

MITSUBISHI ELECTRIC

Building Air Conditioning Control System

System Remote Controller

Installation Manual

PAC-SF41SCA



This manual describes only installation for the centralized controller (System Remote Controller PAC-SF41SCA), capable of controlling up to 50 air-conditioning or Lossnay units (max. 32 groups). For information about how to wire and how to install air conditioning units, see the installation manual for them. For your safety, first be sure to read "1 Safety Precautions" described below thoroughly and then install the System Remote Controller PAC-SF41SCA correctly.

1 Safety Precautions

The following two symbols are used to denote dangers that may be caused by incorrect use and their degree:

WARNING This symbol denotes what could lead to serious injury or death if you misuse the PAC-SF41SCA.

CAUTION This symbol denotes what could lead to a personal injury or damage to your property if you misuse the PAC-SF41SCA.

After reading this installation manual, keep it in a place where the final user can see it anytime he or she wants to it. When someone moves, repairs or uses the PAC-SF41SCA, make sure that this manual is forwarded to the final user.

WARNING

Ask your dealer or technical representative to install the unit. Any deficiency caused by your own installation may result in an electric shock or fire.

Install in a place which is strong enough to withstand the weight of the PAC-SF41SCA. Any lack of strength may cause the PAC-SF41SCA to fall down, resulting in personal injury.

Firmly connect the wiring using the specified cables. Carefully check that the cables do not exert any force on the terminals. Improper wiring connections may produce heat and possibly a fire.

Never modify or repair the PAC-SF41SCA by yourself. Any deficiency caused by your modification or repair may result in an electric shock or fire. Consult with your dealer about repairs.

Ensure that installation work is done correctly following this installation manual. Any deficiency caused by installation may result in an electric shock or fire.

All electrical work must be performed by a licensed technician, according to local regulations and the instructions given in this manual. Any lack of electric circuit or any deficiency caused by installation may result in an electric shock or fire. Ask your distributor or special vendor for moving and installation.

Do not move and re-install the PAC-SF41SCA yourself. Any deficiency caused by installation may result in an electric shock or fire. Ask your distributor or special vendor for moving and installation.

To dispose of this product, consult your dealer.

CAUTION

Do not install in any place exposed to flammable gas leakage. Flammable gases accumulated around the body of PAC-SF41SCA may cause an explosion.

Do not use in any special environment. Using in any place exposed to oil (including machine oil), steam and sulfuric gas may deteriorate the performance significantly or give damage to the component parts.

Wire so that it does not receive any tension. Tension may cause wire breakage, heating or fire.

Completely seal the wire lead-in port with putty etc. Any dew, moisture, insects entering the unit may cause an electric shock or a malfunction.

Do not wash with water. Doing so may cause an electric shock or a malfunction.

Do not install in any place at a temperature of more than 40°C or less than 0°C or exposed to direct sunlight.

Do not install in any steamy place such as a bathroom or kitchen. Avoid any place where moisture is condensed into dew. Doing so may cause an electric shock or a malfunction.

Do not install in any place where acidic or alkaline solution or special spray are often used. Doing so may cause an electric shock or malfunction.

Use standard wires in compliance with the current capacity. A failure to this may result in an electric leakage, heating or fire.

Do not touch any PCB (Printed Circuit Board) with your hands or with tools. Do not allow dust to collect on the PCB. Doing so may cause fire or an electric shock.

Do not remove the insulation sheet on the PCB. Doing so may cause an electric shock.

Do not touch any control button with your wet hands. Doing so may cause an electric shock or a malfunction.

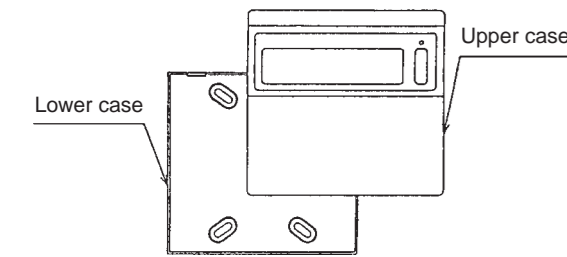
Do not press any control button using a sharp object. Doing so may cause an electric shock or a malfunction.

Never contact the power supply with the control wiring terminals. Doing so will certainly cause the controller to catch fire.

2 Confirming the Supplied Parts

Check that the box contains the following parts in addition to this manual:

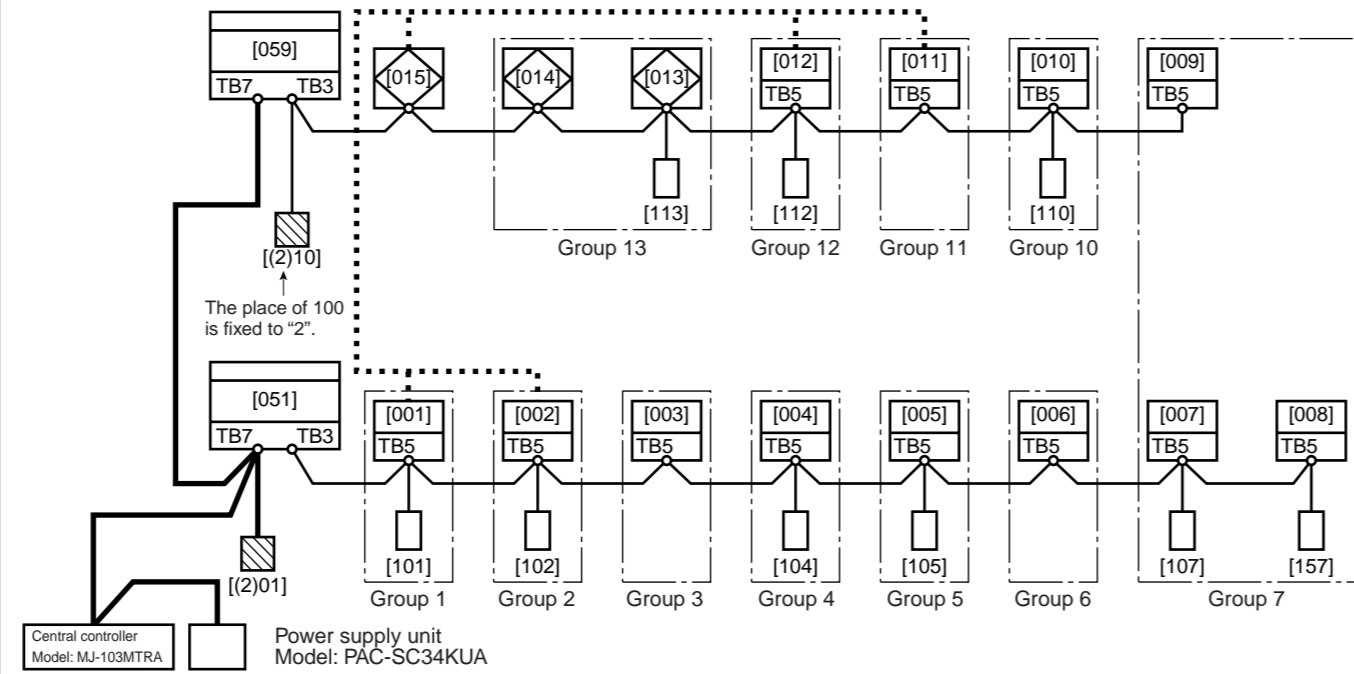
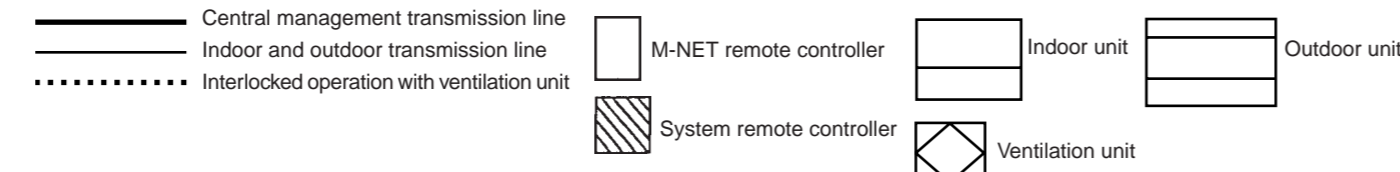
- (1) System remote controller (with upper and lower case) 1
- (2) Cross recessed pan head screws (M4×30) 2
- (3) Wood screws (4.1×16, for directly hooking to the wall) 2
- (4) Room label 1
- (5) Caution label (in 10 languages) 1
- (6) Instruction book 2
- (7) Emergency stop input cable 1



Use a maximum of 1.25 mm² cable for remote controller wiring. 0.75 mm² cable is recommended for ease of use.

NOTE: The remote controller cord is supplied on site. Use an electric cable in accordance with the following specifications. Electric cable specifications (CVV or CVVS). With CVVS, be sure to insulate the cable shield so that it does not contact the terminal block. The 1.25 mm² cable is for use as an extension. • Up to 10 m 0.75 mm² twin-core cable • Longer than 10 m ... 1.25 mm² twin-core cable (extension cord)

3 System Configuration



M-NET model address setup (address duplication not possible)

Indoor unit / Interlocked unit	Address setup	Address
Indoor unit / Interlocked unit	Any address within the range specified at right.	1-50
Outdoor unit	The smallest address of indoor unit in the same refrigerant system + 50	51-100
Remote controller	The smallest address of indoor unit in the same group +100	101-200
System remote controller	Any address within the range specified at right.	201-250

NOTE: The only indoor unit this device can be used to operate is an M-NET control indoor unit. It will not operate a K control indoor unit, even with a K transmission converter (PAC-SC25KAA).

Note the following when connecting to central management transmission line (Caution 3)

Number of system controllers per system which may be supplied with power	Power supply unit model
1-5	PAC-SC34KUA

CAUTION

- This diagram shows the configuration of transmission wiring, and omits power supply wiring for clarity.
- Establish one shield ground for M transmission wiring within the system.
- The number of system controllers which may be supplied with power are found by multiplying the given number by the appropriate capacity coefficient in the following table (decimal fractions are rounded up).

Capacity coefficient	Central controller
System remote controller	0.5
Central controller	1

Example: The following applies for 2 system remote controllers and 1 central controller.
 $2 \times 0.5 + 1 \times 1 = 2$

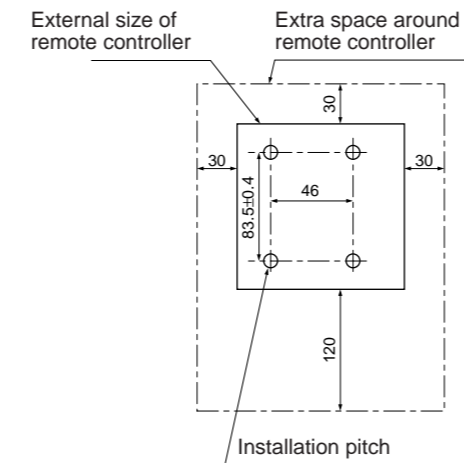
Number of system controllers which may be supplied with power = Number of central controllers × capacity coefficient + System remote controllers × capacity coefficient

- The System Remote Controller can manage up to 50 air-conditioning or Lossnay units.
- One system remote controller can control a maximum of 32 groups. The range of controllable group numbers can be changed during the initial setting phase. The range is set at the factory as Group 1 - 32. If control of group numbers outside the factory-set range is desired, regardless of the master and slave settings, the minimum group setting needs to be changed during the initial setting phase. Please refer to item 7-1-1 "Setting the number of the minimum management group" in the instruction book.
- As current consumption is twice that with remote controller when this equipment is connected to indoor or outdoor transmission wiring, assume two remote controllers for each of these units when calculating connections.

4 How To Install

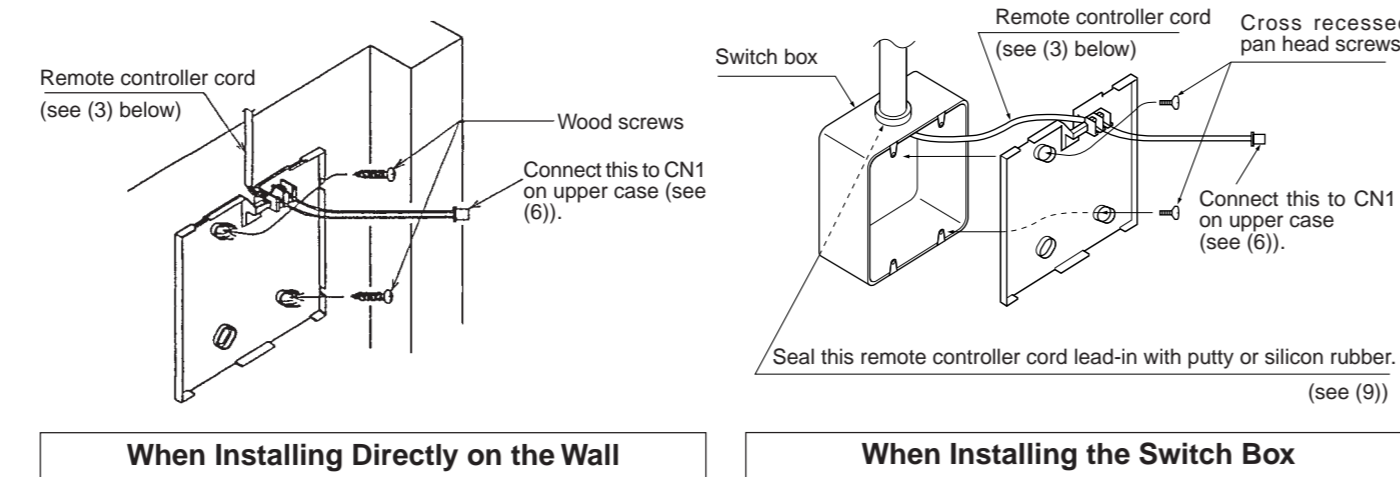
(1) Choose a location in which to install the system remote controller (switch box) in accordance with the following requirements:

- ① The space as shown in the diagram at right is required whether the controller is installed on the wall or in the switch box (except when used with the program timer (PAC-SC32PTA)).
- ② Procure the following parts locally.
 - Switch box for two units
 - Thin-copper wiring pipe
 - Locknut and bushing

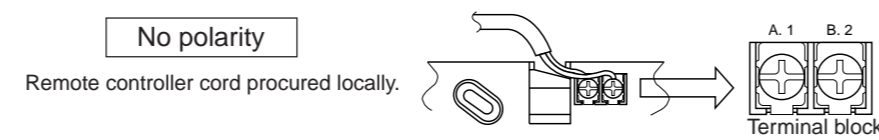


(2) Attach the lower case to the wall or the switch box.

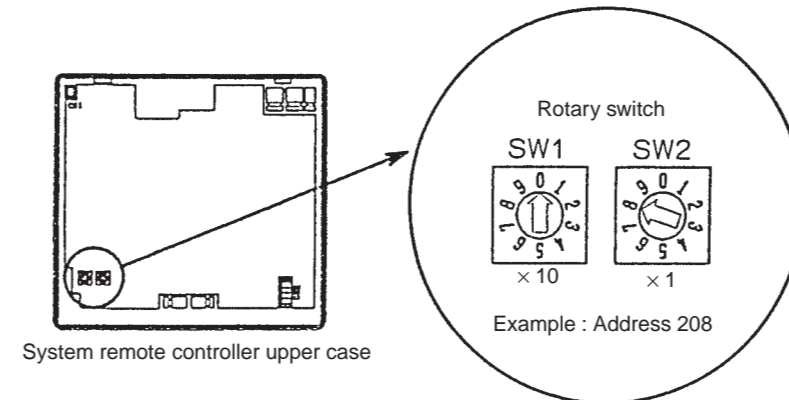
NOTE: Over-tightening the screws may result in deformation or cracking of the lower case.



(3) Connect the remote controller cord to the terminal block on the lower case. Install wiring correctly in accordance with the diagram at right.



(4) Set the system remote controller address with the rotary switches.

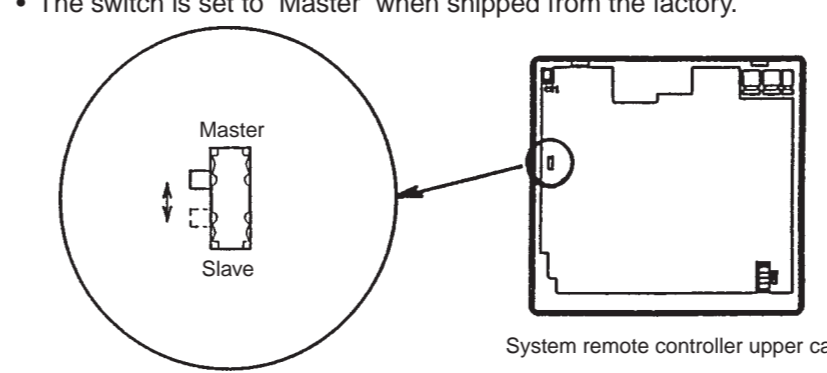


CAUTION Addresses between 201 and 250 may be set with the system remote controller. The place of 100 is fixed to "2".

Rotary switch setting	Address
01-50	201-250

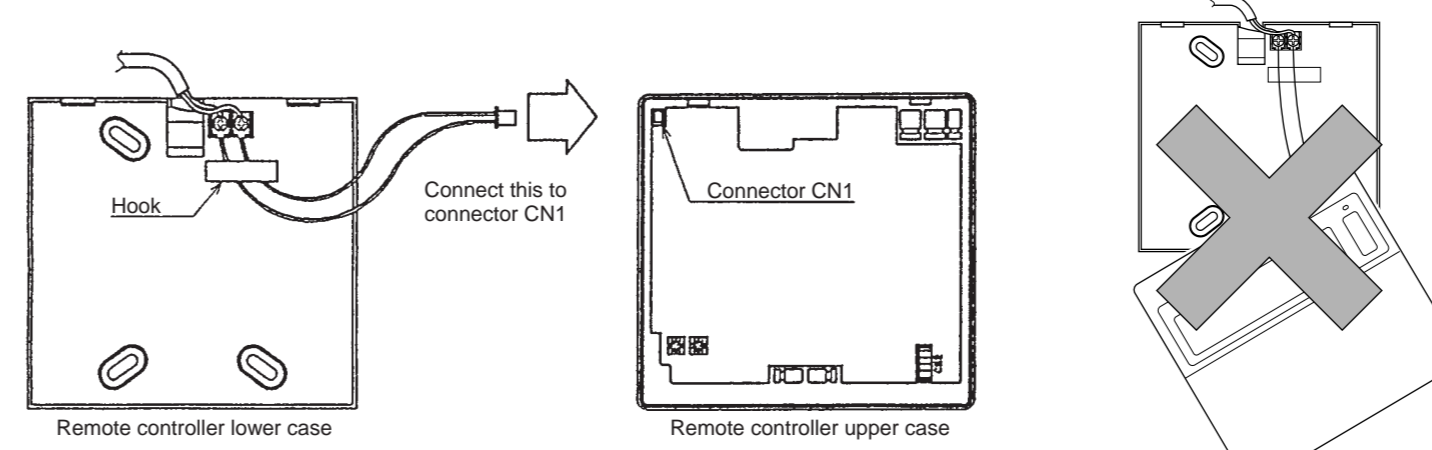
- If an address other than those listed above is set, an address setting error occurs and "AdE" is displayed.
- The rotary switch is set to 01 when shipped from the factory.

(5) When used in conjunction with the master system controller (centralized controller), set the system remote controller to "Slave" with the switch as shown in the diagram below.



(6) Connect this connector on the lower case to the connector CN1 on the upper case.

- CAUTION**
- Connect firmly as shown below. The system will not operate unless these connections are made.
 - After connecting the wiring, ensure that the upper case does not hang off the cord as shown in the diagram below at the right. This may result in a break in the cord, and thus cause problems with operation.
 - Always pass the cord through the hook to hold it in place.



(7) Fitting the upper case.

First hook the upper case to the two upper claws and then fit it as shown at right.

- CAUTION**
- Press the case until it snaps shut.
 - A protective sheet has been affixed to the control panel. Remove it before starting.

To remove the upper case, insert a minus screwdriver into one of the open slots and move it in the direction of the arrow as shown in the diagram at right.

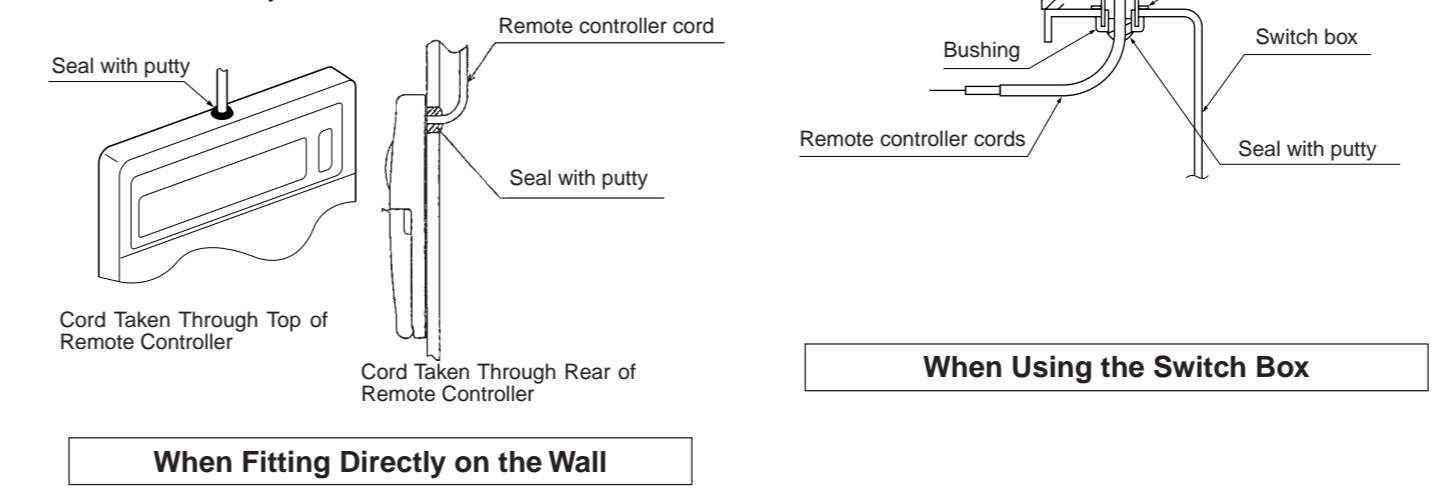
- CAUTION**
- Do not turn the screwdriver while it is inserted into the open slot. Doing so can result in damage to the claws.

(8) Wiring hole for fitting directly onto the wall.

- Cut out the thin-wall portion of the upper case (shaded area) using a knife or nipper.
- Take out the remote controller cord connected to the terminal block via this portion.

(9) Seal the remote controller cord lead-in with putty in order to prevent possible entry of dew, water droplets and other insects.

- When fitting directly to the wall as in (2), seal the cut-out in the upper case with putty.
- When cutting a hole in the wall for the remote controller cord (ie when the remote controller cord exits from the rear of the remote controller), seal this hole in the same way.
- When fitting to the switch box, seal the joint between the switch box and the wiring conduit with putty.



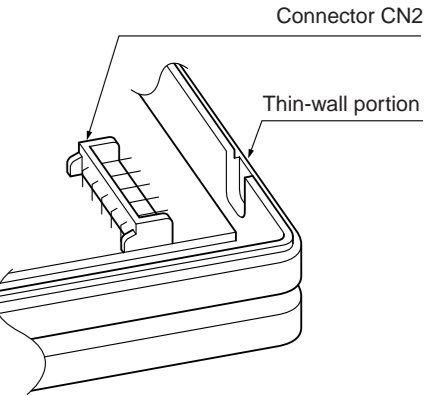
(10) Affix a caution label.

A caution label in English is supplied on the back surface of the upper panel. Affix another caution label in the language of a country where you use the System remote controller over the English one.

5 Connecting Optional parts

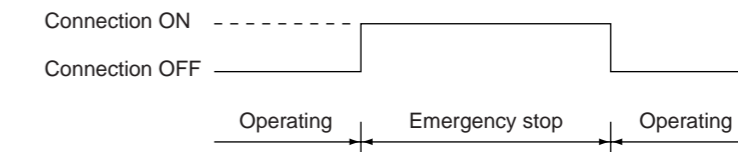
(1) Program timer

- When connecting a program timer connect a 5-core cable to connector CN2 (timer connector) on the upper case (a 5-core cable is supplied with the program timer).
- Cut out the thin-wall portion to take the cable.
- When fitting directly onto the wall, fit the system remote controller on the left of the program timer to facilitate wiring. If you anticipate installing more program timers, leave the appropriate space to the left of the remote controller. See the program timer installation manual for installation details.

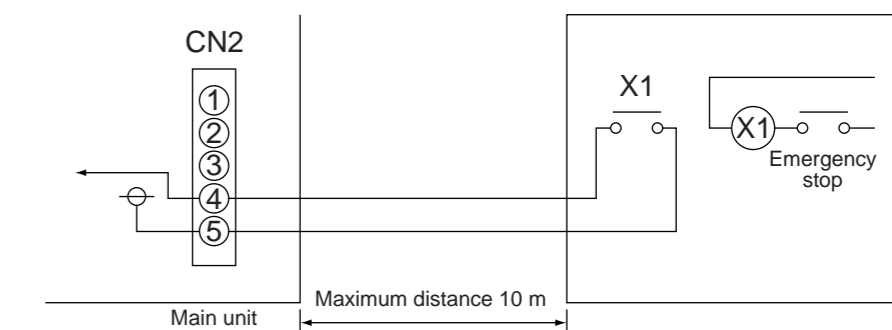


(2) Emergency stop input

- In case of an emergency, the entire air conditioning system and all controller operations can be stopped using the CN2 (timer connector) connected to the program timer. This function is only enabled when the thin unit is in master settings mode. Please do not connect the emergency stop input during slave settings mode. (The CN2 links to the program timer connector, thus it can be connected to either the program timer or the emergency stop input.)
- When using the emergency stop input, use the cable (Emergency stop input cable) which is included with the unit.
- Connecting the CN2 to the emergency stop input is the same as attaching it to the program timer. See (1) Program timer above.
- Initial settings are necessary when using the emergency stop input. Please refer to 7-3 "Emergency stop mode settings" in the instruction book.
- External Input Specifications
 - ① Input signal (Level signal)



② Suggested circuit example



NOTE: Please keep LVD, Low Voltage Directive (EC Directive of Europe) Apply some countermeasure for wiring and relay not to be touched from outside.

- ① Wiring should be covered by the insulation tube.
- ② Use relay with EU regulation.

- No-voltage connectors and extension cables should be arranged on-site.
- No-voltage connector specifications: Use a miniature array for signal switching (smallest suitable load: DC5V - 1 mA).
- Do not use a connector cable over 10 m long. (use 0.3 mm² or larger wires)
- Always connect the emergency stop input with the power to the main unit turned off.

6 Initial Settings

- Initial settings is necessary before test run. Consult the user's manual for details of initial settings.

7 Test Run

- Please perform a trial run of each air conditioning unit with the local remote controller.



Diese Bedienungsanleitung beschreibt nur die Installation der Zentralsteuerung (Systemfernbedienung PAC-SF41SCA), die bis zu 50 Klimaanlagen oder Lossnay-Geräte (maximal 32 Gruppen) steuern kann.

1 Sicherheitsvorkehrungen

Die folgenden beiden Symbole dienen zum Hinweis auf Gefahren, die durch unsachgemäße Verwendung entstehen können und auf das Ausmaß der Gefahren:

- WARNUNG: Dieses Symbol weist daraufhin, was bei mißbräuchlicher Verwendung des PAC-SF41SCA zu schweren Verletzungen oder zum Tod führen kann.
VORSICHT: Dieses Symbol weist daraufhin, was bei unsachgemäßer Verwendung des PAC-SF41SCA zu Personenschäden oder zu Schäden an Ihrer Einrichtung führen kann.

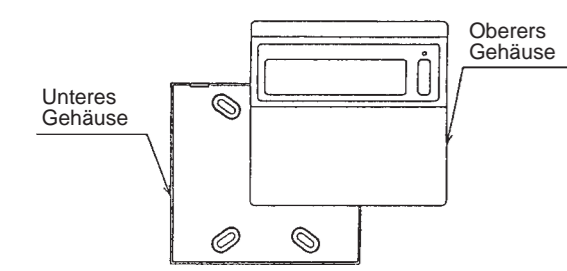
WARNUNG section with multiple safety instructions regarding installation, handling, and electrical safety. Includes text like 'Lassen Sie die Anlage durch Ihren Händler oder den technischen Außendienst installieren.'

VORSICHT section with safety instructions regarding gas, fire, and electrical safety. Includes text like 'Die Installation nicht an einem Ort vornehmen, an dem brennbares Gas austritt.'

2 Kontrolle der mitgelieferten Teile

Vergewissern Sie sich, daß der Versandkarton außer diesem Aufstellungshandbuch folgende Teile enthält:

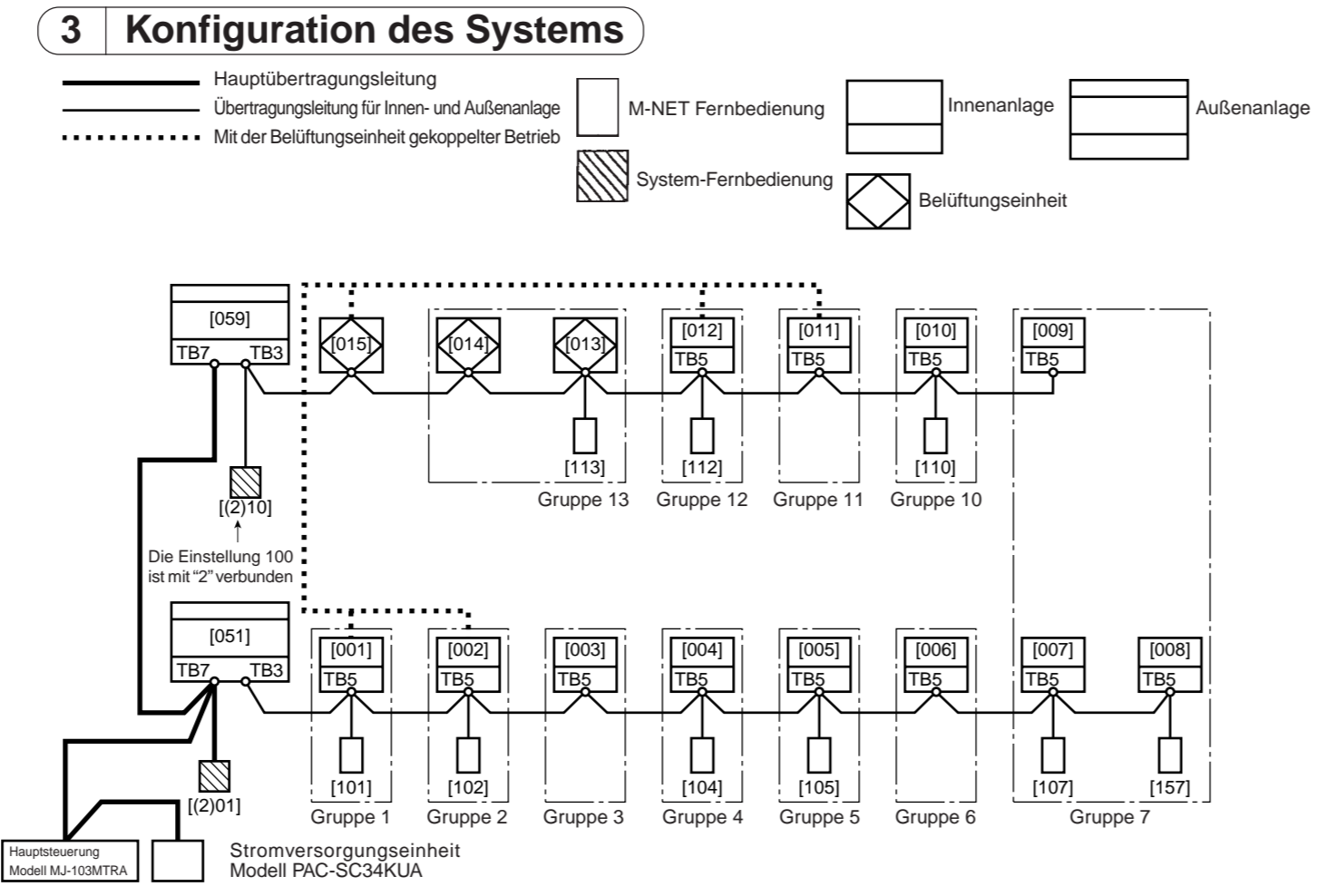
- (1) System-Fernbedienung (mit Ober- und Untergehäuse) 1
(2) Flachkopf-Kreuzschlitzschraube (M4 x 30) 2
(3) Holzschrauben (4,1 x 16, zum Direktanschluß an der Wand) 2
(4) Raumaufkleber 2
(5) Aufkleber mit Vorsichtshinweis (in 10 Sprachen) 1
(6) Anweisungshandbuch 2
(7) Notschalter-Eingabe-Kabel 2



(Verwenden Sie für die Kabelverbindung zur Fernbedienung ein Kabel von höchstens 1,25 mm². Für bequeme Verwendung wird ein Kabel von 0,75 mm² empfohlen.)

HINWEIS: Das Fernbedienungskabel wird vor Ort geliefert. Benutzen Sie ein Kabel unter Beachtung der folgenden Spezifikationen: Elektrokabelspezifikation (CVV oder CVVS). Bei Verwendung von CVVS stellen Sie sicher, daß die Kabelabdeckung isoliert ist, so daß sie nicht den Schaltkasten berührt.

3 Konfiguration des Systems



M-NET Modell Adressen-Einstellung (Adressen-Duplikation nicht möglich). Table with columns: Innenanlage/gekuppelte Anlage, Außenanlage, Fernbedienung, System-Fernbedienung, Adresseneinstellung, Adresse.

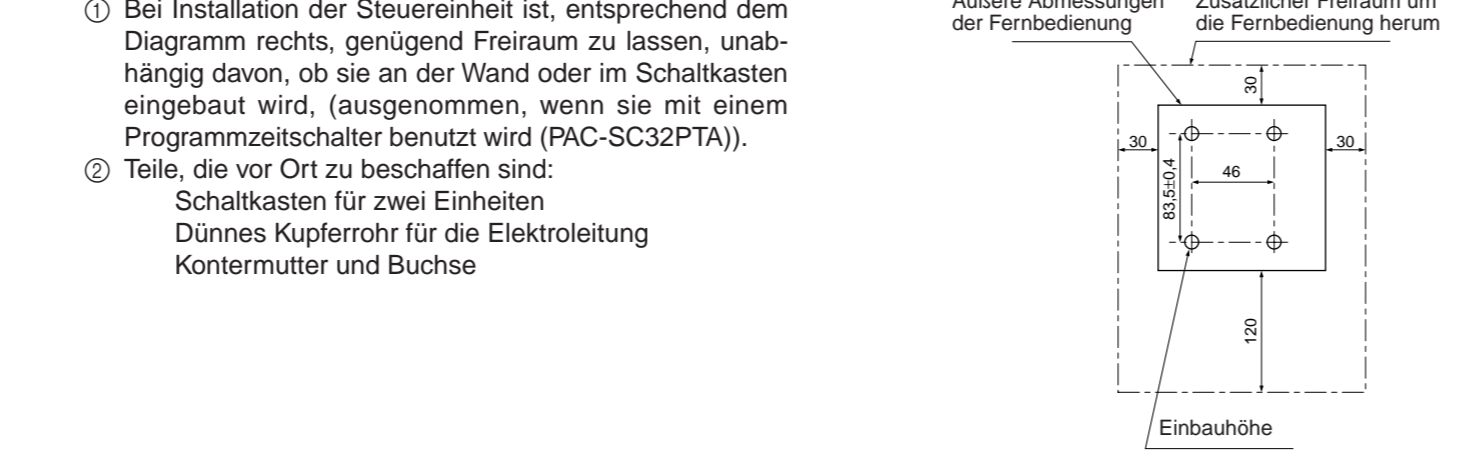
Beim Verbinden der Hauptübertragungsleitung ist das Folgende zu beachten (Vorsicht 3). Table with columns: Anzahl der Systemsteuerungen pro System, Stromversorgungseinheit Modell.

VORSICHT 1. Dieses Diagramm zeigt die Kabelführung der Übertragungskabel, die Kabelführung der Stromzufuhr ist der Übersichtlichkeit wegen nicht dargestellt. 2. Richten Sie innerhalb des Systems einen Erdanschluß für die Kabelabdeckung der M-Übertragungs-Kabelführung ein.

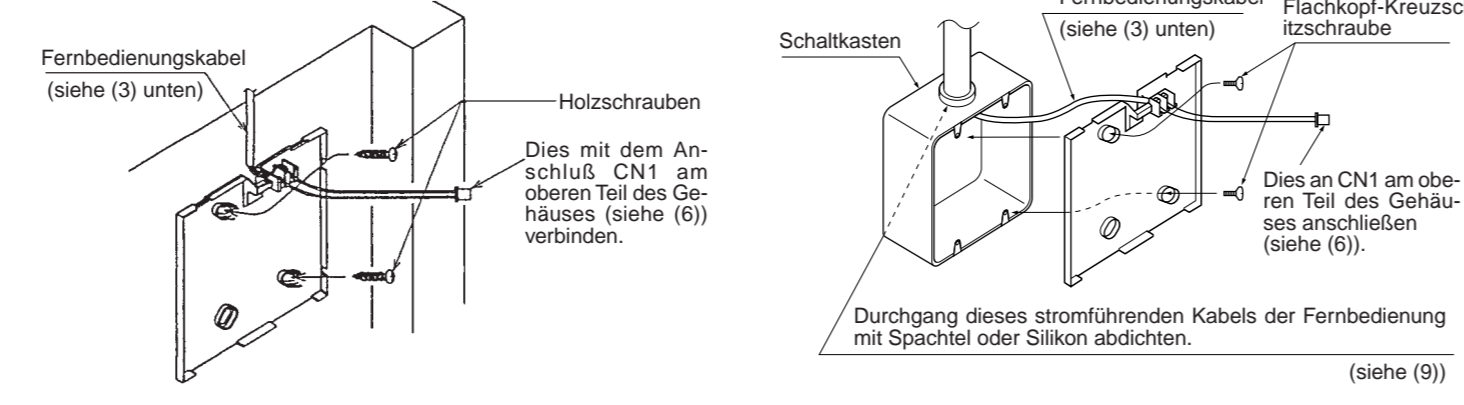
Kapazitäts-Koeffizient table and calculation example: 2 x 0,5 + 1 x 1 = 2. Also includes instructions for system capacity and unit connections.

4 Wie installiert wird

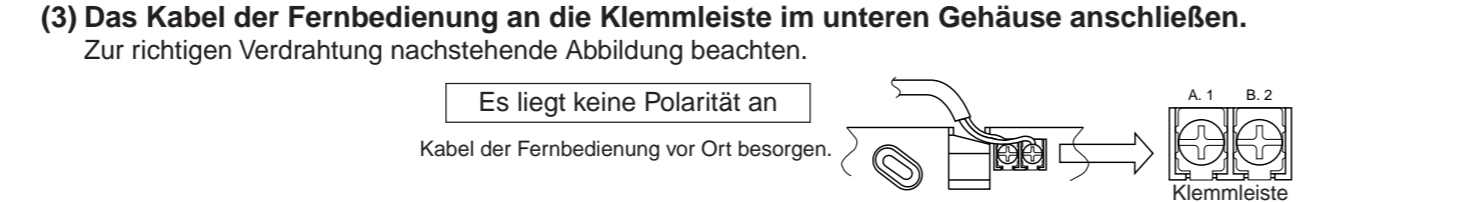
(1) Bei der Wahl eines Installationsortes für die System-Fernbedienung (Schaltkasten) sind folgende Erfordernisse zu beachten:



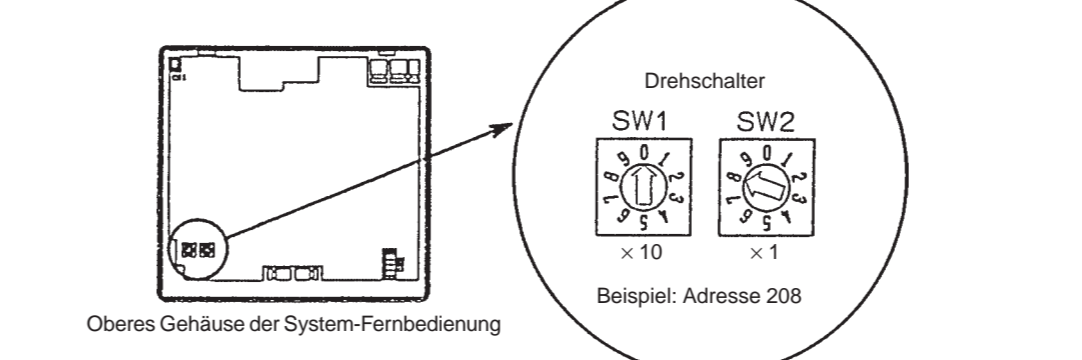
(2) Den unteren Teil des Gehäuses oder den Schaltkasten an der Wand befestigen. HINWEIS: Schrauben nicht zu stark anziehen, da sonst der untere Teil des Gehäuses deformiert oder rissig werden kann.



(3) Das Kabel der Fernbedienung an die Klemmleiste im unteren Gehäuse anschließen. Zur richtigen Verdrahtung nachstehende Abbildung beachten.



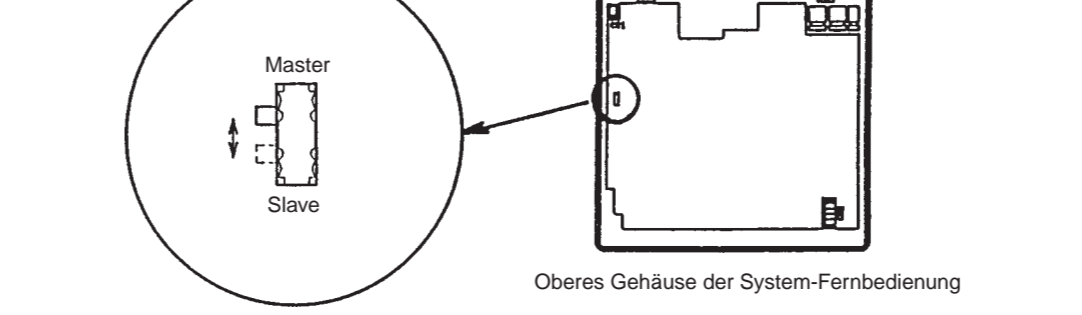
(4) Die System-Fernbedienung-Adresse mit den Drehschaltern einstellen.



VORSICHT Die Adressen zwischen 201 bis 250 können mit Hilfe der System-Fernbedienung eingestellt werden. Die Adresse 100 ist an "2" angeschlossen.

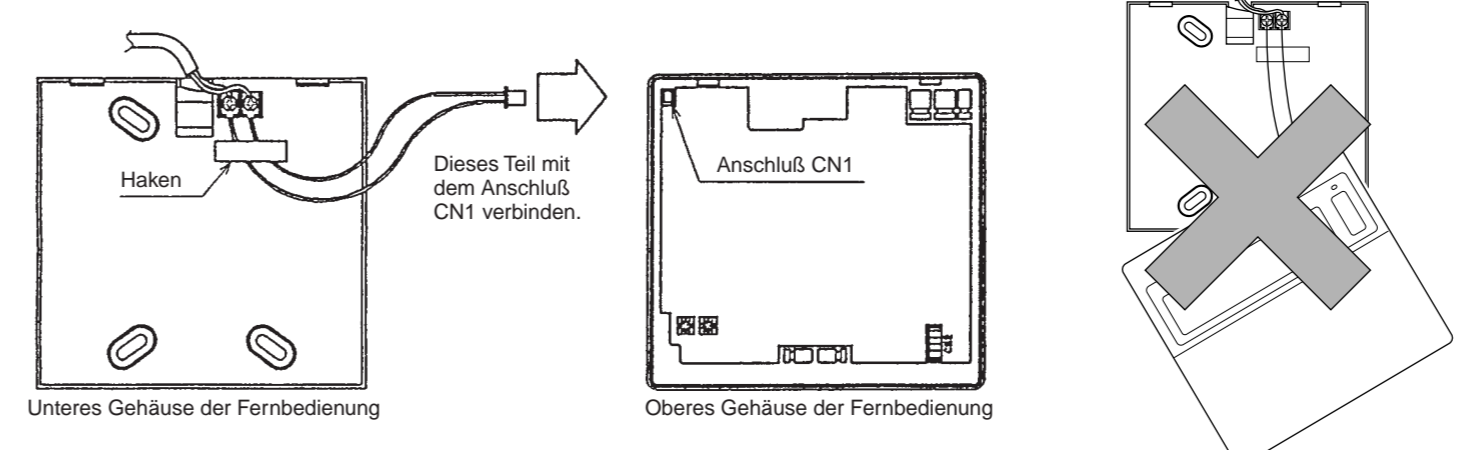
Einstellung des Drehschalters table with columns: Einstellung des Drehschalters, Adressennummer.

(5) Bei Verwendung in Verbindung mit dem Hauptsteuerungssystem (Zentralsteuerung) ist die System-Fernbedienung mit Hilfe des Schalters auf "Slave", wie in der Abbildung gezeigt, zu stellen.



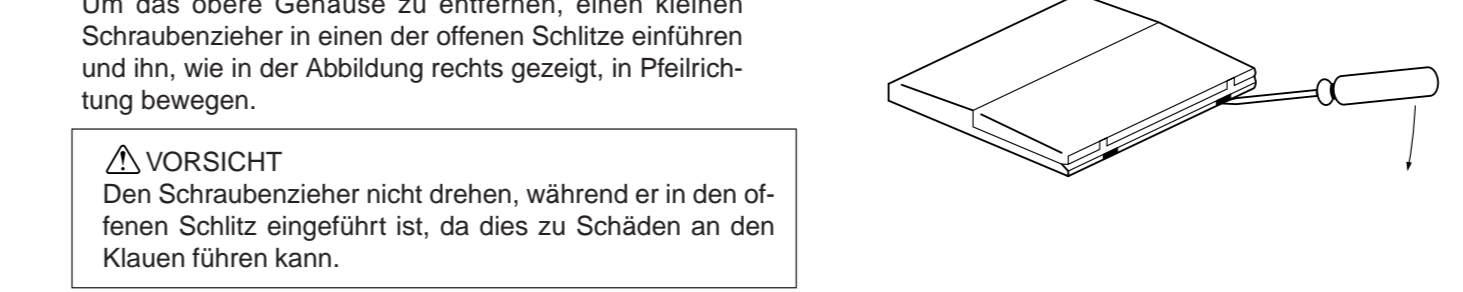
(6) Diesen Anschluß im unteren Gehäuse mit dem Anschluß CN1 im oberen Gehäuse verbinden.

VORSICHT Wie unten dargestellt, fest verbinden. Das System wird nicht funktionieren, wenn diese Anschlüsse nicht vorgenommen worden sind.

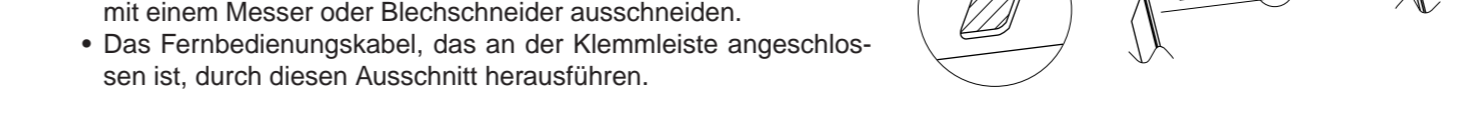


(7) Einbau des oberen Gehäuses. Zunächst das obere Gehäuse in die beiden oberen Klauen einhängen und dann, wie in der obigen Abbildung gezeigt, andrücken.

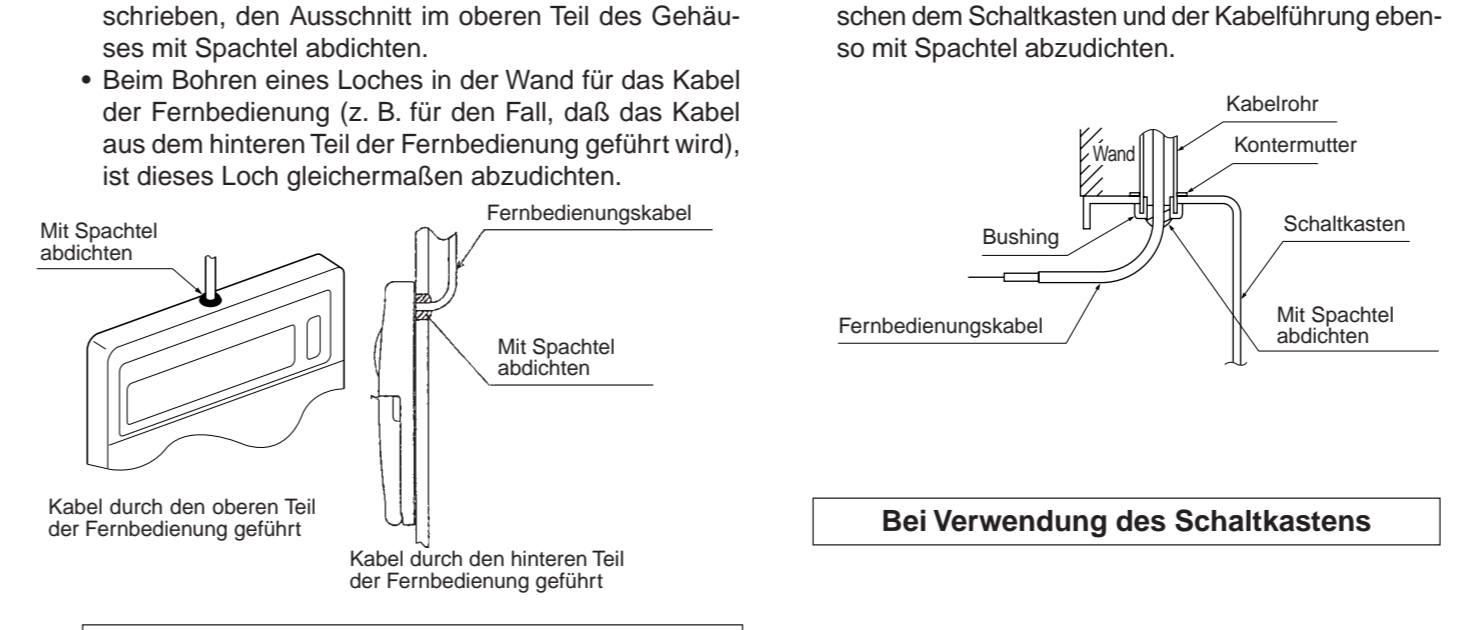
VORSICHT Auf das Gehäuse drücken, bis es einrastet. Das Schaltplatt ist mit einer Schutzschicht bedeckt. Diese ist vor Betriebsbeginn abzuziehen.



(8) Verdrahtungsöffnung für Installierung unmittelbar an der Wand. Den schattierten, dünnwandigen Bereich des oberen Gehäuses mit einem Messer oder Blechschneider ausschneiden.



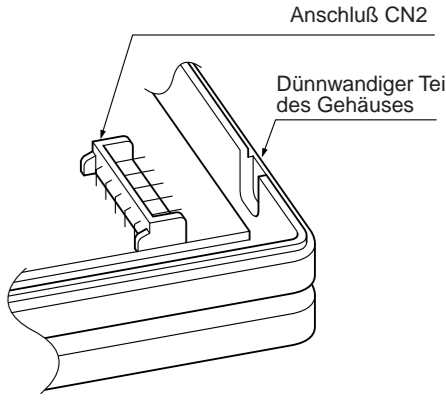
(9) Das stromführende Kabel der Fernbedienung mit Spachtel abdichten, um den möglichen Eintritt von Feuchtigkeit, Kondenswasser oder Insekten zu verhindern.



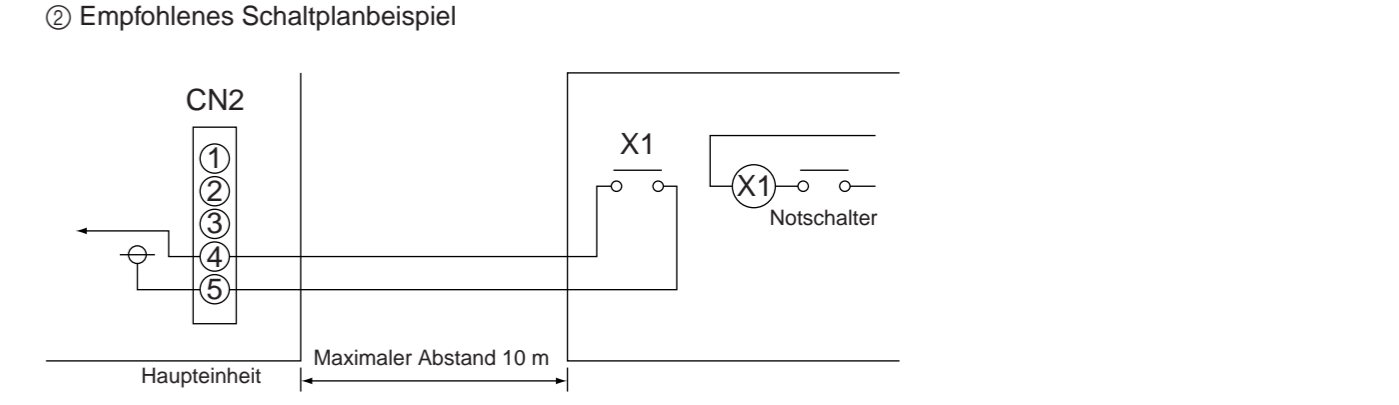
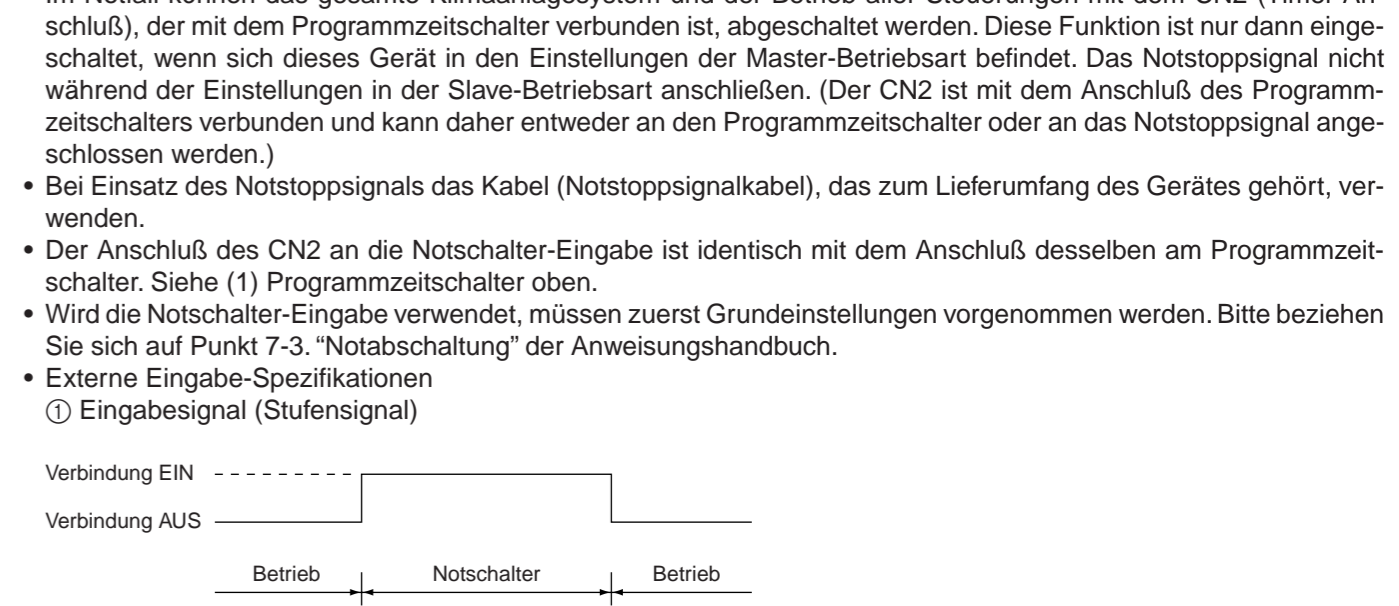
(10) Einen Aufkleber mit Vorsichtshinweisen anbringen. Ein Aufkleber mit Vorsichtshinweisen in englischer Sprache befindet sich auf der Hinterseite der oberen Klappe.

5 Das Anschließen der wahlweise erhältlichen Zubehörteile

(1) Programmzeitschalter Beim Anschluß eines Programmzeitschalters ein 5-adriges Kabel an den Anschluß CN2 (auf Zeitschalteranschluß) im oberen Gehäuse anschließen. (Ein 5-adriges Kabel wird mit einem Programmzeitschalter geliefert).



(2) Notschalter-Eingabe Im Notfall können das gesamte Klimaanlage-System und der Betrieb aller Steuerungen mit dem CN2 (Timer-Anschluß), der mit dem Programmzeitschalter verbunden ist, abgeschaltet werden.



HINWEIS: Bitte die LVD einhalten. LVD: Niederspannungsverordnung (EC-Verordnung in Europa). Damit die Elektroleitung und das Relais nicht von außen berührt werden können, einige Gegenmaßnahmen ergreifen.

- Für Nullspannungs-Verbindungen und Verlängerungskabel sollte vor Ort gesorgt werden. Spezifikationen für die Nullspannungs-Verbindung: Verwenden Sie eine Miniaturgruppe für Signalschalter (kleinste geeignete Belastung: DC5V - 1 mA).

6 Grundeinstellungen

Vor dem Testbetrieb müssen die Grundeinstellungen gemacht werden. Beziehen Sie sich auf das Bedienungshandbuch für die Einzelheiten bezüglich den Grundeinstellungen.

7 Testbetrieb

Bitte jedes einzelne Klimagerät mit der Handfernbedienung einem Testlauf unterziehen.