HITACHI

EN INSTALLATION AND OPERATION MANUAL
ES MANUAL DE INSTALACIÓN Y FUNCIONAMIENTO
DE INSTALLATIONS- UND BETRIEBSHANDBUCH
FR MANUEL D'INSTALLATION ET DE FONCTIONNEMENT
IT MANUALE D'INSTALLAZIONE E D'USO
PT MANUAL DE INSTALAÇÃO E DE FUNCIONAMENTO
DA INSTALLATIONS- OG BETJENINGSVEJLEDNING
NL INSTALLATIE- EN BEDIENINGSHANDLEIDING
SV INSTALLATION- OCH DRIFTHANDBOK
EL ΕΓΧΕΙΡΙΔΙΟ ΕΓΚΑΤΑΣΤΑΣΗΣ ΚΑΙ ΛΕΙΤΟΥΡΓΙΑΣ

ENERGY RECOVERY VENTILATION UNITS
KPI-(252-2002)E4E & KPI-(502-1002)X4E

English

Specifications in this manual are subject to change without notice in order that HITACHI may bring the latest innovations to their customers.
Whilst every effort is made to ensure that all specifications are correct, printing errors are beyond HITACHI's control; HITACHI cannot be held responsible for these errors.

Español

Las especificaciones de este manual están sujetas a cambios sin previo aviso a fin de que HITACHI pueda ofrecer las últimas innovaciones a sus clientes.
A pesar de que se hacen todos los esfuerzos posibles para asegurarse de que las especificaciones sean correctas, los errores de impresión están fuera del control de HITACHI, a quien no se hará responsable de ellos.

Deutsch

Bei den technischen Angaben in diesem Handbuch sind Änderungen vorbehalten, damit HITACHI seinen Kunden die jeweils neuesten Innovationen präsentieren kann.
Sämtliche Anstrengungen wurden unternommen, um sicherzustellen, dass alle technischen Informationen ohne Fehler veröffentlicht worden sind. Für Druckfehler kann HITACHI jedoch keine Verantwortung übernehmen, da sie außerhalb ihrer Kontrolle liegen.

Français

Les caractéristiques publiées dans ce manuel peuvent être modifiées sans préavis, HITACHI souhaitant pouvoir toujours offrir à ses clients les dernières innovations.
Bien que tous les efforts sont faits pour assurer l'exactitude des caractéristiques, les erreurs d'impression sont hors du contrôle de HITACHI qui ne pourrait en être tenu responsable.

Italiano

Le specifiche di questo manuale sono soggette a modifica senza preavviso affinché HITACHI possa offrire ai propri clienti le ultime novità.
Sebbene sia stata posta la massima cura nel garantire la correttezza dei dati, HITACHI non è responsabile per eventuali errori di stampa che esulano dal proprio controllo.

Português

As especificações apresentadas neste manual estão sujeitas a alterações sem aviso prévio, de modo a que a HITACHI possa oferecer aos seus clientes, da forma mais expedita possível, as inovações mais recentes.
Apesar de serem feitos todos os esforços para assegurar que todas as especificações apresentadas são correctas, quaisquer erros de impressão estão fora do controlo da HITACHI, que não pode ser responsabilizada por estes erros eventuais.

Dansk

Specifikationerne i denne vejledning kan ændres uden varsel, for at HITACHI kan bringe de nyeste innovationer ud til kunderne.
På trods af alle anstrengelser for at sikre at alle specifikationerne er korrekte, har HITACHI ikke kontrol over trykfejl, og HITACHI kan ikke holdes ansvarlig herfor.

Nederlands

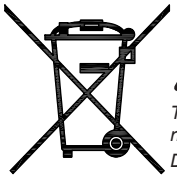
De specificaties in deze handleiding kunnen worden gewijzigd zonder verdere kennisgeving zodat HITACHI zijn klanten kan voorzien van de nieuwste innovaties.
Iedere poging wordt ondernomen om te zorgen dat alle specificaties juist zijn. Voorkomende drukfouten kunnen echter niet door HITACHI worden gecontroleerd, waardoor HITACHI niet aansprakelijk kan worden gesteld voor deze fouten.

Svenska

Specifikationerna i den här handboken kan ändras utan föregående meddelande för att HITACHI ska kunna leverera de senaste innovationerna till kunderna.
Vi på HITACHI gör allt vi kan för att se till att alla specifikationer stämmer, men vi har ingen kontroll över tryckfel och kan därför inte hållas ansvariga för den typen av fel.

Ελληnika

Οι προδιαγραφές του εγχειριδίου μπορούν να αλλάξουν χωρίς προειδοποίηση, προκειμένου η HITACHI να παρέχει τις τελευταίες καινοτομίες στους πελάτες της.
Αν και έχει γίνει κάθε προσπάθεια προκειμένου να εξασφαλιστεί ότι οι προδιαγραφές είναι σωστές, η HITACHI δεν μπορεί να ελέγξει τα τυπογραφικά λάθη και, ως εκ τούτου, δεν φέρει καμία ευθύνη για αυτά τα λάθη.



⚠ ATTENTION:

This product shall not be mixed with general house waste at the end of its life and it shall be retired according to the appropriated local or national regulations in a environmentally correct way.

Due to the refrigerant, oil and other components contained in Air Conditioner, its dismantling must be done by a professional installer according to the applicable regulations.

Contact to the corresponding authorities for more information.

⚠ ATENCIÓN:

Éste producto no se debe eliminar con la basura doméstica al final de su vida útil y se debe desechar de manera respetuosa con el medio ambiente de acuerdo con los reglamentos locales o nacionales aplicables.

Debido al refrigerante, el aceite y otros componentes contenidos en el sistema de aire acondicionado, su desmontaje debe realizarlo un instalador profesional de acuerdo con la normativa aplicable.

Para obtener más información, póngase en contacto con las autoridades competentes.

⚠ ACHTUNG:

Dass Ihr Produkt am Ende seiner Betriebsdauer nicht in den allgemeinen Hausmüll geworfen werden darf, sondern entsprechend den geltenden örtlichen und nationalen Bestimmungen auf umweltfreundliche Weise entsorgt werden muss.

Aufgrund des Kältemittels, des Öls und anderer in der Klimaanlage enthaltener Komponenten muss die Demontage von einem Fachmann entsprechend den geltenden Vorschriften durchgeführt werden.

Für weitere Informationen setzen Sie sich bitte mit den entsprechenden Behörden in Verbindung.

⚠ ATTENTION:

Ne doit pas être mélangé aux ordures ménagères ordinaires à la fin de sa vie utile et qu'il doit être éliminé conformément à la réglementation locale ou nationale, dans le plus strict respect de l'environnement.

En raison du frigorigène, de l'huile et des autres composants que le climatiseur contient, son démontage doit être réalisé par un installateur professionnel conformément aux réglementations en vigueur.

⚠ ATTENZIONE:

Indicazioni per il corretto smaltimento del prodotto ai sensi della Direttiva Europea 2002/96/EC e Dlgs 25 luglio 2005 n.151

Il simbolo del cassonetto barrato riportato sull' apparecchiatura indica che il prodotto alla fine della propria vita utile deve essere raccolto separatamente dagli altri rifiuti.

L'utente dovrà, pertanto, conferire l'apparecchiatura giunta a fine vita agli idonei centri di raccolta differenziata dei rifiuti elettronici ed elettrotecnici, oppure riconsegnarla al rivenditore al momento dell' acquisto di una nuova apparecchiatura di tipo equivalente.

L'adeguata raccolta differenziata delle apparecchiature dismesse, per il loro avvio al riciclaggio, al trattamento ed allo smaltimento ambientalmente compatibile, contribuisce ad evitare possibili effetti negativi sull' ambiente e sulla salute e favorisce il riciclo dei materiali di cui è composta l' apparecchiatura.

Non tentate di smontare il sistema o l'unità da soli poichè ciò potrebbe causare effetti dannosi sulla vostra salute o sull' ambiente.

Vogliate contattare l' installatore, il rivenditore, o le autorità locali per ulteriori informazioni.

Lo smaltimento abusivo del prodotto da parte dell'utente può comportare l'applicazione delle sanzioni amministrative di cui all'articolo 50 e seguenti del D.Lgs. n. 22/1997.

⚠ ATENÇÃO:

O seu produto não deve ser misturado com os desperdícios domésticos de carácter geral no final da sua duração e que deve ser eliminado de acordo com os regulamentos locais ou nacionais adequados de uma forma correcta para o meio ambiente.

Devido ao refrigerante, ao óleo e a outros componentes contidos no Ar condicionado, a desmontagem deve ser realizada por um instalador profissional de acordo com os regulamentos aplicáveis.

Contacte as autoridades correspondentes para obter mais informações.

⚠ BEMÆRK:

At produktet ikke må smides ud sammen med almindeligt husholdningsaffald, men skal bortskaffes i overensstemmelse med de gældende lokale eller nationale regler på en miljømæssig korrekt måde.

Da klimaanlægget indeholder kølemiddel, olie samt andre komponenter, skal afmontering foretages af en fagmand i overensstemmelse med de gældende bestemmelser.

Kontakt de pågældende myndigheder for at få yderligere oplysninger.

⚠ ATTENTIE:

Dit houdt in dat uw product niet wordt gemengd met gewoon huisvuil wanneer u het weg doet en dat het wordt gescheiden op een milieuvriendelijke manier volgens de geldige plaatselijke en landelijke reguleringen.

Vanwege het koelmiddel, de olie en andere onderdelen in de airconditioner moet het apparaat volgens de geldige regulering door een professionele installateur uit elkaar gehaald worden. Neem contact op met de betreffende overheidsdienst voor meer informatie.

⚠ OBS!:

Det innebär att produkten inte ska slängas tillsammans med vanligt hushållsavfall utan kasseras på ett miljövänligt sätt i enlighet med gällande lokal eller nationell lagstiftning.

Luftkonditioneringsaggregatet innehåller kylmedium, olja och andra komponenter, vilket gör att det måste demonteras av en fackman i enlighet med tillämpliga regelverk. Ta kontakt med ansvarig myndighet om du vill ha mer information.

⚠ ΠΡΟΣΟΧΗ:

Σημαίνει ότι το προϊόν δεν θα πρέπει να αναμιχθεί με τα διάφορα οικιακά απορρίμματα στο τέλος του κύκλου ζωής του και θα πρέπει να αποσυρθεί σύμφωνα με τους κατάλληλους τοπικούς ή εθνικούς κανονισμούς και με τρόπο φιλικό προς το περιβάλλον.

Λόγω του ψυκτικού, του λαδιού και άλλων στοιχείων που περιέχονται στο κλιματιστικό, η αποσυναρμολόγησή του πρέπει να γίνει από επαγγελματία τεχνικό και σύμφωνα με τους ισχύοντες κανονισμούς. Για περισσότερες λεπτομέρειες, επικοινωνήστε με τις αντίστοιχες αρχές.

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IT	Italiano	Versione tradotta
PT	Português	Versão traduzidal
DA	Dansk	Oversat version
NL	Nederlands	Vertaalde versie
SV	Svenska	Översatt version
EL	ΕΛΛΗΝΙΚΑ	Μεταφρασμένη έκδοση

1 GENERAL INFORMATION

1.1 GENERAL NOTES

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Within the policy of continuous improvement of its products, Johnson Controls-Hitachi Air Conditioning Spain, S.A.U. reserves the right to make changes at any time without prior notification and without being compelled to introducing them into products subsequently sold. This document may therefore have been subject to amendments during the life of the product.

HITACHI makes every effort to offer correct, up-to-date documentation. Despite this, printing errors cannot be controlled by HITACHI and are not its responsibility.

As a result, some of the images or data used to illustrate this document may not refer to specific models. No claims will be accepted based on the data, illustrations and descriptions included in this manual.

No type of modification must be made to the equipment without prior, written authorisation from the manufacturer.

1.2 PRODUCT GUIDE

1.2.1 Prior check

NOTE

Check, depending on the name of the model, the type of air conditioning system fitted, the abbreviated code and reference in this instruction manual. This Installation and Operating Manual only refers to KPI-(252-2002)(E/X)4E.

Check, in accordance with the Installation and Operating Manuals included with the outdoor and indoor units, that all the information necessary for the correct installation of the system is included. If this is not the case, please contact your distributor.

1.2.2 Classification of KPI models

KPI	–	(Y)YY	2	Y	4	E
KPI unit type						
	Position-separating hyphen (fixed)					
		Capacity (m^3/h): 250, 500, 800, 1000, 1500, 2000				
			2 = 1~ 230V 50Hz			
				E = Energy recovery X = Active (Energy recovery + Dx section)		
					4 = Series	
						E = Made in Europe

1.3 SAFETY

1.3.1 Symbols used

During normal air conditioning system design work or unit installation, greater attention must be paid in certain situations requiring particular care in order to avoid injuries and damage to the unit, the installation or the building or property.

Situations that jeopardise the safety of those in the surrounding area or that put the unit itself at risk will be clearly indicated in this manual.

To indicate these situations, a series of special symbols will be used to clearly identify these situations.

Pay close attention to these symbols and to the messages following them, as your safety and that of others depends on it.

DANGER

- ***The text following this symbol contains information and instructions relating directly to your safety and physical wellbeing.***
- ***Not taking these instructions into account could lead to serious, very serious or even fatal injuries to you and others in the proximities of the unit.***

In the texts following the danger symbol you can also find information on safe procedures during unit installation.

CAUTION

- *The text following this symbol contains information and instructions relating directly to your safety and physical wellbeing.*
- *Not taking these instructions into account could lead to minor injuries to you and others in the proximities of the unit.*
- *Not taking these instructions into account could lead to unit damage.*

In the texts following the caution symbol you can also find information on safe procedures during unit installation.

NOTE

- *The text following this symbol contains information or instructions that may be of use or that require a more thorough explanation.*
- *Instructions regarding inspections to be made on unit parts or systems may also be included.*

1.3.2 Additional information about safety

DANGER

- ***HITACHI is not able to foresee all the circumstances which may result in a potential danger.***
- ***Do not pour water in the KPI or outdoor unit. These products are fitted with electric components. If water comes into contact with electric components, this will cause a serious electric shock.***
- ***Do not handle or adjust the safety devices inside the KPI and outdoor units. The handling or adjustment of these devices may result in serious accident.***
- ***Do not open the service cover or access panel of the KPI and outdoor units without disconnecting the main supply.***
- ***In the event of fire, switch off the mains, put out the fire immediately and contact your service supplier.***
- ***Check that the earth cable is correctly connected.***
- ***Connect the unit to a circuit breaker of the specified capacity.***

CAUTION

- *Refrigerant leaks may hinder respiration as the gas displaces the air in the room.*
- *Fit the KPI unit, the outdoor unit, the remote control and the cable at a minimum of 3 metres away from sources of strong radiation from electromagnetic waves, such as medical equipment.*
- *Do not use sprays, such as insecticides, varnishes or enamels or any other inflammable gas within a metre of the system.*
- *If the circuit breaker or supply fuse of the unit comes on frequently, stop the system and contact the service suppler.*
- *Do not carry out maintenance or inspection work yourself. This work must be carried out by qualified service personnel with suitable tools and resources for the work.*
- *Do not place any foreign material (branches, sticks, etc.) in the air inlet or outlet of the unit. These units are fitted with high speed fans and contact with any object is dangerous.*
- *This appliance must be used only by adult and capable people, having received the technical information or instructions to handle this appliance properly and safely.*
- *Children should be supervised to ensure that they do not play with the appliance.*

NOTE

The system fitter and specialist shall provide anti-leak safety in accordance with local regulations.

1.4 PURPOSE OF THIS MANUAL

This air conditioning system has been exclusively designed to supply air conditioning to people in one or more rooms within the installation range of the system.

The air conditioning system must not be used for other purpose such as drying clothes, cooling food or any other process requiring cooling or heating.

The air conditioning system should only be installed by qualified personnel, with the necessary resources, tools and equipment, who are familiar with the safety procedures required to successfully carry out the installation.

PLEASE READ AND FAMILIARISE YOURSELF WITH THE MANUAL BEFORE STARTING WORK ON THE INSTALLATION OF THE AIR CONDITIONING SYSTEM.
Failure to observe the instructions for installation, use and operation described in this Manual may result in operating failure including potentially serious faults, or even the destruction of the air conditioning system.

It is assumed that the air conditioning system will be installed and maintained by responsible personnel trained for the purpose. If this is not the case, the customer should include all the safety, caution and operating signs in the native language of the personnel responsible.

Do not install the unit in the following places, as this may lead to a fire, deformities, rusting or faults:

Places where oil is present (including oil for machinery).

Places with a high concentration of sulphurous gas, such as spas.

Places where flammable gases may be generated or circulate.

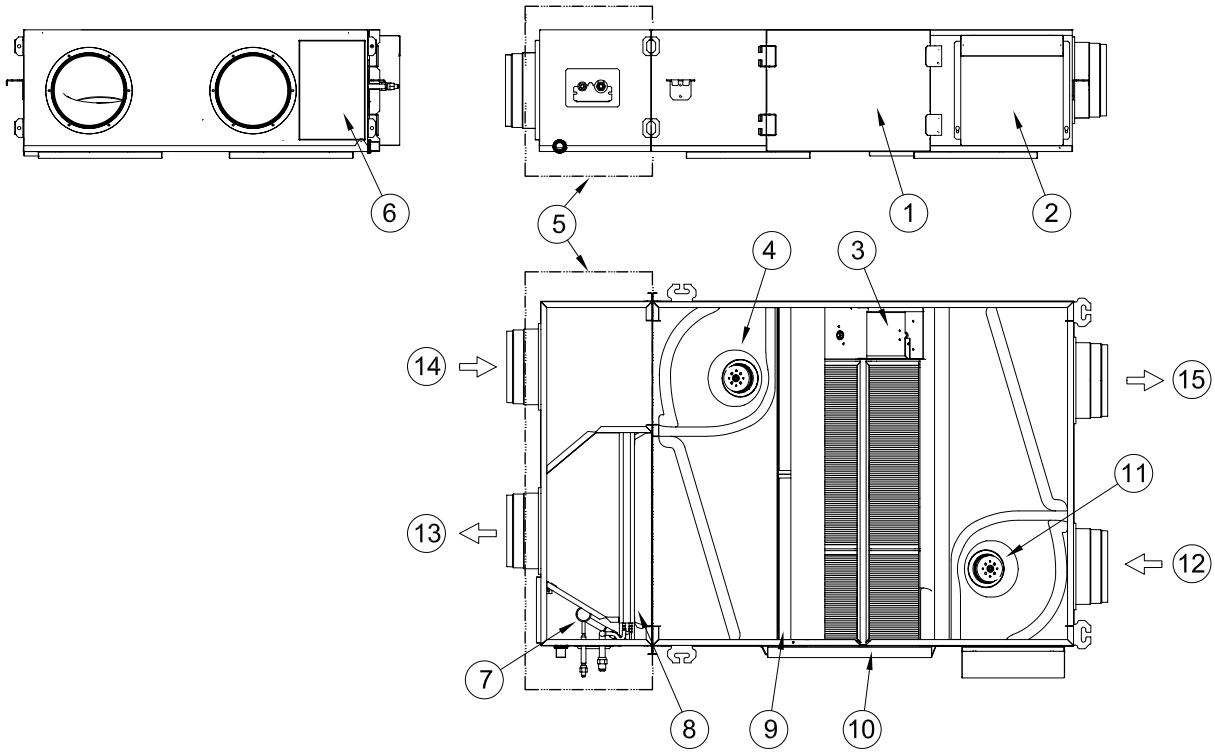
Places with a saline, acidic or alkaline atmosphere.

Do not install the unit in places where silicon gas is present. Any silicon gas deposited on the surface of the heat exchanger will repel water. As a result, the condensate water will splash out of the collection tray and into the electrical box. Water leaks or electrical faults may eventually be caused.

Do not install the unit in a place where the current of expelled air directly affects animals or plants as they could be adversely affected.

2 NAME OF PARTS

◆ KPI-(252-2002)E4E / KPI-(502-1002)X4E

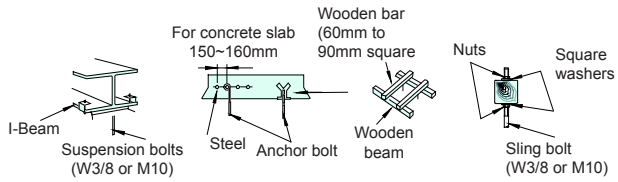


No.	Part name
1	HEX/Filters Service Cover
2	Electrical Box
3	Damper
4	Return air fan motor
5	Active module (only KPI-(502-1002)X4E)
6	Evaporator service cover (only KPI-(502-1002)X4E)
7	Expansion Valve (only KPI-(502-1002)X4E)
8	Evaporator (only KPI-(502-1002)X4E)
9	High efficiency filter (optional)
10	Heat exchanger
11	Supply air fan motor
12	OA - Outdoor Air
13	SA - Supply Air
14	RA - Return Air
15	EA - Exhaust Fan

3 KPI UNITS INSTALLATION

DANGER

- *Check to ensure that the accessories are packed with the KPI unit.*
- *Do not install KPI units outdoors. If installed outdoors, an electric hazard or electric leakage will occur.*
- *Consider the air distribution from each unit to the space of the room, and select a suitable location so that uniform air temperature in the room can be obtained. It is recommended that the units be installed 2.3 to 3 meters from the floor level. If the unit is installed higher than 3 meters, it is also recommended that a fan be utilised to obtain uniform air temperature in the room.*
- *Avoid obstacles which may hamper the air intake or the air discharge flow.*
- *Pay attention to the following points when the KPI units are installed in a hospital or other places where there are electronic waves from medical equipment, etc.*
- *Do not install the KPI units where electromagnetic wave is directly radiated to the electrical box, remote control cable or remote control switch.*
- *Install the KPI units and components as far as practical or at least 3 meters from the electromagnetic wave radiator.*
- *Prepare a steel box and install the remote control switch in it. Prepare a steel conduit tube and wire the remote control cable in it. Then connect the ground wire with the box and tube.*
- *Install a noise filter when the power supply emits harmful noises.*
- *Mount suspension bolts using M10 (W3/8) as size, as shown below:*



- *Do not put any foreign material into the KPI unit and check to ensure that none exist in the KPI unit before the installation and test running. Otherwise a fire or failure, etc., may occur.*

CAUTION

- *In case of installing a KPI-(252-2002)(E/X)4E, when it is considered that the unit can work with outdoor temperatures below -5ºC, the installation of an electric heater (field supplied) before OA section is necessary in order to protect the heat exchanger element.*
- *Make sure that the installation of this electric heater complies with national and regional codes and regulations.*
- *For further information about the installation and control of this electric heater, please refer to Indoor Units & Complementary Systems Technical Catalogue / Service Manual.*

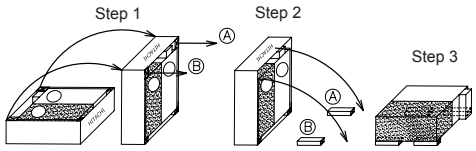
CAUTION

- *Do not install KPI units in a flammable environment to avoid a fire or an explosion.*
- *Check to ensure that the ceiling slab is strong enough. If not strong enough, the KPI unit may fall down on you.*
- *Do not install the KPI units, outdoor unit, remote control switch and cable within approximately 3 meters of strong electromagnetic wave radiators such as medical equipment.*
- *Do not install the KPI units in a machinery shop or kitchen where vapor from oil or mist flows to the KPI units. The oil will deposit on the heat exchanger, thereby reducing the KPI unit performance, and may deform. In the worst case, the oil damages the plastic parts of the KPI unit.*
- *To avoid any corrosive action to the heat exchangers, do not install the KPI units in an acid or alkaline environment.*
- *When lifting or moving the KPI unit, use appropriate slings to avoid damage and be careful not to damage the insulation material on units surface.*

Before installation;

The units from 500 m3/h are packaged upwards.

Be careful with the fan units when it spins the unit. The procedure has to be done by two people.



NOTE

Make sure to use the opposite side to the E-Box to lean on the unit.

3.1 UNIT INSTALLATION

3.1.1 Initial check

Check to ensure that the following accessories are packed with the unit.

NOTE

If any of these accessories are not packed with the unit, please contact your contractor.

Accesory	Appearance	Quantity
Duct adapter		4
Screw		24
Washer		8
Nut		12
Vibration Abs.Rubber		4
Rubber duct joint		4

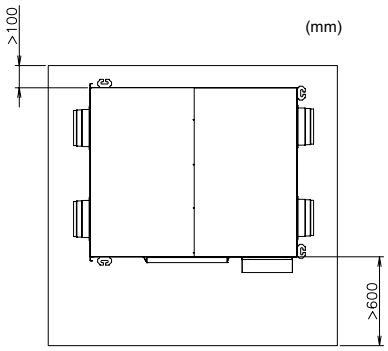
3.1.2 Installation

Install the KPI unit with a proper clearance around it paying careful attention of installation direction for the piping, wiring and maintenance working space, as shown below.

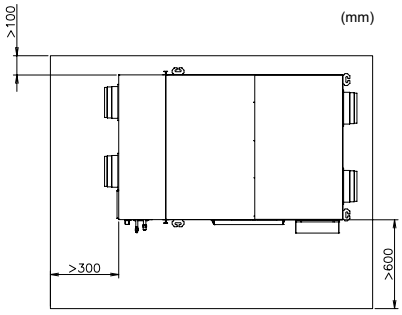
Service space

- Install the unit with a proper clearance around it for operation and maintenance working space, as shown in below figure.
- Consider the air distribution from the unit to the space of the room, and select a suitable location so that uniform air temperature in the room can be obtained.

◆ **KPI-(252-2002)E4E**



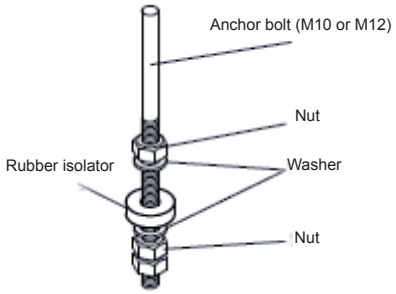
◆ **KPI-(502-1002)X4E**



- Avoid obstacles which may hamper the air intake or the air discharge flow.
- Select a position for introducing the outside air where no exhaust or combustion gases will be sucked into the unit and where it will not be covered by snow.

Mounting the suspension bolts

1 Preparing the sling Bolts.



2 Hanging the Unit.

- Hang the suspension bracket on the anchor bolts and adjust in such a way that the unit is installed horizontally.
- Tighten up securely using double nuts in order to prevent looseness.

CAUTION

When suspending the main unit from the ceiling, do not handle it in such a way that force will be applied to the control box.

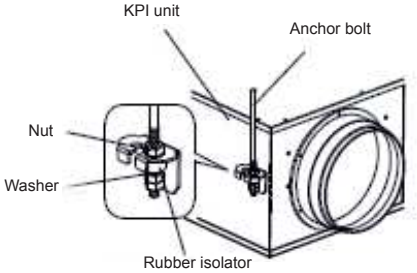
NOTE

In case that sling bolts are too short, re-attach the suspension bracket in an alternative position.

3 Remove the screws at the top mounting position.

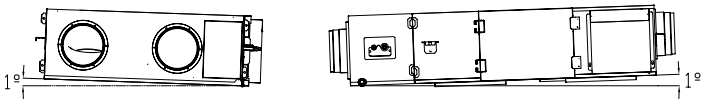
4 Remove the suspension bracket and attach them at higher mounting position.

5 Tighten up the screws in the screw hole where the suspension brackets were removed in order to prevent air leaks.



Drain Pan Level

◆ KPI-(502-1002)X4E



Make sure that the foundation is flat, taking into account the maximum foundation gradient.

The unit should be installed so that one side of the unit is slightly (approximately 1º (KPI-(502-1002)X4E) lower than the other side, in order to avoid the incorrect position of the drain discharge.

Tighten the nuts of the suspension bolts with the suspension brackets after adjustment is completed. Special plastic paint must be applied to the bolts and nuts in order to prevent them from loosening.

NOTE

Keep the unit as well as relevant equipment covered with the vinyl cover during installation work.

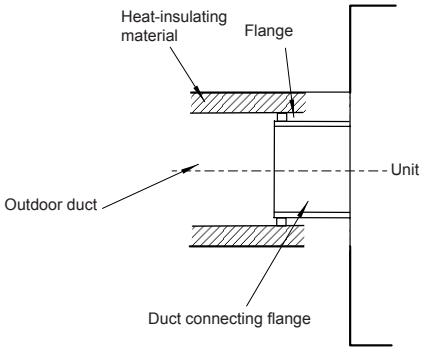
3.1.3 Connecting Field Supply Duct and Suction Air Filter Servicing

◆ Field Supply Duct installation

The supply duct should be connected with the unit through flexible duct, in order to avoid abnormal sounds and vibration.

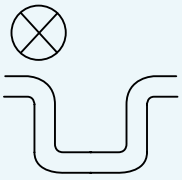
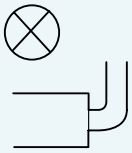
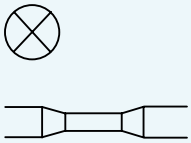
The unit is equipped with a pre-drilled duct flange for the supply duct connection.

1. Set the supplied rubber duct joint to each duct adapter to ensure a good junction of the ducts.
2. Fit the ducts securely into the duct connecting flanges, and wind aluminium tape available from hardware store to prevent air leaks, also duct connection flanges have their own sealing installed.
3. Suspend the ducts from the ceiling so that their weight will not be applied to the unit.
4. The two outdoor ducts must be covered with heatinsulating material in order to prevent condensation from forming.



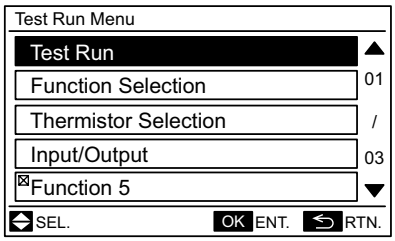
CAUTION

- *Before connecting the ducts, check that no sawdust or any other foreign matter (scraps of paper, vinyl, etc.) is inside the ducts.*
- *Do not touch the damper plate inside the main unit when connecting the ducts.*
- *Do not install the ducts as shown in the next figures. Doing so, air volume will be reduced and abnormal sounds may occur.*

Extremely sharp bends	Multiple bends
	
Bends right next to the outlet	**Extreme reduction in the diameter of the connected ducts**
	

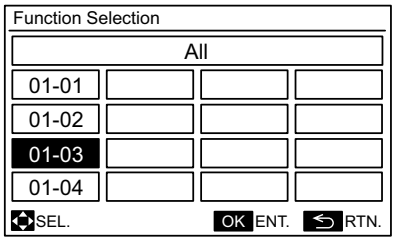
3.1.4 Optional functions and setting

1 Press and hold "☰" (menu) and "⮌" (return) simultaneously for at least 3 seconds during the normal mode (when unit is not operated). The test run menu will be displayed.



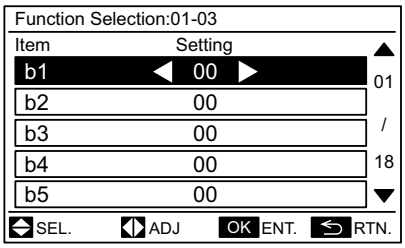
2 Select "Function Selection" from the test run menu and press "OK".

3 Select the indoor unit by pressing "△ ▽ ◁ ▷" and press "OK".

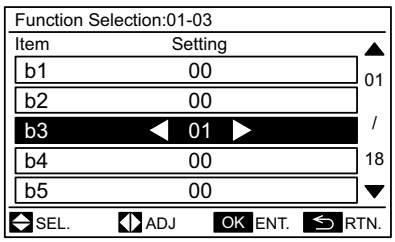


(This screen is NOT displayed when the number of indoor unit connected with the remote control switch is 1 (one). In this case, (4) will be displayed.)

4 Press "△ ▽" and select the item.

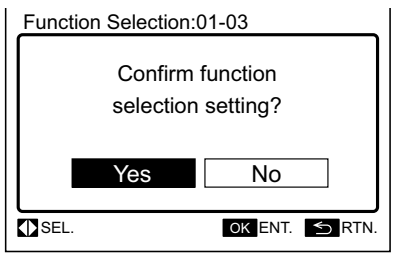


5 Press "◁ ▷" and change the setting.



6 Press "OK" so that the confirmation screen will be displayed.

7 Select "Yes" and press "OK". The test run menu will be displayed after the setting is confirmed. If "No" is pressed, the screen will return to (4).



8 Press "⮌" (return) on the test run menu to return to the normal mode.

9 To set other units, press "⮌" (return) at (4)(5) so that the screen will return to (3). (If the number of indoor unit connected with the remote control switch is 1 (one), the screen will return to (1).)

◆ Static pressure setting

KPI units have been provided by three Static Pressure levels regulation depending on the installation requirements.

High Static Pressure, Medium Static Pressure (Factory setting) and Low Static Pressure conditions are available.

Static Pressure setting shall be made from the Remote Control Switch. For changing to High and Low Static Pressure level, refer to the Instalation and Operation Manual. Examples of configuration with PC-ARFPE remote controler are show below.

Select item C5 and change the setting as follows:

- 00 Medium Static Pressure (Factory Setting)
- 01 High Static Pressure
- 02 Low Static Pressure

◆ Ventilation mode

This function is used to set the ventilation mode of the ventilation unit with energy / heat recovery.

Select item E1 and change the setting as follows:

- 00 Automatic Ventilation: Selecting effective ventilation mode (Total Heat Exchanging Ventilation or Bypass Ventilation) for energy saving by detecting the temperature difference between the outdoor temperature and the room temperature.
- 01 Total Heat Exchanging Ventilation: The heat exchanging is performed continuously when the total heat exchanger is operated.
- 02 Bypass Ventilation: The heat exchanging is not performed continuously when the total heat exchanger is operated.

◆ Increased air supply volume

This function is used to increase the supply air volume with the one-step high tap of the fan motor for supply air during operation of the total heat exchanger, make the room pressure higher than the surrounded room with the increased supply air volume and prevent the polluted air and smell from entering into the room.

Select item E2 and change the setting as follows:

- 00 Not available
- 01 Available

The setting air flow mode by remote control switch and the actual air flow of the total heat exchanger when setting this function are as shown below.

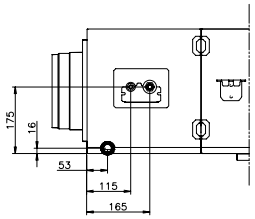
Setting Air Flow Mode by Remote Control Switch	Air Flow of Total Heat Exchanger
LOW	MED
MED	HIGH
HIGH	HIGH

4 REFRIGERANT PIPING (ONLY FOR KPI-(502-1002)X4E)

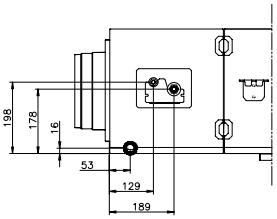
4.1 PIPING CONNECTION

Position of piping connection is the following:

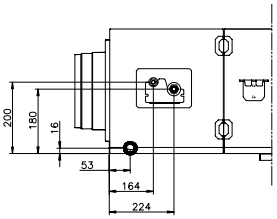
KPI-502X4E



KPI-802X4E



KPI-1002X4E



4.1.1 Size of piping connection

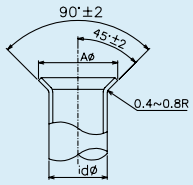
◆ **Piping size**

Units: mm (inch)			
Model KPI	**KPI-502X4E**	**KPI-802X4E**	**KPI-1002X4E**
Gas Piping	Ø12.70 (1/2”)	Ø 15.88 (5/8”)	Ø 15.88 (5/8”)
Liquid Piping	Ø 6.35 (1/4”)	Ø 6.35 (1/4”)	Ø 9.53 (3/8”)

◆ **Thickness of the copper pipes**

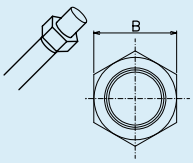
Units: mm (inch)		
Nominal diameters	**Outer diameters**	**Thickness**
(1/4)	6.35	0.80
(3/8)	9.53	0.80
(1/2)	12.70	0.80
(5/8)	15.88	1.00

◆ **Flare pipe dimensions**



Nominal diameters	**d**	**$A_{Ø\ +0/-0.4}$**
(1/4)	6.35	9.1
(3/8)	9.53	13.2
(1/2)	12.70	16.6
(5/8)	15.88	19.7

◆ **Flare nut dimensions**



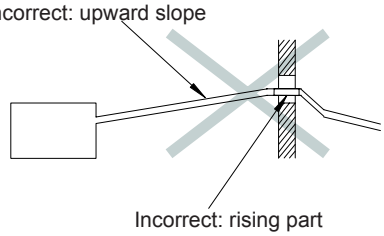
Nominal diameters	**Outer diameter**	**B**
(1/4)	6.35	17
(3/8)	9.53	22
(1/2)	12.70	26
(5/8)	15.88	29

5 DRAIN PIPING

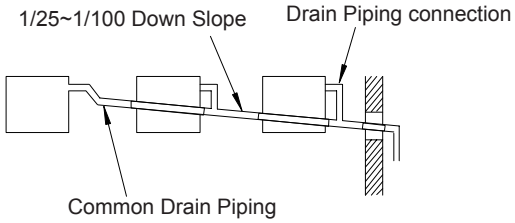
5.1 GENERAL INFORMATION

- INCORRECT

Incorrect: upward slope



- CORRECT



⚠ CAUTION

- *Do not create an upper-slope or rise for the drain piping, since drain water will flow back to the unit and leakage to the room will occur when the unit operation is stopped.*
- *Do not connect the drain pipe with sanitary or sewage piping or any other drainage piping.*
- *When the common drain piping is connected with other units, the connected position of each KPI unit must be higher than the common piping. The pipe size of the common drain pipe must be large enough according to the unit size and number of unit.*

- *Drain piping will require insulating if the drain is installed in a location where condensation forming on the outside of drain pipe may drop and cause damage. The insulation for the drain pipe must be selected to insure vapor sealing and prevent condensation forming.*
- *Drain trap should be installed next to KPI unit. This trap must be designed to good practice and be checked with water (charged) and tested for correct flow. Do not tie or clamp the drain pipe and refrigerant pipe together.*

NOTE

Install drainage in accordance with national and local codes.

After performing drain piping work and electrical wiring, check to ensure that water flows smoothly as in the following procedure:

◆ Checking the Drain piping (Only for KPI-(502-2002)X4E

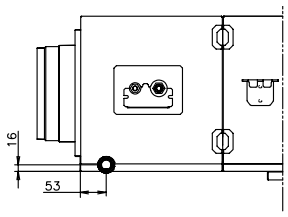
- Pour water gradually into the drain pan
- Check to ensure that the water flows smoothly or whether no water leakage occurs.

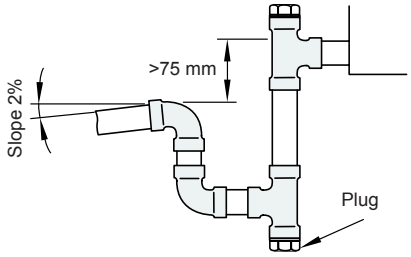
NOTE

Pay attention to the thickness of the insulation when the left side piping is performed. If it is too thick, piping can not be installed in the unit.

5.2 DRAIN PIPE CONNECTION (ONLY FOR KPI-(502-2002)X4E)

1 The position of the drain pipe connection is shown below.





2 Prepare a polyvinyl chloride pipe with 25 mm inner diameter for KPI-(502-1002)X4E.

3 Fasten the tubing to the drain hose with an adhesive and the factory-supplied clamp. The drain piping must be performed with a down-slope pitch of 1/25 to 1/100.

4 Insulate the drain pipe after connecting the drain hose to avoid any condensation.

5 Connect a syphon, as shown at the figure below.

NOTE

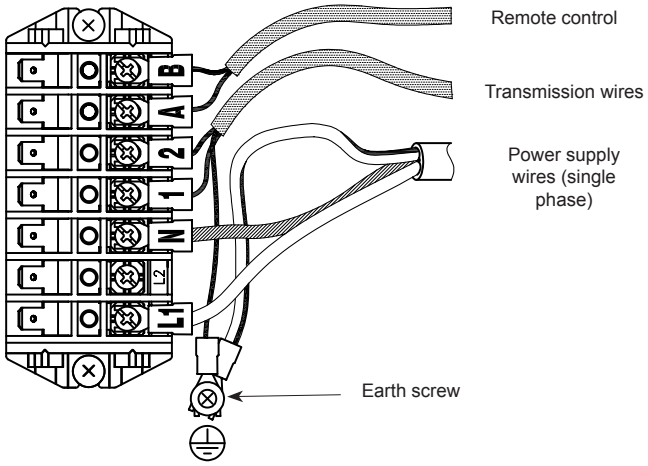
Keep electrical box and drain pipe connection free of refrigerant pipes.

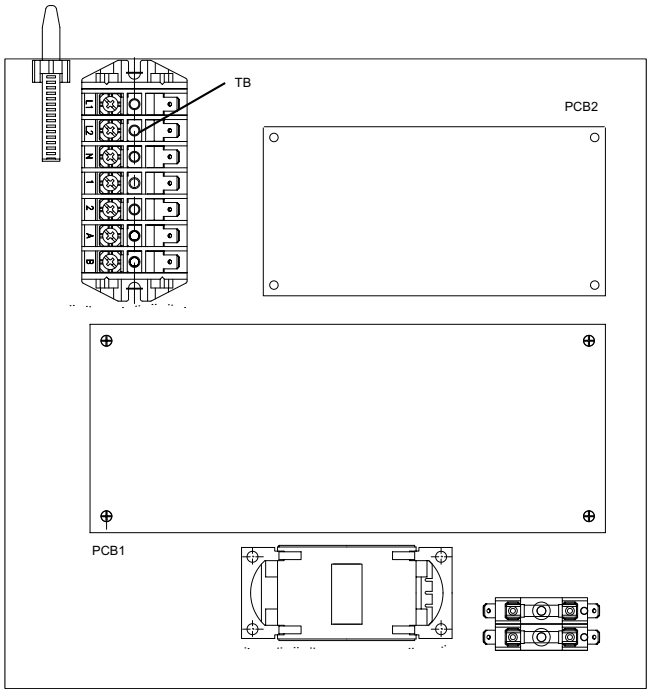
CAUTION

It is very important the syphon installation in order to guarantee the proper condensate draining.

6 ELECTRICAL WIRING

6.1 ELECTRICAL WIRING CONNECTION FOR KPI UNIT



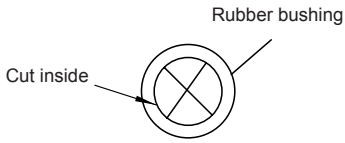


CAUTION

Use twisted shielded pair cable or shield pair cable for transmission wires between the KPI and the outdoor units, and connect the shielded part to the earth screw in the electrical box of the KPI unit as shown in the figure.

The electrical wiring connection for the unit is shown below:

1 Cut out the centre of the rubber bushing in the wiring connection hole, as shown in next figure



2 Connect the cable of an optional remote control switch or an optional extension cable to the connectors on the printed circuit board inside the electrical box through the connecting hole in the cabinet.

3 Connect the power supply and earth wires to the terminals in the electrical box.

4 Tightly clamp the wires using the cord clamp inside the electrical box.

5 Seal the wiring connection hole after running the cables with the seal material to protect the unit from condense water or insects.

6 In the case that the power cables are connected in series,check the amount of current is less than 50 A.

Select the main switches in according to the next table:

Model	Power source	Maximum current (A)	CB (A)	ELB (nº poles/A/ mA) (mm2)
KPI-252E4E	1~ 230V50Hz	4	6	2/40/30
KPI-502(E/X)4E		4	6	
KPI-802(E/X)4E		4	6	
KPI-1002(E/X)4E		8	10	
KPI-1502E4E		8	10	
KPI-2002E4E		8	10	

ELB: Earth leakage breaker; CB: Circuit breaker

◆ Field Minimum Wire Sizes for Power Source

Ensure that the field-supplied electrical components (mains power switches, circuit breakers, wires, connectors and wire terminals) have been properly selected according to the electrical data indicated.

Make sure that they comply with national and regional electrical codes and regulations.

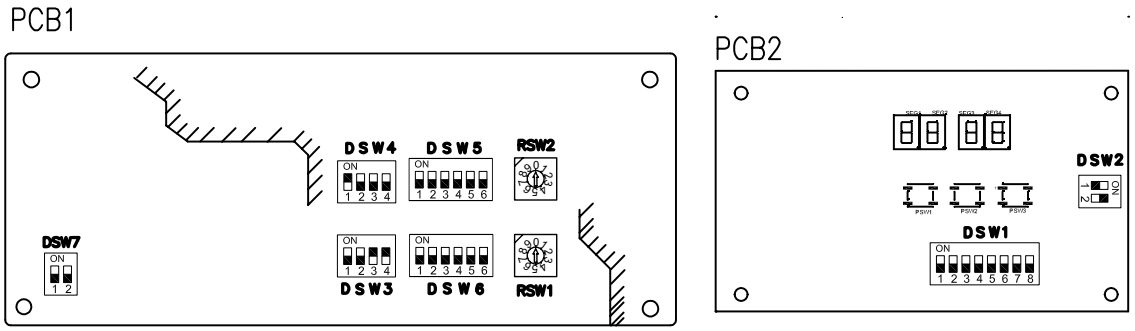
Model	Power source	Maximum current (A)	Power Source Cable Size EN60 335-1 (*1) (mm2)
KPI-252E4E	1~, 230V 50 Hz	4	1
KPI-502(E/X)4E		4	1
KPI-802(E/X)4E		4	1
KPI-1002(E/X)4E		8	1.5
KPI-1502E4E		8	1.5
KPI-2002E4E		8	1.5

NOTE

- *The above wire sizes marked with (*1) are selected at the maximum current of the unit according to the European Standard, EN60 335-1.*
- *Use a shielded cable and connect it to ground.*
- *In the case that power cables are connected in series, add each unit maximum current and select wires below.*
- *Follow local codes and regulations when selecting field wires, Circuit breakers and Earth Leakage breakers*
- *Use the wires which are not lighter than the ordinary polychloroprene sheathed flexible cord (code designation H05RN-F).*

6.2 SETTINGS OF DIP SWITCHES

◆ Dip switches quantity, position and factory setting



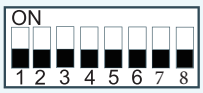
CAUTION

Before setting dips switches, firstly turn off power source and set the position of the dips switches. If the switches are set without turning off the power source, the contents of the setting are invalid.

6.2.1 PCB1 settings

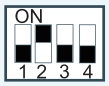
◆ DSW1 and DSW2

No setting is required

DSW1	DSW2
All units	All units
	

◆ DSW3: Capacity Code Setting

No setting is required, due to setting before shipment. This dip switch is utilized for setting the capacity code.

DSW3		
KPI-252	KPI-502	KPI-802
		
KPI-1002	KPI-1502	KPI-2002
		

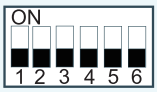
◆ DSW4: unit model code setting

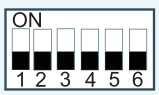
No setting is required. This switch is utilized for setting the model code.

DSW4	
KPI (E4E)	Active KPI (X4E)
	

◆ DSW5 and RSW2: Refrigerant Cycle No. Setting

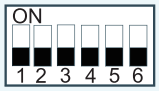
Setting is required. Setting position before shipment:

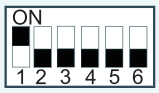
DSW5	RSW2
	
DSW5 and RSW2 can be set up to 63	

Ex. setting 5 system:	
DSW5	RSW2
	
All pins are OFF	Fix to 5

◆ DSW6 and RSW1: Unit No. Setting

Setting is required. Setting position before shipment:

DSW6	RSW1
	
DSW6 and RSW1 can be set up to 63	

Ex. setting nº 16	
DSW6	RSW1
	

◆ DSW7: remote control selection

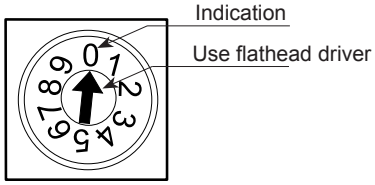
No setting is required. Setting position before shipment.	

◆ DSW7: fuse recover

In case of applying high voltage to the terminal 1,2 of TB, the fuse on the PCB1 is cut. In such a case, firstly correct the wiring to TB and then turn ON #1 (as showing beside)	

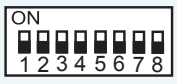
NOTE

- *The mark "■" indicates position of dips switches. Figures show setting before shipment or after selection.*
- *To set the position of the rotary switches, insert a screwdriver into the groove of the RSW.*



6.2.2 PCB2 settings

◆ DSW1: Optional functions

Factory setting	
Pin 7: Common operation of remote control switch	

⚠ CAUTION

If there is an indoor unit connected in the same RCS line as DX-Interface EXV-(2.0-10.0)E1 or KPI-(E/X)4E, then pin 7 must be ON to disable the power supply to RCS line. If there is no indoor unit connected to the same RCS line but there are more than one DX-Interface EXV-(2.0-10.0) E1 or KPI-(E/X)4E, then only one DX-Interface EXV-(2.0-10.0)E1 or KPI-(E/X)4E should have pin 7 OFF while all other units must have pin 7 set to ON. Failure to perform this setting correctly will result in bad communication and can even cause physical damage to the PCB.

◆ DSW2: End resistance

In case that only KPI units are connected in the same HLINK (no outdoor unit connected in the same HLINK) set pin1 ON. Other case, no setting is required for DSW2.

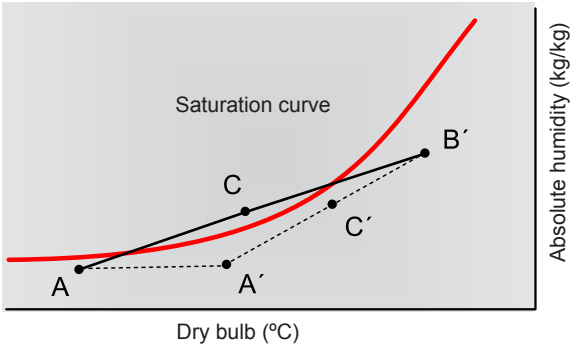
All units


7 INITIAL CHECK

Before installation, check if dewing may occur in the heat exchange element (the case that the line connecting the protted points of the outdoor/indoor temperature and humidity conditions crosses the saturation curve on the psychometric diagram).

In this case, heat the A (Outdoor Air) up to the A' point avoiding that the line connecting the plotted points of the outdoor/indoor temperature and humidity conditions crosses the saturation curve, so that the total heat exchanger can be used.

The heating method for the A (Outdoor Air) must be determined according to the local codes and regulations.



The limit of the environmental conditions for using the total heat exchanger are shown in the table below as an example, at the outdoor air temperature 0 °C and -5 °C with the indoor air temperature 30 °C and 25ºC

In case that the indoor air humidity is higher than this condition or the outdoor air humidity is extremely high, dewing may occur.

The dew may grow up to the drop and the water may flow out of the unit.

Outdoor Air Temperature (DB)	Indoor Air Temperature (DB)	Indoor Air Relative Humidity (%)	Indoor Air Absolute Humidity (kg/kg)
0ºC	30ºC	50	0.0133
-5ºC	30ºC	36	0.0095
-5ºC	25ºC	45	0.0089