

MHI

Manual No. '04•SC-T-095

**TECHNICAL MANUAL
& PARTS LIST**

DRAFT

AIR CONDITIONING CONTROL SYSTEM

CENTER CONSOLE

SLA-3-E (SC-SLA3-E)

SLB-3-E (SC-SLB3-E)

(1) Model used all super lynk related models

Name	Model	Remark
Center Console SLA-3-E SLB-3-E	SC-SLA3-E SC-SLB3-E	If the SLA-3-E and SLB-3-E is buried, it should be installed in a separately sold box (SLA3-BX).

(2) Specifications

Model		SLA-3-E, SLB-3-E ⁽⁹⁾
Item		
Ambient temperature during use		0 ~ 40 °C
Power supply		1 Phase 100V/200~240V 50Hz
Power consumption		23W
External dimensions (Height × Width × Depth)		162mm × 240mm × 108mm
Net weight		2.2kg
Maximum number of connectable units (Indoor units)		Maximum 48 units/system × 3 systems = 144 units
LCD touch panel ^{(4), (5)}		Color LCD, 7 inches wide
Inputs	SL (Super lynk) Signal inputs	3 systems
	Gas, Power pulse input ⁽²⁾	8-point pulse width 100 ms or more
	Fire signal input ⁽²⁾	1 point non-voltage a contact input continuous input (closed, forced stop)
	Demand signal input ⁽²⁾	1 point non-voltage a contact input continuous input (closed, demand control)
Outputs	Simultaneous operation output	1 point maximum rated current 40 mA, 24 V During full stop; Open, If even 1 unit is operating; Closed
	Simultaneous error output	1 point maximum rated current 40 mA, 24 V Normal; closed, If even one unit is abnormal; Open ⁽⁶⁾
Concomitant use of other central control units		(8)

Notes (1) Some functions cannot be used depending on the indoor model used. (Refer to page 3)

(2) The receiving side power supply is DC 12 V (10 mA).

(3) If a cost calculation function is necessary, use the SLB-3-E.

(4) The LCD has an endurance of approximately 32,000 hours, depending also upon the backlight OFF time setting.

(5) The touch panel has an endurance of approximately 1 million times.

(6) In the environment setting screen, it is also possible to change the batch error output setting as open for normal and closed for error.

(7) The air conditioning charges calculations of this unit are based on OIML, the international standard.

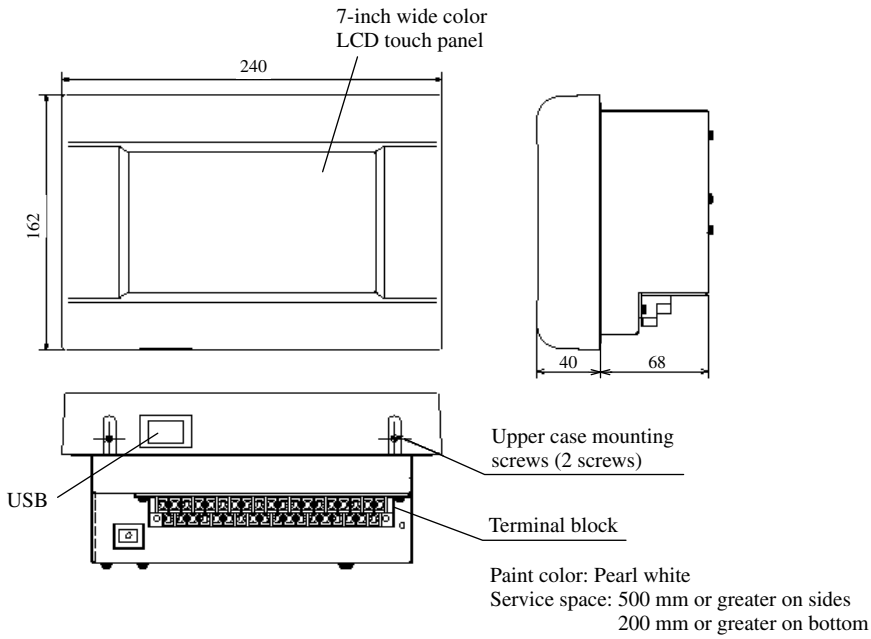
(8) • The center console SLA-2A-E can be connected 1 unit per system.

• It cannot be combined with the center console SLA-1-E and SLA-200 series, the CHC-M※ Series, SC-WGW-A or SC-L IF-A-E.

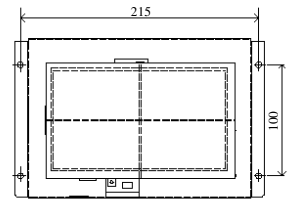
• Multiple SLA-3-E and SLB-3-E units cannot be connected on the same network.

(9) SLB-3-E cost calculation results cannot be guaranteed.

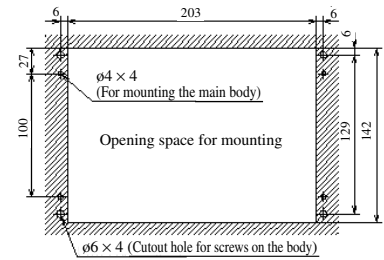
(3) External view



• Mounting hole positions



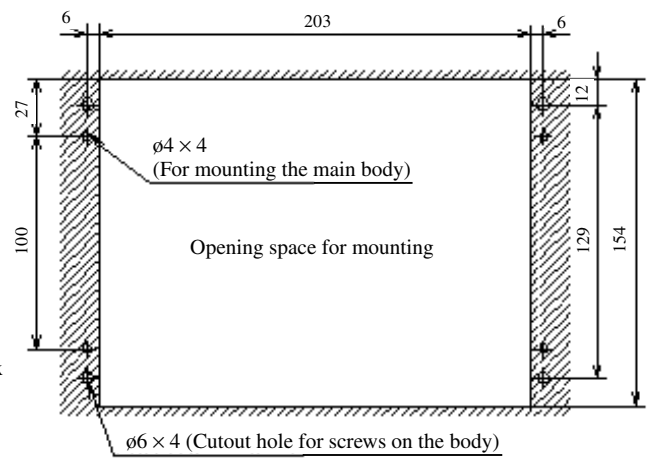
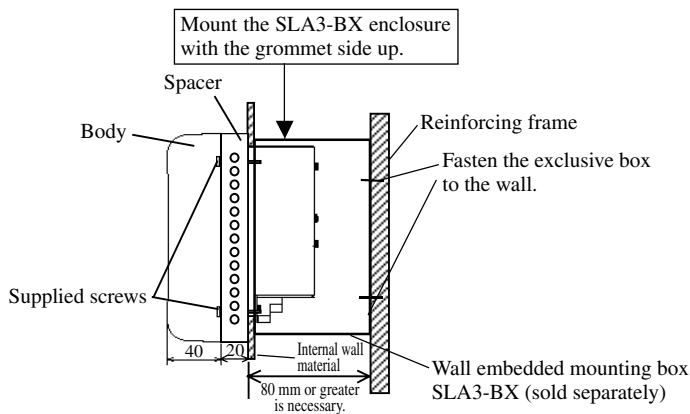
• Required opening space if unit is mounted in an enclosure



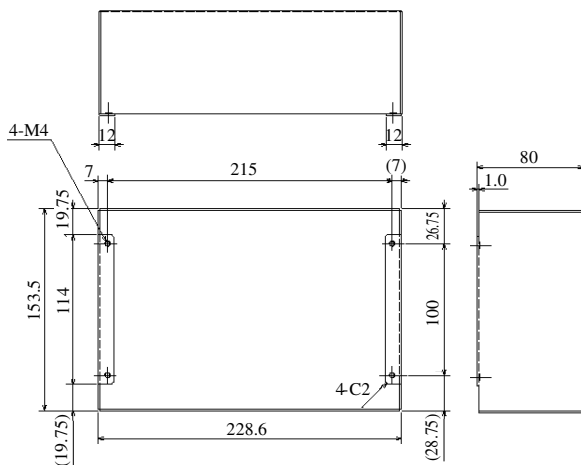
(4) Embedded in a wall

If it is embedded in a wall, space is needed for the following installation dimensions and the opening.

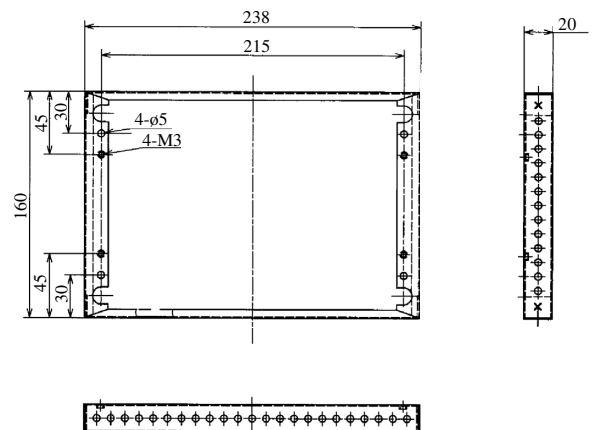
Note (1) If you embed it, the exclusive enclosure (SLA3-BX), sold separately, is required.



• External dimensions of wall embedded box (SLA3-BX)



• External dimensions of spacer for wall embedded box (accessory for SLA3-BX)



(5) Functions

(a) Operation, Settings

Carries out batch operation and settings in group units for up to 144 groups. It is necessary that the groups for which batch operation and settings are carried out be set in advance.

No.	Item	Contents
1	Run/Stop	Starts or stops operation.
2	Mode	Sets COOL, HEAT, DRY, FAN and AUTO operation.
3	Set temperature	Sets the temperature in a range of 18°C ~ 30 °C (in 1°C units). (For heating only, it is possible to set the temperature at 16°C.)
4	Operation permitted/prohibited ⁽¹⁾	Enables or disables manual operation, enables or disables run/stop operations, enables or disables mode setting and enables or disables temperature setting.
5	Fan speed	Sets Hi, Me or Lo fan speed.
6	Air direction	Sets auto swing ON or OFF and sets positions 1 ~ 4 for auto swing.
7	Filter reset	Resets (turns off) the filter sign.

Note (1) The enable or disable function for each function is enabled connections with KXE4 or subsequent indoor unit models and in combination with new remote controllers (RC-E1 or subsequent models).

(b) Status monitor

Status monitoring is carried out in block units (only monitored operating state and breakdown), group units or air conditioner units.

No.	Item	Contents
1	Operating state	Monitors the operating and stopped state of the air conditioner. When 1 or more units is running, it shows operation and when all units are stopped, it shows that operation is stopped.
2	Mode	Displays the operating mode of a representative air conditioner.
3	Set temperature	Displays the set temperature of a representative air conditioner.
4	Room temperature	Displays the intake air temperature of a representative air conditioner.
5	Operation enabled	It shows whether manual operation, the run and stop operation, mode setting and temperature setting are enabled or disabled of a representative air conditioner.
6	Fan speed	Displays the fan speed setting for a representative air conditioner.
7	Air direction	Displays the auto swing ON/OFF setting and position setting for a representative air conditioner.
8	Filter sign	Displays the filter sign if the filter sign for one or more units is lighted up. When the filter sign is off for all units, the monitor's filter sign goes off.
9	Maintenance (Periodic inspections 1, 2, backup)	Displays the maintenance indicator when the <Inspection 1, 2 or backup> lights up on 1 or more units. When <Inspection 1, 2 or backup> is off on all units, the maintenance indicator goes off. There are 3 types of periodic inspection, 1, 2 and backup. The display priority order for these three types is as follows. Backup > Inspection 1 > Inspection 2
10	Breakdown	Displays the breakdown indicator when one or more units has broken down. When all units are normal, the breakdown indicator goes off.

(c) Setting the schedule

The operation schedule can be set in group units. In one day, up to 16 schedules can be registered for operation time, run/stop, mode, operation enable, and temperature settings. Operation time settings can be set in minute units.

No.	Item	Contents
1	Yearly schedule	Set the schedule for cue year as weekdays, holidays, special day 1 and special day 2.
2	Today's schedule	Sets the schedule that will be valid for the current day only. This schedule has priority over annual schedules.
3	Special day shedule	Sets each schedule of weekday, holiday, special day 1 and special day 2 in the yearly schedule.

(d) Administration, Control

No.	Item	Content
1	Block definition	Sets the block name and the groups constituting the block. The groups registered in a block must first be registered by group definition. Groups that are not set in blocks cannot be set in detail from the display of all blocks or their status displayed. <ul style="list-style-type: none"> • Maximum blocks are 16 • Maximum number of groups per block is 9 • Maximum number of characters in a block name is 8 double byte characters (16 single byte characters) The initial state is with all blocks not defined.
2	Group definition	Sets the group name and the air conditioners constituting the group (up to 16 units per a group), a representative air conditioner, and whether the group is controlled simultaneously or not. Air conditioners which are not set in groups are not subject to control by SLA-3-E or SLB-3-E. <ul style="list-style-type: none"> • Maximum groups are 144 • Maximum number of air conditioners per group 16 • Maximum number of characters in a group name 8 double byte (16 single byte) In the initial state, 1 air conditioner is assigned to 1 group, and the air conditioner number is for the group name.
3	Type of accounting definition	The capacity of each air conditioner connected to SLB-3-E, and whether it is subject to demand control or not, are set.
4	Time and data setting	Sets the clock used for the schedule, etc. Annual (Anno Domini) / Month / Day / Hour (24 hr. system) / Minute
5	Alarm history	Displays the error occurrence and recovery history for up to 300 occasions in air conditioner units.
6	Accounting period	Sets the “regular hours” time bands used for accounting.
7	Cost calculation cumulative operation time	Calculates the cumulative operating hours for each air conditioner, dividing them between “regular hours” or “irregular hours,” and saves them.
8	Demand control	“Starts the fan” or “Prohibits operation” for air conditioners which have previously been set by external demand signals. The air conditioners return to their original status when the demand signals are cancelled.
9	Emergency stop	Causes all the air conditioners connected to this unit to “Stop” or “Prohibits operation” in response to an external emergency signal. When the emergency signal is cancelled, the air conditioners return to their original setting permitting or prohibiting manual operation, but all unit remain in the “Stop” state.
10	Power failure recovery control	When the power is turned on again after a power failure, the groups set in the schedule operate in accordance with the schedule that was set most recently prior to the power failure. If Run/Stop, the operating mode, operation permitted and set temperature items are not set and “-----” is displayed for that item, the time is set to the time that was closest to the time of the power recovery. If there is no schedule setting for the affected date, the air conditioner is set to its initial state.

(e) Accounting data (SLB-3-E)

SLB-3-E outputs accounting data. using USB memory. These data can be edited using commercial spreadsheet software.

Cost calculation data are created for each individual month.

<Calculation procedure>

- ① The cumulative operating time is calculated for each air conditioner. (in minutes)
- ② The total operating time (Ki) for each air conditioner, and the operating time in each time band (regular hours, irregular hours) are calculated (in minutes).

$$K_i = K_i + K_M$$

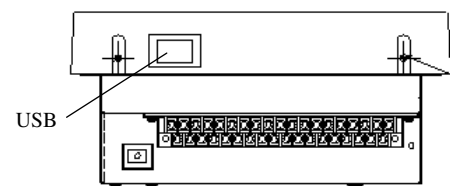
K_M = Amount of air conditioner operation in 1 minute.

The amount of operation is calculated by the following 3 methods.

The amount of operation in the case calculated for the rated opening area value for that air conditioner, E.

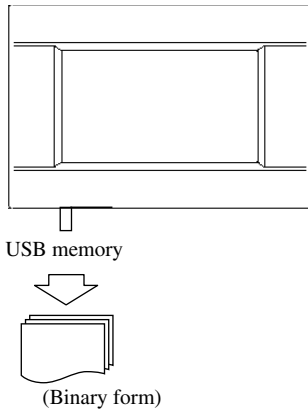
- MULTI 1: The conversion value considering the amount of refrigerant flowing in the indoor unit is calculated ($\sum E_j$).
(E_j : Conversion value for the opening angle of the indoor unit’s expansion valve.)
- MULTI 2: The time that refrigerant flows through the indoor unit is additionally calculated. (Thermostat ON time \times E)
- RUN/STOP: A conversion value for the time when the remote controller is ON is added. (Operating time \times E)
(E: Conversion value for the capacity of the indoor unit.)
(Do not mix different methods in the same pulse system.)

- Simple software is included for editing the accounting data.
See the included software concerning the operation method.
- Accounting data are obtained from this unit using the USB memory.



Bottom of the unit

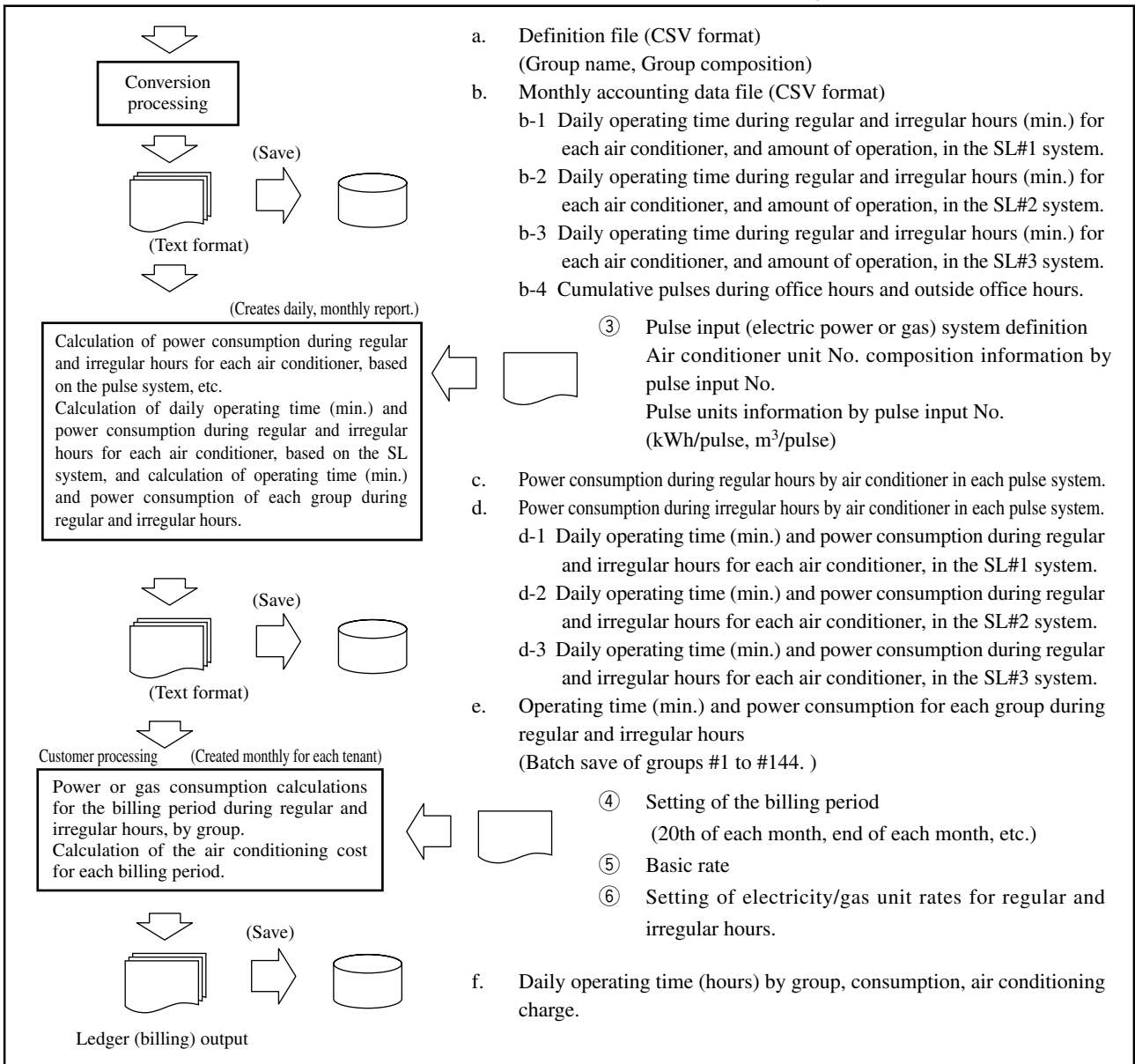
<Flow of data processing>



The air conditioning charge calculations using this equipment are not in accordance with OIML.

- ① Definition file
(Group name, group composition)
- ② Monthly accounting data files
Air conditioner operating time during regular hours and irregular hours for each day, amount of operation time during regular and irregular hours, pulse count value during regular and irregular hours.

Range of the software with SLB-3-E

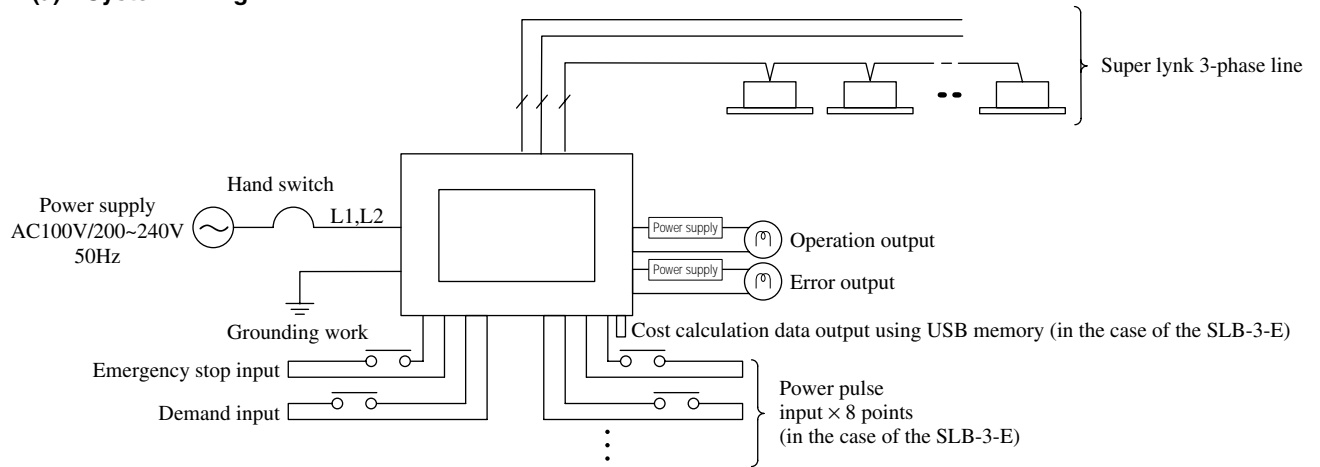


Note (1) The cost calculation results for the SLB-3-E are not guaranteed.

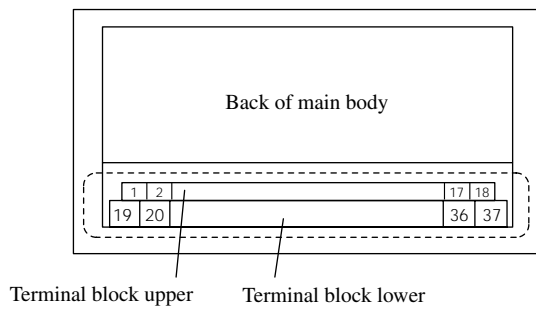
(6) Electrical wiring

- Be sure to carry out grounding. Do not run the ground wire to a gas pipe, water pipe, electric meter, or telephone ground line.
- Do not turn on the power until all construction operations are completed (manual switches).

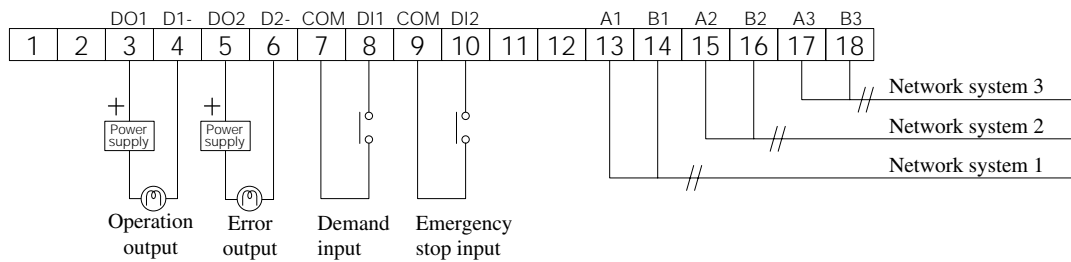
(a) System wiring



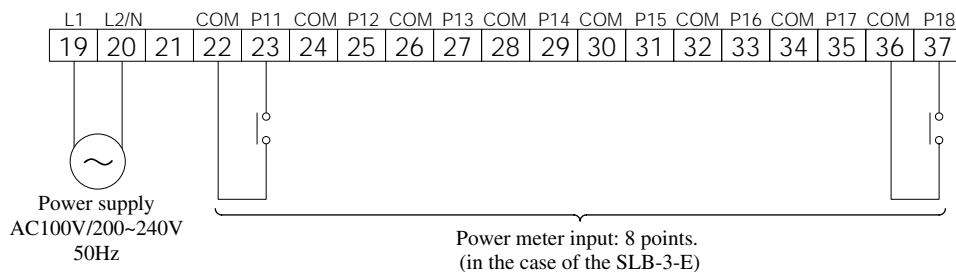
(b) The terminal block has 2 tiers.



• Terminal block upper



• Terminal block lower



Note (1) Do not connect the power lines to another terminal block. If a mistake is made in the connections, electrical components will be damaged or destroyed and it will be extremely dangerous. Check the wiring once again thoroughly before turning on the power for the first time.

(2) Use an electric meter that satisfies the following specifications.

- A meter with a pulse generator.
- The pulse width should be 100 ms or greater.

(c) **Signal wire for super lynk**

- Size; 0.75mm² ~ 2.0mm²
- The total length of the signal wires should be 1000m or less. (per line)
- **Recommended signal wire list**

No.	Name	Symbol
1	Vinyl cabtire rounq cord	VCTF double-core 0.75 to 2 mm ²
2	Vinyl cabtire round cable	VCT double-core 0.75 to 2 mm ²
3	Control vinyl insulated, vinyl sheathed cable	CVV double-core 0.75 to 2 mm ²
4	Shielding wire	MVVS double-core 0.75 to 2 mm ²

When No. 4 shielding wire is used, always ground the single wire side of the shielding wire. In addition, using the shielding wire is helpful to prevent the incorrect connection between 5V DC and 220/240V AC because the discrimination from the power supply wire is clear.

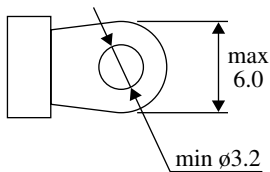
(d) **Other signal wire**

- Size; 0.75mm² ~ 1.25mm²
- Maximum extension: 200m

(e) **Power supply wire**

- Size; 1.25mm²

(f) **Conformity round eye-let terminal**



(7) **PARTS LIST (Main parts)**

No.	Parts Name	Parts No.	
		SC-SLA3-E	SC-SLB3-E
1	CONTROL UNIT	PJZ501A040D	PJZ501A040F
2	FRONT PANEL	PJZ142A061D	PJZ142A061F
3	CD-ROM	—	PJZ549A001

AIR CONDITIONING CONTROL SYSTEM

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