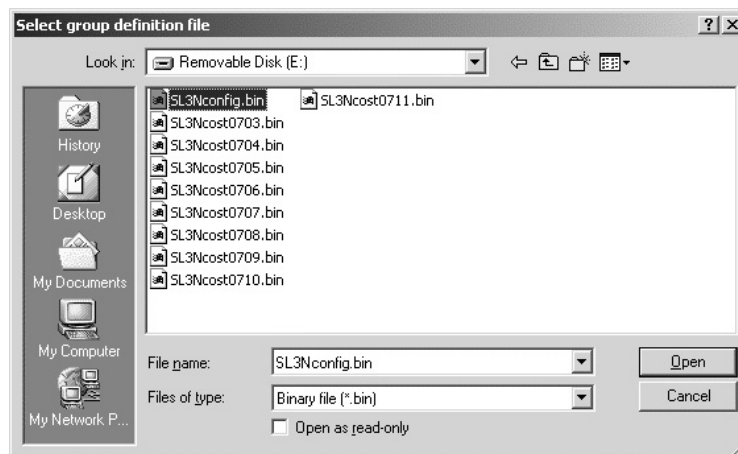


Fig.5 Select Group Definition File dialog box

- Importing Accounting Data Files

SL3N-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 Super Link system.

- File name (in case of New Super Link system):

SL3N1costYYMM.csv, SL3N2costYYMM.csv SL3N3costYYMM.csv, SL3N4costYYMM.csv

- File name (in case of previous Super Link system):

SL1SLA3costYYMM.csv, SL2SLA3costYYMM.csv

SL3SLA3costYYMM.csv

b-2: Daily cumulative pulses from meters (PI1-PI8) for each period.

- File name (in case of New Super Link system):

PLSSL3NcostYYMM.csv

- File name (in case of previous Super Link system):

PLSSLA3costYYMM.csv

These files are saved in the name of "DB" folder that installed the program "SL3N-BE Utility". If you have not changed the folder of the installation folder, the above files are placed into "C:/SL3NBEUtility/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

SL3N-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 Super Link system, "Unit No." shows the "Super Link" 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.

The screenshot shows the 'Meter Group Definition' window. It contains three tables, each with 'Unit No.' and 'Meter No.' columns. The first table (left) has units 000-015, the second (middle) has units 016-031, and the third (right) has units 032-047. Most 'Meter No.' entries are '123'. Below the tables is a row of buttons: 'New', 'Open', 'Save', 'Prev', 'Next', and 'Back'. Callout 1 points to the tables, callout 2 points to the button row, and callout 3 points to the right side of the window.

Unit No.	Meter No.
000	123
001	123
002	123
003	123
004	123
005	123
006	123
007	123
008	123
009	123
010	123
011	123
012	123
013	123
014	123
015	123

Unit No.	Meter No.
016	123
017	123
018	123
019	123
020	123
021	123
022	123
023	123
024	123
025	123
026	123
027	123
028	123
029	123
030	123
031	123

Unit No.	Meter No.
032	123
033	123
034	123
035	123
036	
037	
038	
039	
040	
041	
042	
043	
044	
045	
046	
047	

New Open Save Prev Next Back

Fig.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-SL3N-BEs**

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

1. Opening the definition file

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

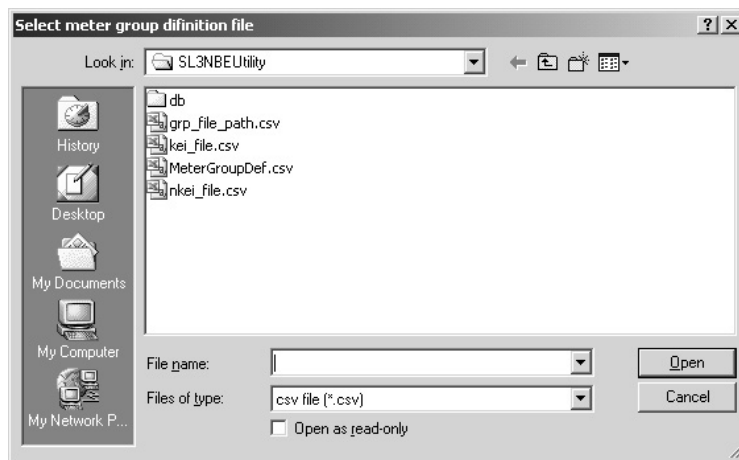


Fig.7 Select the definition file dialog box

2. Saving the definition file

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

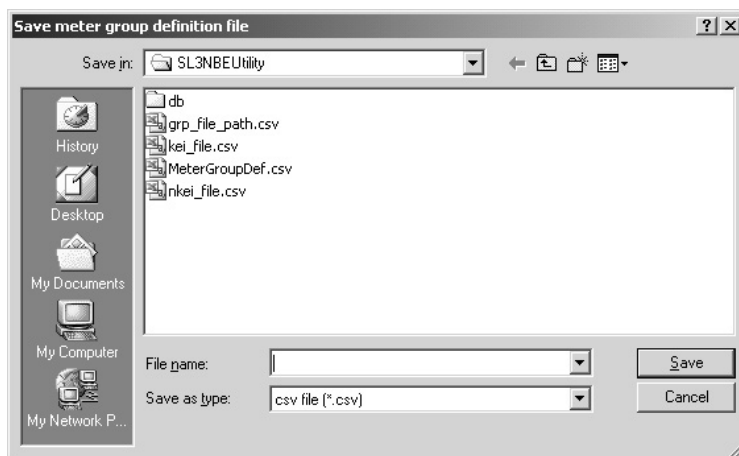


Fig.8 Save the definition file dialog box

Step 3: Set the Pulse Constant Definition

SL3N-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.

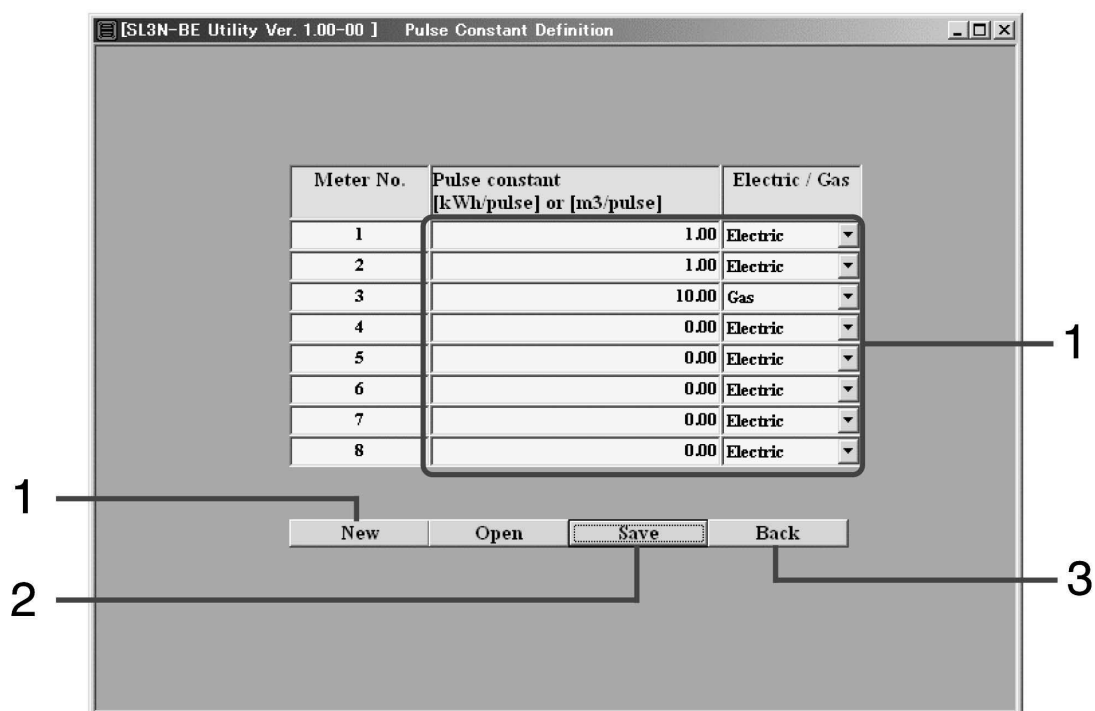


Fig.9 Pulse Constant Definition screen

[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-SL3N-BEs

- (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

SL3N-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.

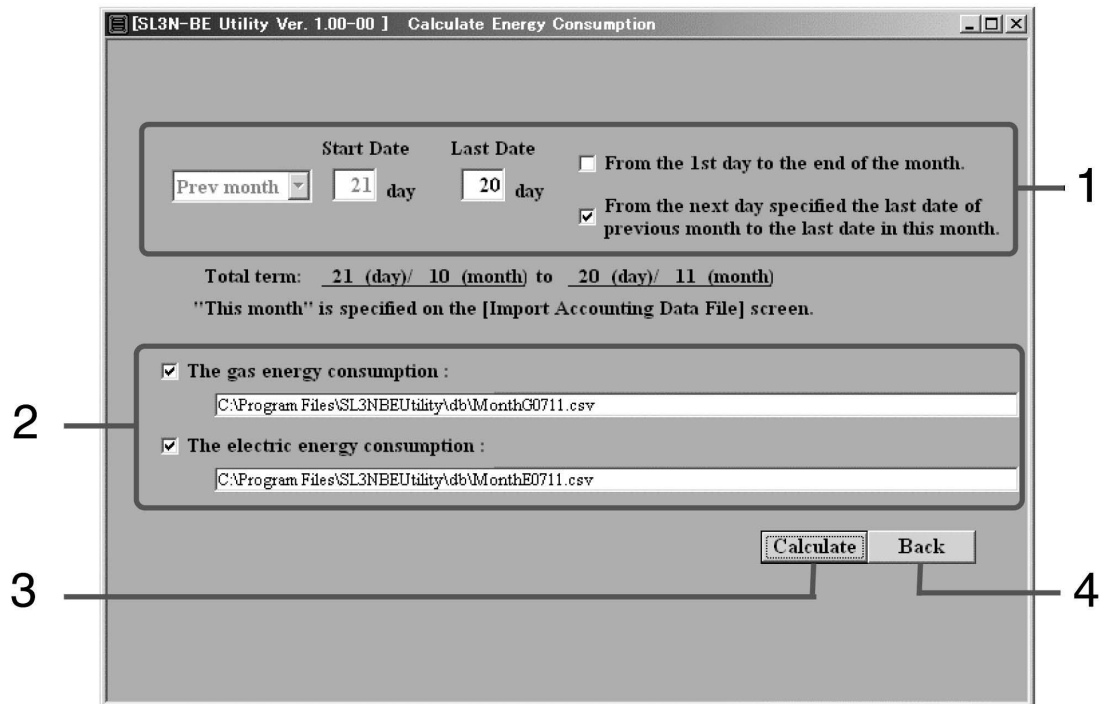


Fig.10 Calculate Energy Consumption screen

[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.

1. When you click the check box “The gas energy consumption”, Fig.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.

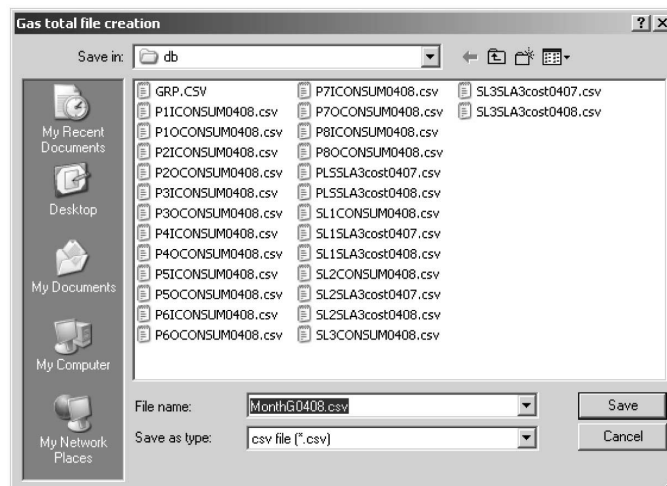


Fig.11 Input the file name dialog box

2. When you click the check box “The electric energy consumption”, Fig.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.

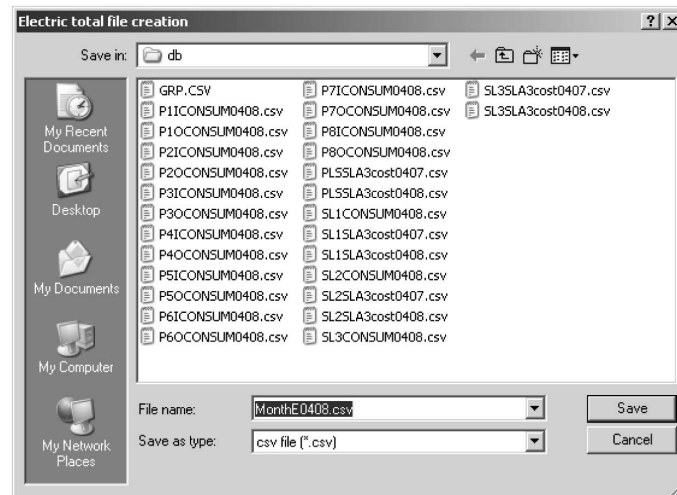


Fig.12 Input the file name dialog box

3. SL3N-BE Utility makes the following files as a calculation result.

- ① The energy consumption in basis period every Meter number:
 - File name: P1CONSUMYYMM.csv, P2CONSUMYYMM.csv, ..., P8CONSUMYYMM.csv
- ② The energy consumption in overtime period every Meter number:
 - File name: P1OCONSUMYYMM.csv, P2OCONSUMYYMM.csv, ..., P8OCONSUMYYMM.csv
- ③ The running time and energy consumption every indoor unit:
 - File name (in case of New Super Link system):
SL3N1CONSUMYYMM.csv, SL3N2CONSUMYYMM.csv,
SL3N3CONSUMYYMM.csv, SL3N4CONSUMYYMM.csv
 - File name (in case of previous Super Link system):
SL1CONSUMYYMM.csv, SL2CONSUMYYMM.csv,
SL3CONSUMYYMM.csv <Note 1>
- ④ The running time and energy (electricity and gas) consumption for every group:
 - File name (in case of New Super Link system):
NGRP1CONSUMYYMM.csv, NGRP2CONSUMYYMM.csv,
NGRP3CONSUMYYMM.csv, NGRP4CONSUMYYMM.csv
 - File name (in case of previous Super Link system):
GRPCONSUMYYMM.csv <Note 1>
- ⑤ The Monthly Energy Consumption file:
 - Default file name (you can change): MonthGYMM.csv, MonthEYYMM.csv

These files are saved in the name of “DB” folder that installed the program “SL3N-BE utility”. If you have not changed the folder of the installation folder, the above files are placed into “C:/SL3NBEUtility/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.

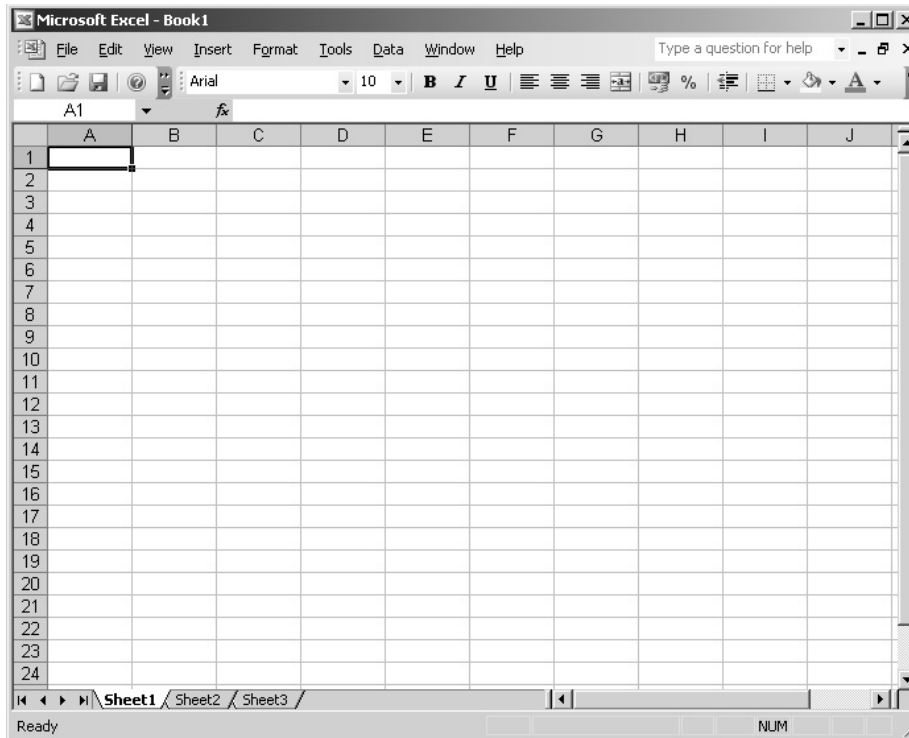
Appendix 1. The image of the Monthly Energy Consumption file

*** C:\Program Files\SLB3Utility\db\MonthE0503. csv (02/05 - 03/14)

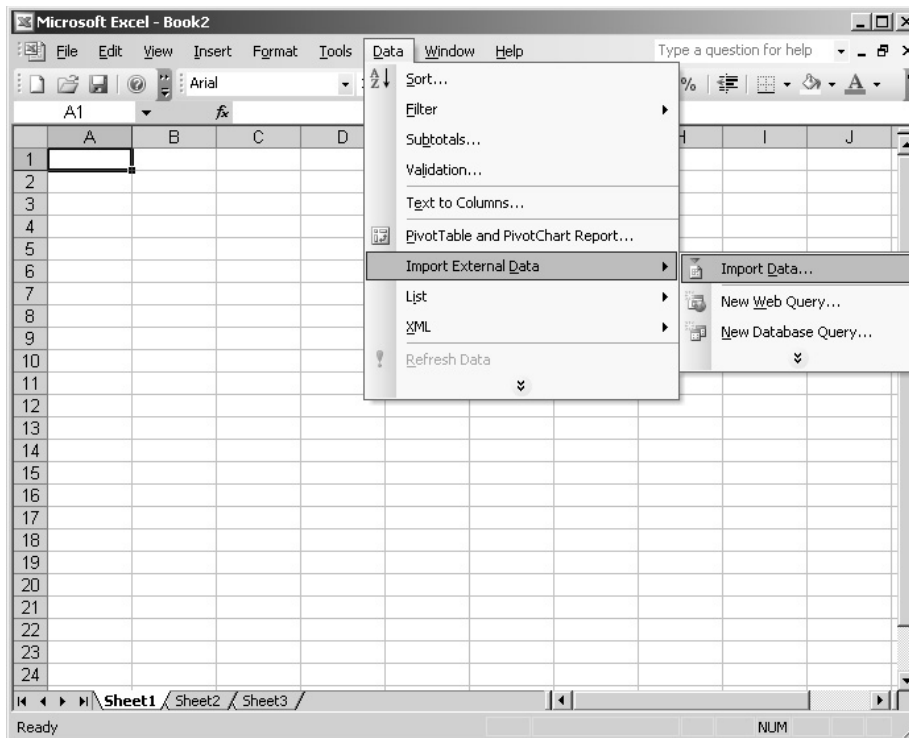
Group No	Group Name	Basic Period [H]	Overtime [H]	Basic Period [kWh]	Overtime [H]
1	1F ENTRANCE GATE	0.0	0.0	0.000	0.000
2	1F ENT. HALL STH	0.0	0.0	0.000	0.000
3	1F ENT. HALL NRTH	0.0	0.0	0.000	0.000
4	1F ENT. HALL EST	870.0	0.0	1595.992	0.000
5	2F ENTRANCE ELV.	31.7	0.0	65.959	0.000
6	2F PASSAGE NORTH	650.8	0.0	1119.757	0.000
7	2F PASSAGE SOUTH	1057.4	0.0	1657.156	0.000
8	3F ENTRANCE ELV.	287.1	0.0	471.401	0.000
9	3F PASSAGE NORTH	806.7	0.0	1226.261	0.000
10	3F PASSAGE SOUTH	388.2	0.0	654.044	0.000
11	4F ENTRANCE ELV.	3.2	0.0	5.689	0.000
12	4F PASSAGE NORTH	484.2	0.0	868.573	0.000
13	4F PASSAGE SOUTH	485.4	0.0	1124.734	0.000
14	5F ENTRANCE ELV.	133.2	0.0	326.014	0.000
15	5F PASSAGE NORTH	169.3	0.0	325.835	0.000
16	5F PASSAGE SOUTH	434.6	0.0	874.511	0.000
17	6F ENTRANCE ELV.	0.0	0.0	0.000	0.000
18	6F PASSAGE NORTH	623.4	0.0	1129.392	0.000
19	6F PASSAGE SOUTH	647.5	0.0	1100.648	0.000
20	7F ENTRANCE ELV.	211.5	0.0	322.490	0.000
21	7F PASSAGE NORTH	535.8	0.0	809.279	0.000
22	7F PASSAGE SOUTH	615.0	0.0	1124.523	0.000
23	8F ENTRANCE ELV.	0.0	0.0	0.000	0.000
24	8F PASSAGE NORTH	462.1	0.0	710.040	0.000
25	8F PASSAGE SOUTH	462.1	0.0	710.040	0.000
26	MHIE OFFICE #1	171.0	0.0	293.380	0.000
27	MHIE OFFICE #2	490.0	0.0	1012.432	0.000
28	MHIE OFFICE #3	7.7	0.0	11.402	0.000
29	MHIE CONF. ROOM 1	267.8	0.0	458.081	0.000
30	MHIE CONF. ROOM 2	267.9	0.0	458.081	0.000
31	MHIE CONF. ROOM 3	0.1	0.0	0.000	0.000
32	MHIS OFFICE #1	0.4	0.0	0.000	0.000
33	MHIS OFFICE #2	219.3	0.0	3.681	0.000
34	MEE OFFICE #1	438.4	0.0	7.362	0.000
35	MEE OFFICE #2	437.3	0.0	6.248	0.000
36	MEE OFFICE #3	218.7	0.0	3.124	0.000
37	MEE OFFICE #4	124.5	0.0	173.841	0.000
38	MCFE OFFICE #1	0.0	0.0	0.000	0.000
39	MCFE OFFICE #2	0.0	0.0	0.000	0.000
40	MLP-UK OFFICE #1	0.0	0.0	0.000	0.000
41	MLP-UK OFFICE #2	0.0	0.0	0.000	0.000
42	MLP-UK OFFICE #3	0.0	0.0	0.000	0.000
43	MLP-UK OFFICE #4	0.0	0.0	0.000	0.000
44	MC OFFICE #1	0.0	0.0	0.000	0.000
45	MC OFFICE #2	0.0	0.0	0.000	0.000
46	MC OFFICE #3	0.0	0.0	0.000	0.000
47	MC OFFICE #4	0.0	0.0	0.000	0.000
48	MC CONF. ROOM 701	0.0	0.0	0.000	0.000
49	MC CONF. ROOM 702	0.0	0.0	0.000	0.000
50	MC CONF. ROOM 703	0.0	0.0	0.000	0.000
51	MC CONF. ROOM 710	0.0	0.0	0.000	0.000
52	MC CONF. ROOM 711	0.0	0.0	0.000	0.000
53	unused				
54	unused				
55	unused				
56	unused				
57	uhused				
58	unused				
59	unused				

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

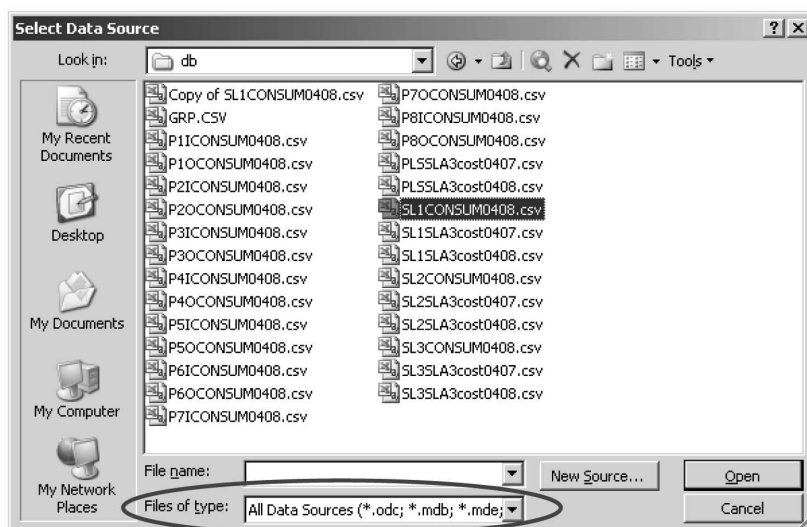
- 1) Open a new file and move a cursor to the position where you want to locate.



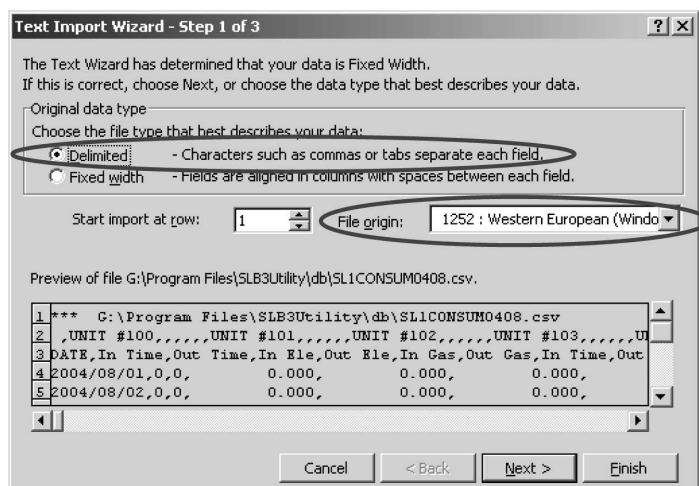
- 2) Choose the "Import External Data" menu and the "Import Data..." menu in the menu bar.



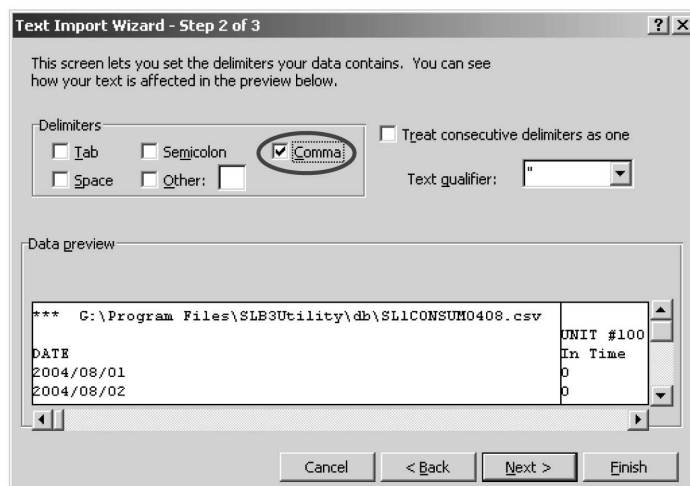
- 3) Select “All Files (*.*)” in the the “Files of type” and choose the CSV file which you want to read. Click the “Open” button.



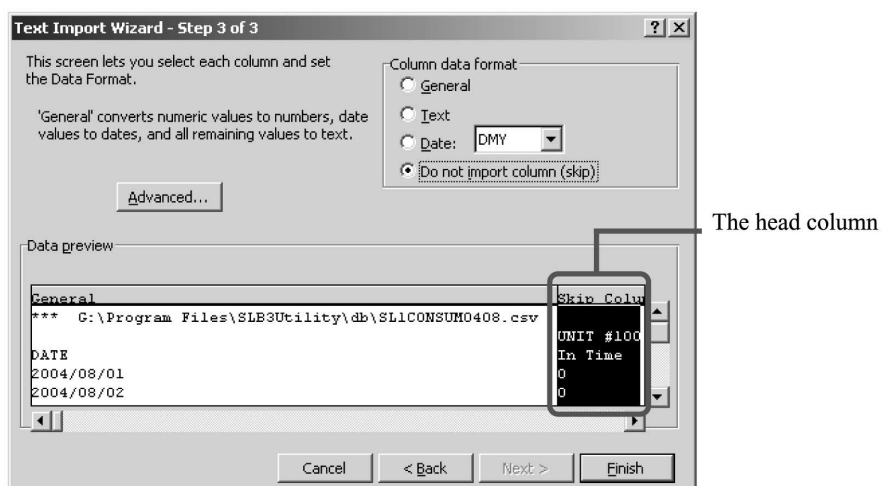
- 4) Select the “Delimited” option button and the file format “Western European” in the “File origin” drop-down, and click [Next >] button.



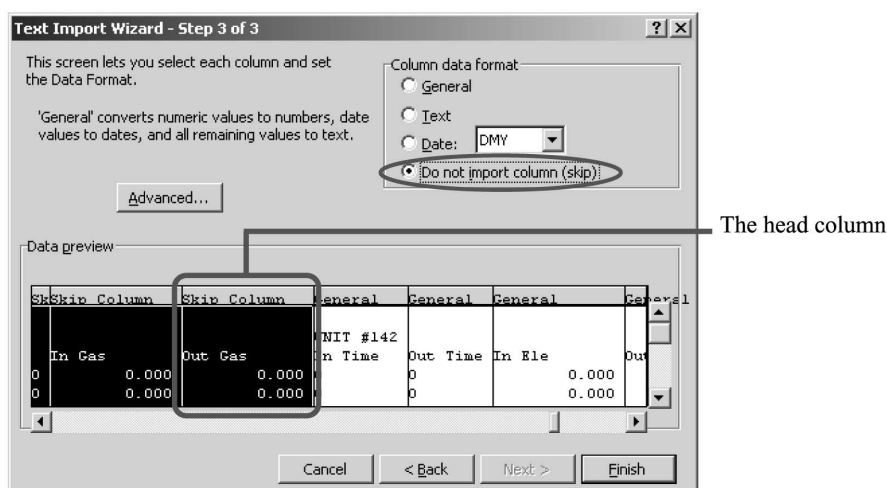
- 5) Select “Comma” in the “Delimiters” section of the dialog box, and click [Next >] button.



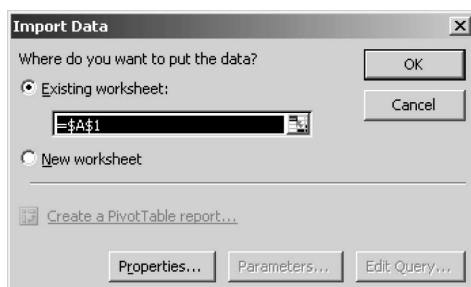
- 6) Click the head column to exclude under the “Data preview”.



- 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.

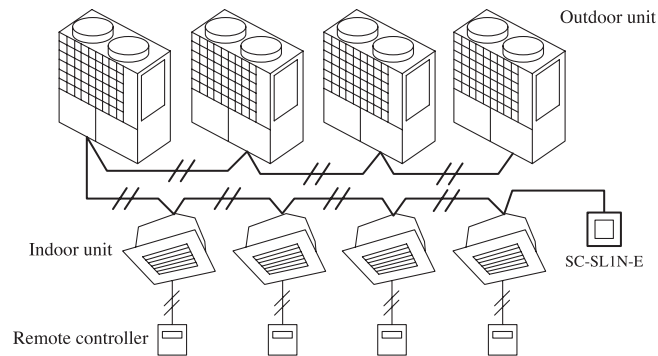


- 8) Click [OK] button. The data in the CSV file will be imported to Excel sheet.

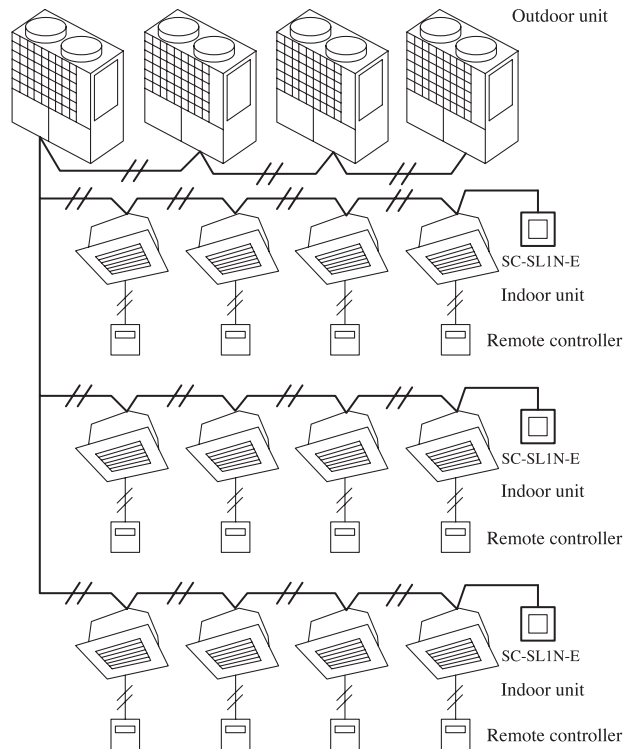


4 CONNECTION EXAMPLE

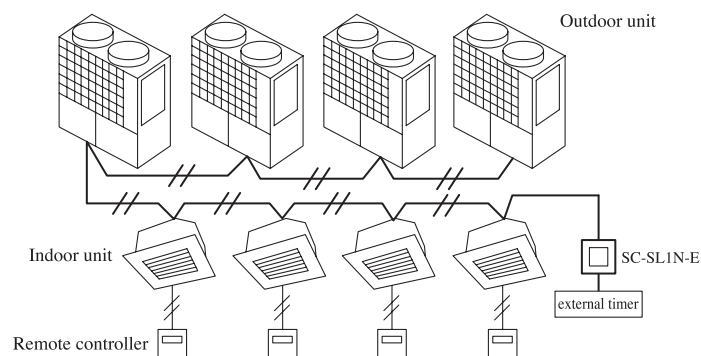
Example 1: One unit of central control SC-SL1N-E can control the start/stop of indoor units up to 16 units individually or simultaneously. It is necessary, however, to use the remote controller together.



Example 2: Plural number of SC-SL1N-E can be used on a network. (This allows controlling on the basis of each floor in an office building, for example.)

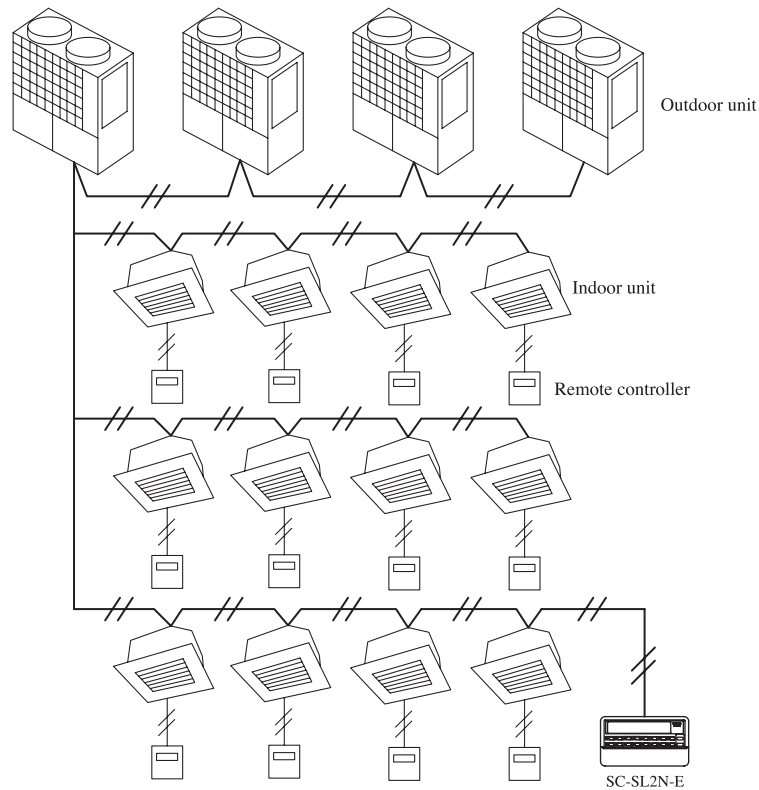


Example 3: Central control SC-SL1N-E may be started/stopped externally using an external timer or the like. All indoor units subject to the control are started or stopped at the same hour.



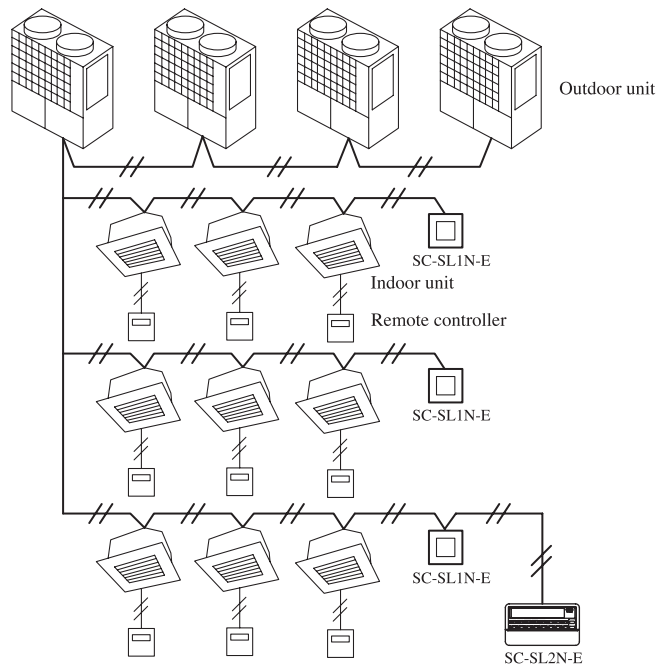
Example 4: One unit of central control SC-SL2N-E can control the indoor units up to 64 units with the individual, group, simultaneous RUN/STOP, temperature setting, air-flow volume setting, or other controls. Setting can be made up to 16 groups.

Note (1) Part or whole remote controllers may be abbreviated.



Example 5: Plural number of SC-SL2N-E may be connected to a network (indoor units up to 128 units). Since it is possible to use mixed with SC-SL1N-E, SC-SL2N-E may be used for the central control and SC-SL1N-E for the RUN/STOP at each floor.

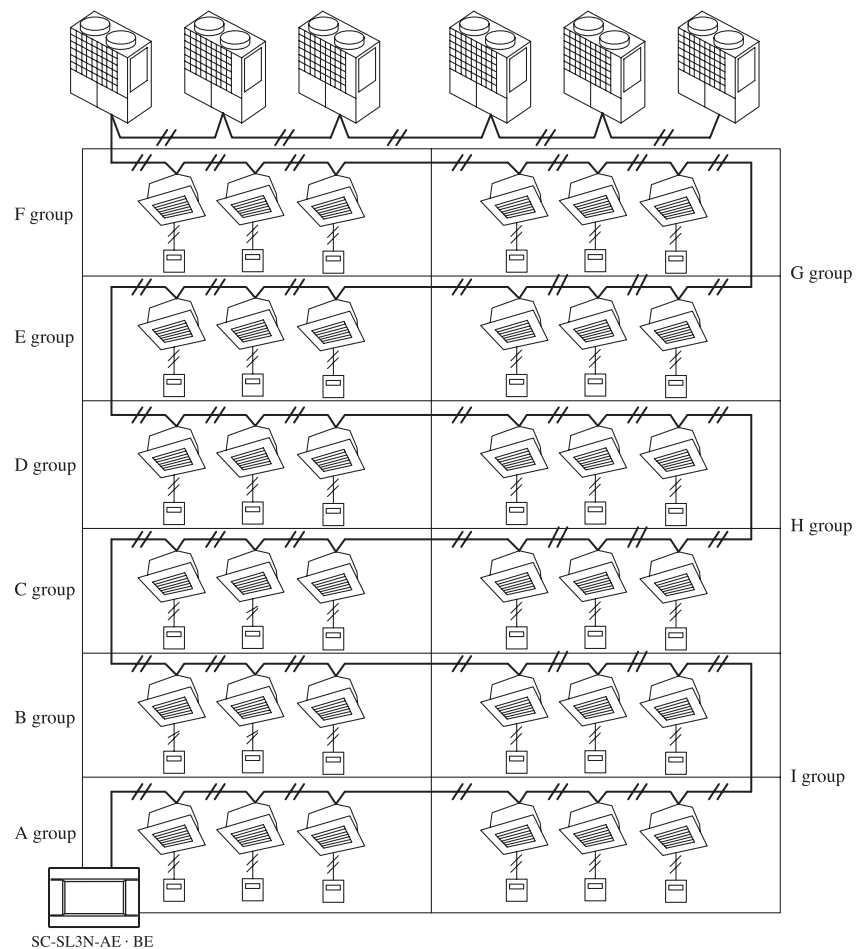
Note (1) Number of units allowed for mixing is as shown below.



Example 6: Up to 128 groups, which are set optionally with the central control SC-SL3N-AE can be controlled on the basis of each group.

Note (1) A pair of center consol SC-SL3N-AE may be connected on the Super Link.

(2) Part or whole remote controllers may be abbreviated.



AIR CONDITIONING CONTROL SYSTEM



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