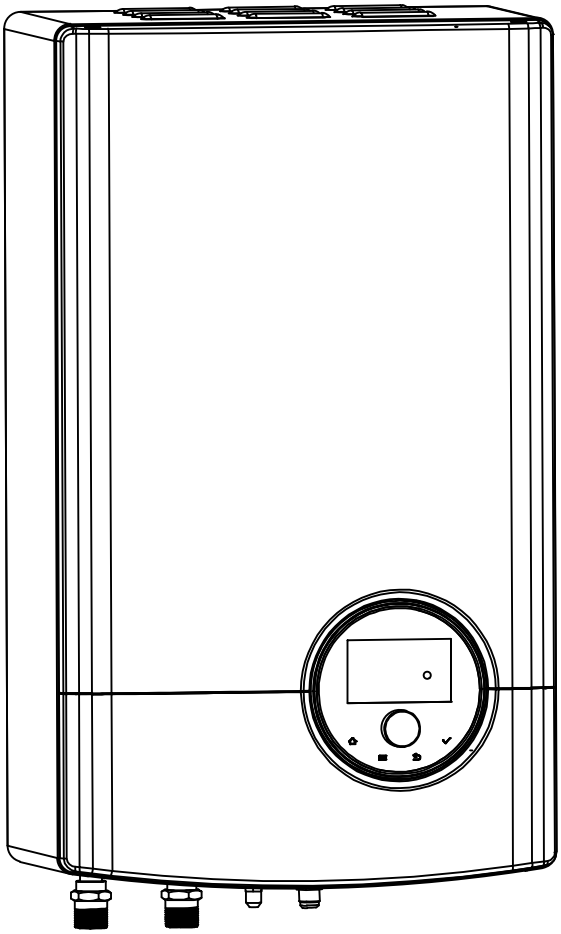
Hisense

Installation & Maintenance Manual

- HEAT PUMP INDOOR UNIT -

Hi-Therma	MODEL
220-240V ~ 50HZ	AHM-100HCDSAA
	AHM-120HCDSAA
	AHM-140HCDSAA
	AHM-160HCDSAA
380-415V 3N~ 50HZ	AHM-100HEDSAA
	AHM-120HEDSAA
	AHM-140HEDSAA
	AHM-160HEDSAA



IMPORTANT:

READ AND UNDERSTAND THIS MANUAL BEFORE USING THIS HEAT-PUMP AIR CONDITIONER. KEEP THIS MANUAL FOR FUTURE REFERENCE.

M01268Q

ORIGINAL INSTRUCTIONS

EN	FR	ES	IT	DE
Declaration of Conformity (Manufacturer's Declaration)	Déclaration de conformité (Déclaration du fabricant)	Declaración De Conformidad (Declaración del Fabricante)	Dichiarazione di Conformità (Chiarazione del produttore)	Konformitätserklärung (Erklärung des Herstellers)

PT	NL	PL	TR	RO
Declaração de conformidade (declaração do fabricante)	Verklaring van Overeenstemming (Verklaring van de fabrikant)	Deklaracja Zgodności（Deklaracj a wytwórcy）	Uygunluk Beyanı (Üretici Beyanı)	Declarație de conformitate (Declarația producătorului)

GR

ΔΗΛΩΣΗ ΣΥΜΜΟΡΦΩΣΗΣ (Δήλωση του κατασκευαστή)

Qingdao Hisense Hitachi Air-conditioning Systems Co., Ltd. ,

01 EN declares under its sole responsibility that the equipment to which this declaration relates:
02 FR déclare sous sa seule responsabilité que l'équipement visé par la présente déclaration:
03 ES declara bajo su única responsabilidad que el equipo al que hace referencia la declaración:
04 IT dichiara sotto la propria responsabilità che gli apparecchi a cui è riferita questa dichiarazione:
05 DE erklärt auf seine alleinige Verantwortung daß die Ausrüstung für die diese Erklärung bestimmt ist:
06 PT declara sob sua exclusiva responsabilidade que os equipamentos a que esta declaração se refere:
07 NL verklaart hierbij op eigen exclusieve verantwoordelijkheid dat de apparatuur waarop deze verklaring betrekking heeft:
08 PL deklaruje na własną i wyłączną odpowiedzialność, że urządzenia, których ta deklaracja dotyczy:
09 TR tamamen kendi sorumluluğunda olmak üzere bu bildirinin ilgili olduğu donanımının aşağıdaki gibi olduğunu beyan eder:
10 RO declară pe proprie răspundere că echipamentele la care se referă această declaraţie:
11 GR δηλώνει με αποκλειστική της ευθύνη ότι ο εξοπλισμός στον οποίο αναφέρεται η παρούσα δήλωση:

AHM-100HCDSAA, AHM-120HCDSAA, AHM-140HCDSAA, AHM-160HCDSAA,
AHM-100HEDSAA, AHM-120HEDSAA, AHM-140HEDSAA, AHM-160HEDSAA

01 EN are in conformity with the following standard(s) or other normative document(s), provided that these are used in accordance with our instructions:
02 FR sont conformes à la/aux norme(s) ou autre(s) document(s) normatif(s), pour autant qu'ils soient utilisés conformément à nos instructions:
03 ES están en conformidad con la(s) siguiente(s) norma(s) u otro(s) documento(s) normativo(s), siempre que sean utilizados de acuerdo con nuestras instrucciones:
04 IT sono conformi al(i) seguente(i) standard(s) o altro(i) documento(i) a carattere normativo, a patto che vengano usati in conformità alle nostre istruzioni:
05 DE der/den folgenden Norm(en) oder einem anderen Normdokument oder -dokumenten entspricht/entsprechen, unter der Voraussetzung, daß sie gemäß unseren Anweisungen eingesetzt werden:
06 PT estão em conformidade com a(s) seguinte(s) norma(s) ou outro(s) documento(s) normativo(s), desde que estes sejam utilizados de acordo com as nossas instruções:
07 NL conform de volgende norm(en) of één of meer andere bindende documenten zijn, op voorwaarde dat ze worden gebruikt overeenkomstig onze instructies:
08 PL spełniają wymogi następujących norm i innych dokumentów normalizacyjnych, pod warunkiem że używane są zgodnie z naszymi instrukcjami:
09 TR ürünün, talimatlarımıza göre kullanılması koşuluyla aşağıdaki standartlar ve norm belirten belgelerle uyumludur:
10 RO sunt în conformitate cu următorul (următoarele) standard(e) sau alt(e) document(e) normativ(e), cu condiţia ca acestea să fie utilizate în conformitate cu instrucţiunile noastre:
11 GR είναι σύμφωνα με το(α) ακόλουθο(α) πρότυπο(α) ή άλλο έγγραφο(α) κανονισμών, υπό την προϋπόθεση ότι χρησιμοποιούνται σύμφωνα με τις οδηγίες μας:

EN IEC 55014-1:2021
EN 55014-1:2017+A11:2020
EN IEC 55014-2:2021
EN 55014-2:2015
EN IEC 61000-3-11:2019
EN 61000-3-12:2011
EN 60335-1:2012 + A11:2014 + A13:2017 + A1:2019 + A14:2019 + A2:2019 + A15:2021
EN 60335-2-40:2003 + A11:2004 + A12:2005 + A1:2006 + A2:2009 + A13:2012
EN 60335-2-21:2021 + A1:2021
EN 62233:2008
EN 378-2:2016

01 (EN) following the provisions of:	**2006/42/EC**	01 (EN) Directives, as amended.
02 (FR) conformément aux stipulations des:	**2014/30/EU**	02 (FR) Directives, telles que modifiées.
03 (ES) siguiendo las disposiciones de:	**2014/35/EU**	03 (ES) Directivas, según lo enmendado.
04 (IT) secondo le prescrizioni per:	**2012/19/EU**	04 (IT) Direttive, come da modifica.
05 (DE) gemäß den Vorschriften der:	**2011/65/EU**	05 (DE) Direktiven, gemäß Änderung.
06 (PT) de acordo com o previsto em:	**2014/517/EU**	06 (PT) Directivas, conforme alteração em.
07 (NL) overeenkomstig de bepalingen van:	**1907/2006/EC**	07 (NL) Richtlijnen, zoals geamendeerd.
08 (PL) zgodnie z postanowieniami Dyrektyw:	**2009/125/EC**	08 (PL) z późniejszymi poprawkami.
09 (TR) bunun koşullarına uygun olarak:	**2014/68/EU**	09 (TR) Değiştirilmiş halleriyle Yönetmelikler.
10 (RO) în urma prevederilor:		10 (RO) Directivelor, cu amendamentele respective.
11 (GR) με τήρηση των διατάξεων των:		11 (GR) Οδηγιών, όπως έχουν τροποποιηθεί.

01 (EN) * Manufacturing number and manufacturing year: refer to model Nameplate.
Note:This declaration becomes invalid, if technical or operational modifications are introduced without the manufacturer's consent.

02 (FR) * Numéro de fabrication et année de fabrication : se référer à la plaque signalétique du modèle.
Remarque : Cette déclaration devient invalide si des modifications techniques ou opérationnelles sont introduites sans le consentement du fabricant.

03 (ES) * Número de fabricación y año de fabricación: consulte la placa de identificación del modelo.
Nota: esta declaración deja de tener validez si se introducen modificaciones técnicas u operativas sin el consentimiento del fabricante.

04 (IT) * Numero di fabbricazione e anno di fabbricazione: fare riferimento alla targhetta del modello.
Nota: questa dichiarazione non è valida se vengono introdotte modifiche tecniche o operative senza il consenso del produttore.

05 (DE) * Herstellungsnummer und Herstellungsjahr: siehe Typenschild des Modells.
Hinweis: Diese Erklärung verliert ihre Gültigkeit, wenn ohne Zustimmung des Herstellers technische oder betriebliche Änderungen vorgenommen werden.

06 (PT) * Número de fabricação e ano de fabricação: consulte a placa de identificação do modelo.
Nota: Esta declaração torna-se inválida se modificações técnicas ou operacionais forem introduzidas sem o consentimento do fabricante.

07 (NL) * Fabricagenummer en fabricagejaar: zie het typeplaatje van het model.
Opmerking: Deze verklaring wordt ongeldig als technische of operationele wijzigingen worden aangebracht zonder toestemming van de fabrikant.

08 (PL) * Numer produkcyjny i rok produkcji: patrz tabliczka znamionowa modelu.
Uwaga: Niniejsza deklaracja traci ważność w przypadku wprowadzenia zmian technicznych lub eksploatacyjnych bez zgody producenta.

09 (TR) * Üretim numarası ve üretim yılı: model Etiketine bakın.
Not: Üreticinin izni olmadan teknik veya operasyonel değişiklikler yapılırsa bu beyan geçersiz olur.

10 (RO) * Numărul de fabricație și anul de fabricație: consultați plăcuța de identificare a modelului.
Notă: Această declarație devine nulă dacă sunt introduse modificări tehnice sau operaționale fără acordul producătorului.

11 (GR) * Αριθμός και έτος κατασκευής: δείτε στον πινακα χαρακτηριτικών μοντέλου
Σημείωση: Η παρούσα δήλωση ακυρώνεται, αν πραγματοποιηθούν τεχνικές ή λειτουργικές τροποποιήσεις χωρίς τη συγκατάθεση του κατασκευαστή.

Hisense Italia S.r.l. (Ad. : Via Montefeltro 6A, 20156 Milano.)

01 (EN) is authorised to Compile the Technical Construction File.
02 (FR) est autorisé à constituer le dossier technique de constructions.
03 (ES) está autorizado a compilar el expediente técnico de construcción.
04 (IT) è autorizzato a compilare il fascicolo tecnico della costruzione.
05 (DE) ist berechtigt die Technische Dokumentation zu erstellen.
06 (PT) está autorizada a compilar o arquivo técnico de construção.
07 (NL) is bevoegd om het Technisch Constructie Dossier samen te stellen.
08 (PL) jest upoważniona do opracowania Dokumentacja techniczno-konstrukcyjna.
09 (TR) Teknik Yapı Dosyasını Derlemeye yetkilidir.
10 (RO) este autorizat să întocmească Dosarul Tehnic de Construcție.
11 (GR) έχει την άδεια να συντάσσει τον Τεχνικό Φάκελο Κατασκευής.

Hisense

Name, Surname : Sorg Zhenxing

Position/Title: Director

Date: May 12, 2023

Add.: No. 218, Qianwangang Road, Economic and Technological Development Zone, Qingdao, China

English

Specifications in this manual are subject to change without notice in order that Hisense may bring the latest innovations to their customers.

The English version is the original one; other languages are translated from English. Should any discrepancy occur between the English and the translated versions, the English version shall prevail.

Français

Les caractéristiques publiées dans ce manuel peuvent être modifiées sans préavis, Hisense souhaitant pouvoir toujours offrir à ses clients les dernières innovations.
La version anglaise est la version originale; les autres langues sont traduites de l'anglais. En cas de divergence entre les versions anglaise et traduite, la version anglaise prévaudra.

Español

Las especificaciones de este manual están sujetas a cambios sin previo aviso a fin de que Hisense pueda ofrecer las últimas innovaciones a sus clientes.

La versión en inglés es la original, y las versiones en otros idiomas son traducciones de la inglesa. En caso de discrepancias entre la versión inglesa y las versiones traducidas, prevalecerá la versión inglesa.

Italiano

Le specifiche di questo manuale sono soggette a modifica senza preavviso affinché Hisense possa offrire ai propri clienti le ultime novità.
La versione inglese è l'originale e le versioni in altre lingue sono traduzioni dall'inglese. In caso di divergenze tra la versione inglese e quelle tradotte, fa fede la versione inglese.

Deutsch

Bei den technischen Angaben in diesem Handbuch sind Änderungen vorbehalten, damit Hisense seinen Kunden die jeweils neuesten Innovationen präsentieren kann.
Die englische Fassung ist das Original, und die Fassungen in anderen Sprachen werden aus dem Englischen über-setzt. Sollten die englische und die übersetzten Fassungen voneinander abweichen, so hat die englische Fassung Vorrang.

Português

As especificações apresentadas neste manual estão sujeitas a alterações sem aviso prévio, de modo a que a Hisense possa oferecer aos seus clientes, da forma mais expedita possível, as inovações mais recentes.
A versão inglesa é a original; as versões em outras línguas são traduzidas do inglês. Em caso de divergência entre a versão em língua inglesa e as versões traduzidas, faz fé a versão em língua inglesa.

Nederlands

De specificaties in deze handleiding kunnen worden gewijzigd zonder verdere kennisgeving zodat Hisense zijn klanten kan voorzien van de nieuwste innovaties.
De Engelse versie is de originele; andere talen zijn vertaald uit het Engels. In geval van verschillen tussen de En-gelse versie en de vertaalde versies, heeft de Engelse versie voorrang.

Polski

Zamieszczone w niniejszej instrukcji obsługi dane techniczne mogą ulec zmianie bez uprzedniego powiadomienia ze względu na innowacyjne rozwiązania, jakie firma Hisense nieustannie wprowadza z myślą o swoich klientach.
Wersja angielska jest wersją oryginalną - wszystkie pozostałe stanowią jej tłumaczenie na odpowiednie języki. W przypadku stwierdzenia jakichkolwiek rozbieżności między oryginałem a jego tłumaczeniem, rozstrzygająca jest wersja w języku angielskim.

Türkçe

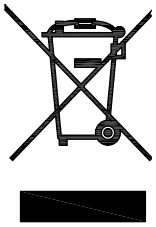
Bu kılavuzdaki teknik özellikler Hisense'nin müşterilerine en yeni inovasyonları sunabilmesi için önceden haber verilmeden değiştirilebilir.
İngilizce sürüm orijinal olanıdır ve diğer diller İngilizce'den çevrilmiştir. İngilizce ve çevrilmiş sürümler arasında farklılık olması durumunda İngilizce sürüm esas alınmalıdır.

Română

Specificațiile din acest manual pot fi modificate fără notificare prealabilă, pentru ca Hisense să poată pune la dispoziția clienților noștri ultimele inovații.
Versiunea originală este cea în limba engleză; versiunile în alte limbi sunt traduse din limba engleză. Dacă există vreo discrepanță între versiunile în limba engleză și versiunea tradusă, prevalează versiunea în limba engleză.

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.



⚠ CAUTION

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 an environmentally correct way.
Due to the refrigerant, oil and other components contained in heat pump, its dismantling must be done by a professional installer according to the applicable regulations. Contact to the corresponding authorities for more information.

⚠ ADVERTISSEMENT

Ne doit pas être mélangé aux ordures ménagères ordinaires à la fin de sa vie utile et qu'il doit être éliminé conformément à l réglementation locale ou nationale, dans le plus strict respect de l'environnement.
En raison du frigorigène, de l'huile et des autres composants que contient la pompe à chaleur, son démontage doit être effectué par un installateur professionnel conformément aux règlementations en vigueur.

⚠ PRECAUCIÓN

Éste producto no se debe eliminar con la basura doméstica al final de su vida útil y se debe desechar de manera respetuosa con e medio ambiente de acuerdo con los reglamentos locales o nacionales aplicables.
Debido al refrigerante, el aceite y otros componentes contenidos en la bomba de calor, su desmontaje debe realizarlo un instalador profesional de acuerdo con la normativa aplicable. Para obtener más información, póngase en contacto con las autoridades competentes.

⚠ AVVERTENZE

Indicazioni per il corretto smaltimento del prodotto ai sensi della Direttiva Europea 2011/65/EU e D.Lgs 4 marzo 2014 n.27
Il simbolo del cassonetto barrato riportato sull' apparecchiatura indica che il prodotto alla fine della propria vita utile deve essere raccolt separatamente dagli altri rifiuti
L'utente dovrà, pertanto, conferire l'apparecchiatura giunta a fine vita agli idonei centri di raccolta di ferenziata 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.

⚠ VORSICHT

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, Öls und anderer Komponenten in der Wärmepumpe muss ihr Ausbau von einem professionellen Installateur entsprechend der anwendbaren Vorschriften durchgeführt werden. Für weitere Informationen setzen Sie sich bitte mit den entsprechenden Behörden in Verbindung.

⚠ CUIDADO

O seu produto não deve ser misturado com os desperdícios domésticos de carácter geral no final da sua duração e que deve se eliminado de acordo com os regulamentos locais ou nacionais adequados de uma forma correcta para o meio ambiente.
Por causa do refrigerante, do óleo e de outros componentes na bomba de calor, o desmantelamento deve ser realizado por um instalador profissional em conformidade com os regulamentos aplicáveis. Co tacte as autoridades correspondentes para obter mais informações.

⚠ VOORZICHTIG

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.
Wegens de aanwezigheid van koelmiddel, olie en andere componenten in de warmtepomp moet het apparaat volgens de toepasselijke regelgeving door een professionele installateur worden gedemonteerd. Neem contact op met de betreffende overheidsdienst voor meer informatie.

⚠ OSTROŻNIE

Po zakończeniu okresu użytkowania produktu, nie należy go wyrzucać z odpadami komunalnymi, lecz dokonać jego usunięcia w sposób ekologiczny zgodnie z obowiązującymi w tym zakresie przepisami prawa lokalnego lub krajowego.
Ponieważ pompa ciepła zawiera czynniki chłodnicze i oleje oraz innego rodzaju elementy składowe, jej demontaż należy powierzyć wskazanemu w obowiązujących przepisach specjalistycznemu podmiotowi. Szczegółowe informacje na ten temat można uzyskać, kontaktując się z właściwymi organami władzy samorządowej.

⚠ DİKKAT

Bu ürün kullanım ömrü dolduğunda genel ev atıklarıyla karıştırılmamalı ve belirlenmiş yerel veya ulusal yönetmeliklere göre çevre dostu biçimde bertaraf edilmelidir.
Isı pompasında yer alan soğutucu madde, yağ ve diğer bileşenlerden dolayı sökme işlemi, uygulanır yönetmeliklere göre profesyonel bir tesisatçı tarafından yapılmalıdır. Daha fazla bilgi için ilgili merciye başvurun.

⚠ PRECAUȚIE

Acest produs nu trebuie aruncat la gunoiul menajer la sfârșitul duratei sale de viață, ci trebuie scos din uz în conformitate cu reglementările locale sau naționale adecvate și într-un mod corect din punct de vedere al protecției mediului.
Datorită agentului frigorific, a uleiului și a altor componente pompei de căldură, demontarea acestuia trebuie făcută de un instalator profesionist în conformitate cu reglementările aplicabile. Contactați autoritățile competente pentru mai multe informații.

⚠ 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 εξαρτημάτων που περιλαμβάνονται στην αντλία θέρμανσης, η αποσυναρμολόγησή του πρέπει να γίνει από εξουσιοδοτημένο επαγγελματία τεχνικό, σύμφωνα με τους ισχύοντες κανονισμούς. Για περισσότερες λεπτομέρειες, επικοινωνήστε με τις αντίστοιχες αρχές.

TECHNICAL PARAMETERS

English

Following Regulation EU No. 517/2014 on Certain Fluorinated Greenhouse gases, it is mandatory to fill in the label attached to the unit with the total amount of refrigerant charged on the installation.
Do not vent R32 into the atmosphere: R32 are fluorinated greenhouse gases covered by the Kyoto protocol global warming potential (GWP) R32 = 675.
Tn of CO_2 equivalent of fluorinated greenhouse gases contained is calculated by indicated GWP * Total Charge (in kg) indicated in the product label and divided by 1000.

Français

En fonction de la Réglementation CE Nº 517/2014 concernant certains gaz à effet de serre fluorés, il est obligatoire de remplir l'étiquette attachée à l'unité en indiquant la quantité de fluide frigorigène qui a été chargée à l'installation
Ne laissez pas le R32 se répandre dans l'atmosphère: le R32 sont des gaz à effet de serre fluorés, couverts par le protocole de Kyoto avec un potentiel de rechauffement global (PRG) R32 = 675.
Les Tn d'équivalent-CO_2 de gaz à effet de serre fluorés contenus est calculé par le PRG * Charge Totale (en kg) indiquée dans l'étiquette du produit et divisé par 1,000.

Español

De acuerdo con el reglamento UE Nº 517/2014 sobre determinados gases fluora os de efecto invernadero, es obligatorio rellenar la etiqueta suministrada con la unidad con la cantidad total de refrigerante con que se ha cargado la instalación.
No descargue el R32 en la atmósfera: R32 son gases fluorados cubiertos por el protocolo de Kyoto con un potencial de calentamiento global (GWP) = 675.
Las Tn de CO_2 equivalente de gases fluorados de efecto invernadero contenidos se calcula por el PCA indicado * Carga Total (en kg) indicada en la etiqueta del producto y dividida por 1000.

Italiano

In base alla Normativa EC Nº 517/2014 su determinati gas fluorurati ad effetto serra, è obbligatorio compilare l'etichetta che si trova sull'unità inserendo la quantità totale di refrigerante caricato nell'installazione.
Non scaricare R32 nell'atmosfera: R32 sono gas fluorurati ad effetto serra che in base al protocollo di Kyoto presentano un potenziale riscaldamento globale (GWP) R32 = 675.
Le Tn di CO_2 equivalente di gas fluorurati ad effetto serra contenuti si calcola dal GWP indicato * Carica Totale (in kg) indicato nella etichetta del prodotto e diviso per 1000.

Deutsch

Folgende Verordnung EG Nr. 517/2014 Bestimmte fluorierte Treibhausgase, auf dem Schild, das sich am Gerät befindet, muss die Gesamtkältemittelmenge verzeichnet sein, die bei der Installation eingefüll wird.
Lassen sie R32 nicht in die luft entweichen: R32 sind fluorierte treibhausgase, die durch das Kyoto-protokoll erfasst sind. Sie besitzen folgendes treibhaus-potential (GWP) R32 = 675.
Die Menge an CO_2-Äquivalent fluorierte Treibhausgase enthalten (in Tn) wird von GWP * die auf dem Produktetikett angegebenen Gesamtfüllmenge (in kg und durch 1000 geteilt berechnet.

Português

Em conformidade com a Regulamentação da UE Nº 517/2014 sobre determinados gases fluorados com efeito de estufa, é obrigatório preencher a etiqueta afixada na unidade com a quantidade total de refrigerante carregada na instalação
Não ventilar R32 para a atmosfera: o R32 são gases fluorados com efeito de estufa abrangidos pelo potencial de aquecimiento global (GWP) do protocolo de Quioto = 675.
Tn de CO_2 equivalente de gases fluorados com efeito de estufa é calculado pelo GWP indicado * Carga Total (em kg) indicado no rótulo de produto e dividido por 1000.

Nederlands

Conform richtlijn EC Nº 517/2014 voor bepaalde fluorbroeikasgassen, dient u de tabel in te vullen op de unit met het totale koelmiddelvolume in de installatie. Laat geen R32 ontsnappen in de atmosfeer: R32 zijn fluorbroeikasgassen die vallen onder het protocol van Kyoto inzake klimaatverandering global warming potential (GWP) R32 = 675.
Tn van CO_2-equivalent van fluorbroeika gassen wordt berekend door het aangegeven GWP * Totale Hoeveelheid (in kg) aangegeven in het product label en gedeeld door 1000.

Polski

Zgodnie z Rozporządzeniem UE nr 517/2014 w sprawie fluorowanych gazów cieplarnianych, wymagane jest podanie na etykiecie informacyjnej umieszczonej na klimatyzatorze ilości czynnika chłodniczego wprowadzanego do obiegu instalacji klimatyzacyjnej.
Nie należy uwalniać czynnika chłodniczego R32 do atmosfery: w jego skład wchodzą uwzględnione w protokole z Kioto fluorowane gazy cieplarniane o potencjalnym wpływie na globalne ocieplenie (GWP), R32 = 675.
W celu obliczenia wyrażonej równoważnikiem CO_2 Ilości fluorowanych gazów cieplarnianych (w tonach), mnożymy podaną wartość GWP przez wskazaną na etykiecie całkowitą masę gazu w instalacji (w kg) i uzyskany wynik dzielimy przez 1000.

Türkçe

Florlu Belli Sera gazları hakkındaki AB Yönetmeliği No. 517/2014 uyarınca üniteye iliştirilmiş etikete kurulumda doldurulan toplam soğutma gazı miktarının yazılması zorunludur.
R32'yi atmosfere tahliye etmeyin: R32, Kyoto protokolü küresel uyarı potansiyeli (GWP) R32 = 675 kapsamında florlu sera gazlarıdır.
Florlu sera gazlarının CO_2 eşdeğer tonu, ürün etiketinde belirtilen endike GWP * Toplam Dolum miktarı (kg olarak) çarpımının 1000'e bölünmesiyle hesaplanır.

Română

În conformitate cu Regulamentul UE 517/2014 privind anumite gaze fluorurate cu efect de seră, este obligatorie completarea etichetei atașate la unitate cu cantitatea totală de agent frigorific încărcat în instalație.
Nu evacuați R32 în atmosferă: R32 sunt gaze fluorurate cu efect de seră care cad sub incidența potențialului de încălzire globală al Protocolului de la Kyoto (GWP) R32 = 675.
Tonajul echivalent CO_2 al gazelor fluorurate cu efect de seră conținute se calculează prin indicarea GWP * Cantitate totală (în kg) indicată în eticheta produsului și împărțită la 1000.

Ελλhnika

Σύμφωνα με τον Κανονισμό 517/2014/ΕΚ για για ορισμένα φθοριούχα αέρια θερμοκηπίου, είναι υποχρεωτική η συμπλήρωση της επισήμανσης που επισυνάπτεται στη μονάδα με το συνολικό ποσό ψυκτικού που εισήχθη κατά την εγκατάσταση.
Μην απελευθερωνετε R32 στην ατμοσφαιρα. Τα R32 ειναι φθοριουχα αερια του θερμοκηπιου που εμπιπτουν στο πρωτοκολλο του κυοτο δυναμικο θερμανσησ
του πλανητη (GWP) R32 = 675.
Τη ισοδύναμου CO2 φθοριούχων αερίων θερμοκηπίου που περιέχονται υπολογίζεται από υποδεικνύεται GWP * Συνολική πλήρωση (σε kg) που αναφέρεται στην ετικέτα του προϊόντος και χωρίζονται από το 1000.

English (Only when using R32)

⚠ **WARNING**

BURST HAZARD

Do not allow air or any gas mixture containing oxygen into refriger-ant cycle (i.e. piping)

RISK OF EXPLOSION

The compressor must be stopped before removing the refrigerant pipes.

All service valves must be fully closed after pumping down opera-tion.

WARNING

This symbol displayed on the unit indicates that this appliance is filled with R32, an odourless flammable refrigerant gas with low burning velocity (A2L class pursuant to ISO 817). If the refrigerant is leaked, there is a possibility of ignition if it enters in contact with an external ignition source.

CAUTION

This symbol displayed on the unit indicates that this appliance shall be handled by authorized service personnel only, referring to the Installation Manual.

CAUTION

This symbol displayed on the unit indicates that there is relevant information included in the Operation Manual and/or Installation Manual.

Français (Seulement en utilisant R32)

⚠ **AVERTISSEMENT**

DANGER D'ÉCLATEMENT

Évitez que de l'air ou un mélange de gaz contenant de l'oxygène ne pénètre dans le cycle frigorifique (c.-à-d. tuyauterie)

RISQUE D'EXPLOSION

Veillez à arrêter le compresseur avant de retirer les tuyauteries fri-gorifiques.

Veillez à fermer complètement toutes les vannes de service après la vidange.

AVERTISSEMENT

Ce symbole affiché sur l'appareil indique que l'appareil est chargé avec R32, un gaz frigorigène inflammable sans odeur à basse vitesse de combustion (Classe A2L selon ISO 817). En cas de fuite de frigorigène, il existe un risque d'incendie si celui-ci est exposé à une source d'inflammation externe.

ATTENTION

Ce symbole affiché sur l'appareil indique que seul le personnel de maintenance autorisé doit manipuler l'équipement, en se reportant au manuel d'installation.

ATTENTION

Ce symbole affiché sur l'appareil indique que le manuel de fonc-tionnement et/ou le manuel d'installation contient des informations importantes.

Español (Sólo cuando se utiliza R32)

⚠ **ADVERTENCIA**

RIESGO DE EXPLOSIÓN

Evite la entrada de aire o cualquier mezcla de gases que contenga oxígeno en el ciclo de refrigerante, por ejemplo, en las tuberías.

RIESGO DE EXPLOSIÓN

Antes de retirar las tuberías de refrigerante debe detener el com-presor.

Tras recuperar el refrigerante todas las válvulas de servicio deben estar completamente cerradas.

ADVERTENCIA

Este símbolo mostrado en el aparato indica que este está cargado con R32, un gas refrigerante inflamable e inodoro con una veloci-dad de combustión lenta (Clase A2L de acuerdo con ISO 817). Una fuga de refrigerante puede provocar un incendio si entra en con-tacto con una fuente de combustión externa.

PRECAUCIÓN

Este símbolo mostrado en el aparato indica que este debe ser ma-nipulado únicamente por personal de un servicio autorizado con el soporte del manual de instalación.

PRECAUCIÓN

Este símbolo mostrado en el aparato indica que los manuales de funcionamiento y/o de instalación contienen información impor-tante.

Italiano (Solo quando si usa R32)

⚠ **AVVERTENZA**

PERICOLO DI SCOPPIO

Fare in modo che all'interno del ciclo di refrigerazione non entrino aria o qualsiasi miscela di gas contenente ossigeno (per es. le tu-bazioni).

RISCHIO DI ESPLOSIONE

Il compressore deve essere arrestato prima di rimuovere i tubi del refrigerante.

Tutte le valvole di servizio devono essere completamente chiuse dopo lo svuotamento della pompa.

AVVERTENZA

Questo simbolo visualizzato sull'unità indica che l'unità é caricata con R32, un gas refrigerante infiammabile e inodore con una ve-locità di combustione lenta (Classe A2L secondo ISO 817). Una perdita di refrigerante può provocare un incendio se entra a contatto con una fonte di combustione esterna.

AVVERTENZA

Questo simbolo visualizzato sull'unità indica che l'unità deve essere gestita solo da personale di servizio autorizzato, facendo riferimen-to al Manuale di Installazione.

AVVERTENZA

Questo simbolo visualizzato sull'unità indica che ci sono informazi-oni rilevanti incluse nel Manuale d'uso e/o nel Manuale di Installazi-one.

Deutsch (Nur bei Verwendung von R32)

⚠ **WARNUNG**

BERSTGEFAHR

Lassen Sie nicht zu, dass Luft oder eine Sauerstoff enthaltene Gas-mischung in den Kältemittelkreislauf (z. B. Rohrleitungen) gelangt.

EXPLOSIONSGEFAHR

Der Kompressor muss abgeschaltet werden, bevor die Kältemittel-leitungen entfernt werden.

Alle Betriebsventile müssen nach dem Abpumpbetrieb vollständig geschlossen sein.

WARNUNG

Dieses auf dem Gerät angezeigte Symbol zeigt an, dass das Gerät ist mit dem R32 geruchlosen brennbaren Kältemittel mit niedriger Brenngeschwindigkeit gefüllt (Klasse A2L gemäß ISO 817). Bei ei-nem Kältemittelaustritt besteht die Gefahr der Entzündung, wenn das Kältemittel in Kontakt mit einer äußeren Zündquelle kommt.

VORSICHT

Dieses auf dem Gerät angezeigte Symbol zeigt an, dass dieses Gerät ein entzündbares Kältemittel verwendet. Bei einem Kältemit-telaustritt besteht die Gefahr der Entzündung, wenn das Kältemittel in Kontakt mit einer äußeren Zündquelle kommt.

VORSICHT

Dieses auf dem Gerät angezeigte Symbol zeigt an, dass wichtige Informationen im Betriebshandbuch und/oder Installationshandbu-ch enthalten sind.

Português (Somente quando usar R32)

⚠ **ATENÇÃO**

PERIGO DE REBENTAMENTO

Não permitir a entrada de ar ou de qualquer mistura de gás com oxigénio para o ciclo de refrigeração (isto é, para tubagem).

RISCO DE EXPLOSÃO

O compressor deve ser desligado antes da remoção dos tubos de refrigerante.

As válvulas de manutenção devem estar completamente fechadas depois da eliminação do refrigerante.

ATENÇÃO

Este símbolo mostrado na unidade indica que a unidade contém R32, um gás refrigerante inflamável e inodoro com uma baixa ve-locidade de queima (Classe A2L de acordo com ISO 817). Em caso de fuga de refrigerante, existe a possibilidade de ignição se entrar em contacto com uma fonte de ignição externa.

CUIDADO

Este símbolo mostrado na unidade indica que a unidade deve ser manuseada apenas por pessoal autorizado, mediante consulta do Manual de Instalação.

CUIDADO

Este símbolo mostrado na unidade indica que o Manual de Fun-cionamento e/ou Instalação inclui informação relevante.

Nederlands (Alleen bij gebruik van R32)

WAARSCHUWING

BARSTGEVAAR

Laat geen lucht of een gasmengsel dat zuurstof bevat in de koe-lmiddelcyclus (d.w.z. leidingen).

EXPLOSIEGEVAAR

De compressor moet worden gestopt alvorens de koelmiddelpijpen te verwijderen.

Alle onderhoudskranen moeten volledig gesloten zijn na het pompen.

WAARSCHUWING

Dit symbool op het apparaat geeft aan dat het apparaat is gevuld met R32, een geurloos ontvlambaar koelmiddel met een lage brandsnelheid (klasse A2L volgens ISO 817). Als het koelmiddel lekt, kan het ontbranden wanneer het in contact komt met een ex-terne ontstekingsbron.

LET OP

Dit symbool op het apparaat geeft aan dat het apparaat alleen door bevoegd personeel mag worden gebruikt, met verwijzing naar de installatiehandleiding.

LET OP

Dit symbool op het apparaat geeft aan dat er relevante informatie is opgenomen in de gebruiksaanwijzing en / of installatiehandleiding.

Polski (Tylko w przypadku stosowania czynnika chłodniczego R32)

OSTRZEŻENIE

ZAGROŻENIE WYBUCHEM

Niedopuszczalne jest przedostanie się powietrza lub mieszaniny gazowej zawierającej tlen do obiegu (tj. przewodów rurowych) czynnika chłodniczego.

RYZYKO WYBUCHU

Przed odłączeniem przewodów rurowych czynnika chłodniczego należy wyłączyć sprężarkę.

Po odzyskaniu chłodziwa, niezbędne

jest całkowite zamknięcie wszystkich zaworów serwisowych.

OSTRZEŻENIE

Umieszczenie tego symbolu na jednostce oznacza, że jest ona napełniona czynnikiem chłodniczym R32, bezwonnym i palnym gazem o niskiej prędkości spalania (klasa A2L zgodnie z normą ISO 817). Wyciek chłodziwa może spowodować pożar, gdyby doszło do kontaktu z zewnętrznym źródłem zapłonu.

OSTROŻNIE

Umieszczenie tego symbolu na jednostce oznacza, że może być ona obsługiwana wyłącznie przez pracowników autoryzowanego serwisu w oparciu o informacje zawarte w Instrukcji instalacji.

OSTROŻNIE

Umieszczenie tego symbolu na jednostce oznacza, że w Instrukcji obsługi i/lub Instrukcji instalacji znajdują się ważne informacje na dany temat.

Türkçe (Yalnızca R32'yi kullanırken)

UYARI

PATLAMA TEHLİKESİ

Soğutucu madde döngüsünün (ör. boruların) içine havanın ya da oksijen içeren herhangi bir gaz karışımının girmesine izin vermeyin **PATLAMA RİSKİ**

Soğutucu madde boruları sökülmeden önce kompresör mutlaka durdurulmalıdır.

Pompayla boşaltma işleminden sonra tüm servis valfleri mutlaka tamamen kapatılmalıdır.

UYARI

Ünitede görüntülenen bu sembol, bu cihazın düşük yanma hızına sahip kokusuz ve tutuşucu soğutucu gazı olan R32 ile dolu olduğunu gösterir (ISO 817'ye göre A2L sınıfı). Soğutucu gazı sızarsa harici bir ateşleme kaynağına temas etmesi durumunda tutuşma olasılığı vardır.

DİKKAT

Ünitede görüntülenen bu sembol, bu cihazla ilgili işlemlerin yalnızca yetkili servis personeli tarafından Kurulum Kılavuzuna başvurularak yapılacağını gösterir.

DİKKAT

Ünitede görüntülenen bu sembol, Kullanım Kılavuzunda ve/veya Kurulum Kılavuzunda ilgili bilgilerin mevcut olduğunu gösterir.

Română (numai când se folosește R32)

AVERTISMENT

PERICOL DE DEFLAGRAȚIE

Nu permiteți pătrunderea aerului sau oricărui amestec de gaz care conține oxigen în ciclul agentului frigorific (adică în conducte).

RISC DE EXPLOZIE

Trebuie să opriți compresorul înainte de a decupla conductele de agent frigorific.
Toate supapele de serviciu trebuie să fie complet închise după finalizarea operației de evacuare a agentului frigorific.

AVERTISMENT

Această pictogramă afișată pe unitate indică faptul că acest aparat este umplut cu R32, un gaz frigorific inflamabil inodor, cu viteză de ardere redusă (clasa A2L conform standardului ISO 817). Pierderile de agent frigorific pot cauza pericol de aprindere dacă intră în contact cu o sursă de aprindere externă.

PRECAUȚIE

Această pictogramă afișată pe unitate indică faptul că acest aparat trebuie să fie manipulat doar de personal de service autorizat, respectându-se instrucțiunile din manualul de instalare.

PRECAUȚIE

Această pictogramă afișată pe unitate indică faptul că manualul de operare și/sau manualul de instalare conțin informații importante.

Ελληnika (Μόνο όταν χρησιμοποιείτε το R32)

ΠΡΟΕΙΔΟΠΟΙΗΣΗ

ΚΙΝΔΥΝΟΣ ΦΩΤΙΑΣ

Μην επιτρέπετε την είσοδο αέρα ή οποιοδήποτε μείγμα αερίου που περιέχει οξυγόνο στον κύκλο ψυκτικού μέσου (δηλαδή σωλήνωση)

ΚΙΝΔΥΝΟΣ ΕΚΡΗΞΗΣ

Ο συμπιεστής πρέπει να έχει σταματήσει προτού αφαιρέσετε τους σωλήνες ψυκτικού μέσου.

Όλες οι βαλβίδες λειτουργίας πρέπει να είναι πλήρως κλειστές μετά την λειτουργία άντλησης.

ΠΡΟΕΙΔΟΠΟΙΗΣΗ

Αυτό το σύμβολο που εμφανίζεται στη μονάδα δείχνει ότι η μονάδα είναι γεμάτη με R32, ένα άοσμο εύφλεκτο ψυκτικό με χαμηλή ταχύτητα καύσης (κλάση A2L σύμφωνα με το πρότυπο ISO 817). Η διαρροή του ψυκτικού μέσου μπορεί να προκαλέσει πυρκαγιά αν έρθει σε επαφή με ένα εξωτερικό μέσο.

ΠΡΟΣΟΧΗ

Αυτό το σύμβολο που εμφανίζεται στη μονάδα δείχνει ότι η μονάδα πρέπει να πραγματοποιείται μόνο από εγκεκριμένο προσωπικό σέρβις σύμφωνα με το εγχειρίδιο εγκατάστασης.

ΠΡΟΣΟΧΗ

Αυτό το σύμβολο που εμφανίζεται στη μονάδα δείχνει ότι υπάρχουν σχετικές πληροφορίες στο εγχειρίδιο λειτουργίας και/ή στο εγχειρίδιο εγκατάστασης.

TABLE OF CONTENTS

1. GENERAL INFORMATION

This manual gives a common description and information for this heat pump air conditioner which you operate as well for other models.

This manual should be considered as a permanent part of the heat pump air conditioning equipment and should remain with the air conditioning equipment.

Within the policy of continuous improvement of its products, Hisense reserves the right to make changes at any time without prior notification and without being compelled to introducing them into products previously sold. This document may therefore have been subject to amendments during the life of the product.

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.

This heat pump air conditioner has been designed for the following temperatures. Please operate the air conditioner within the ranges.

Temperature

		Min.	Max.
Outdoor unit	Space heating	-25°C DB	35°C DB
	Domestic hot water (DHW)	-25°C DB	43°C DB
	Space cooling	5°C DB	46°C DB
Indoor unit	Space heating	15°C	65°C
	Domestic hot water (DHW)	30°C	60°C (75°C*1)
	Space cooling	5°C	22°C
	Temperature around	5°C DB	30°C DB
	Water pressure	1 bar	3 bar

DB: Dry Bulb

*1: When there is an DHW electric heater mounted in the DHW tank, the setting temperature can reach 75°C.

- Upon receiving this product, inspect it for any shipping damage. Claims for damage, either apparent or concealed, in a written form, should be filed immediately with the shipping company.
- Check the model number, electrical characteristics (power supply, voltage and frequency) and accessories to determine if they are correct.
- The standard utilization of the unit shall be explained in these instructions. Therefore, the utilization of the unit other than those indicated in these instructions is not recommended.
- Please contact your local agent, as the occasion arises.
- If you have any questions, please contact your dealer or designated service center of HISENSE.

2. SAFETY

2.1 APPLIED SYMBOLS

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

Situations that pose a risk to the safety of those in the surrounding area or to the unit itself are clearly indicated in this manual.

A series of special symbols are 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.***
- ***Not taking these instructions into account will lead to personal injury or death.***

CAUTION

- *The text following this symbol contains information and instructions relating directly to your safety.*
- *Not taking these instructions into account could lead to unit damage.*

NOTE

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

Caution, risk of fire!

This appliance is filled with R32, an odorless low burning velocity refrigerant. If the refrigerant is leaked, there is a possibility of ignition if it enters in contact with an external ignitions source.

DANGER

This symbol shows that this equipment uses a low burning velocity refrigerant. If the refrigerant is leaked, there is a possibility of ignition if it enters in contact with an external ignition source.

RISK OF EXPLOSION

The compressor must be stopped before removing the refrigerant pipes. All service valves must be fully closed after pumping down operation.

Symbol	Explanation
	Before installation, read the installation and operation manual, and the wiring instruction sheet.
	Before performing maintenance and service tasks, read the service manual.
	For more information, see the Technical, Installation and Service Handbook.

2.2 ADDITIONAL INFORMATION ABOUT SAFETY

DANGER

- ***DO NOT CONNECT THE POWER SUPPLY TO THE INDOOR UNIT PRIOR TO FILLING THE SPACE HEATING CIRCUIT (AND DHW CIRCUIT IF IT WERE THE CASE) WITH WATER AND CHECKING WATER PRESSURE AND THE TOTAL ABSENCE OF ANY WATER LEAKAGE.***
- *Do not pour water over the indoor unit electrical parts. If the electrical components are in contact with water a serious electric shock will take place.*
- *Do not touch or adjust the safety devices inside the heat pump indoor unit. If these devices are touched or adjusted, a serious accident can take place.*
- *Do not open the service cover or access inside the indoor unit without disconnecting the main power supply.*
- *In case of fire Turn OFF the main switch, put out the fire at once and contact your service contractor.*
- *It must ensure that the heat pump cannot operate accidentally without water neither with air inside hydraulic system.*

CAUTION

- *Do not use any sprays such as insecticide, lacquer, hair spray or other flammable gases within approximately one meter from the system.*
- *If installation circuit breaker or the unit fuse is often activated, stop the system and contact your service contractor.*
- *Do not make service or inspections tasks by yourself. This work must be performed by a qualified service person.*
- *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.*
- *Do not let any foreign body into the water inlet and outlet piping of the air to water heat pump.*

DANGER

Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.

- *The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).*
- *Do not pierce or burn.*
- *Be aware that refrigerants may not contain an odour.*

CAUTION

- *This unit is designed for commercial and light industrial application. If installed in house hold appliance, it could cause electromagnetic interference.*
- *This product contains fluorinated greenhouse gases. Do not vent into the atmosphere.*
  Refrigerant type: R32
  Mass of charged refrigerant: refer to installation manual of outdoor unit.
  GWP: 675
  GWP=global warming potential

CAUTION

- *Without reading the installation manual, do not carry out refrigerant piping connection, water piping connection and wiring connection.*
- *Check whether the earth wire connection is correct and firm.*
- *Connect to the fuse of specified capacity.*
  The user should not replace the power cord and this must be conducted by professional repair personnel.
- *If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.*
- *This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.*
- *This appliance can be used by children aged from 3 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.*
- *Children aged from 3 to 8 years are only allowed to operate the tap connected to the water heater.*
- *Means for disconnection from the supply mains, which have a contact separation in all poles that provide full disconnection under overvoltage category III conditions, must be incorporated in the fixed wiring in accordance with the wiring rules.*
- *The appliance shall be installed in accordance with national wiring regulations.*
- *The installation and service of this product shall be carried out by professional personnel, who have been trained and certified by national training organizations that are accredited to teach the relevant national competency standards that may be set in legislation.*
- *Mechanical connectors used indoors shall comply with ISO 14903.*
  When mechanical connectors are reused indoors, sealing parts shall be renewed. When flared joints are reused indoors, the flare part shall be refabricated.
- *Reusable mechanical connectors and flared joints are not allowed indoors.*
- *Disconnect the appliance from its power source during service and when replacing parts.*
- *Heat pump indoor unit, controller and wires should not be installed 3m from the strong electromagnetic wave radiation source, such as medical appliances.*

3. IMPORTANT NOTICE

3.1 INFORMATION

- **PLEASE READ THE MANUAL CAREFULLY BEFORE STARTING TO WORK ON THE INSTALLATION OF THE AIR TO WATER HEAT PUMP SYSTEM**. Failure to observe the instructions for installation, use and operation described in this documentation may result in operating failure including potentially serious faults, or even the destruction of the air to water heat pump system.

- Verify, in accordance with the manuals which appear in the outdoor and indoor units, that all the information required for the correct installation of the system is included. If this is not the case, contact with your dealer.
- Hisense pursues a policy of continuous improvement in product design and performance. The right is therefore reserved to vary specifications without notice.
- Hisense cannot anticipate every possible circumstance that might involve a potential hazard.
- This air to water heat pump has been designed for standard water heating for human beings only. Do not use this for other functions that are not included in the master controller.
- No part of this manual may be reproduced without written permission.
- If you have any questions, contact with your dealer.
- Check and make sure that the explanations of each part of this manual correspond to your air to water heat pump model.
- Refer to the models codification to confirm the main characteristics of your system.
- Signal words (NOTE, DANGER and CAUTION) are used to identify levels of hazard seriousness. Definitions for identifying hazard levels are provided in initial pages of this document.
- The operation modes of these units are controlled by the master controller.
- This manual should be considered as a permanent part of the air to water heat pump. It gives a common description of and information for this heat pump indoor unit.
- Keep the water temperature of the system above the freezing temperature.

3.2 MINIMUM ROOM AREA REQUIREMENTS

3.2.1 General

If the refrigerant charge of R32 (m_c)≥1.84 kg, the minimum room area is required based on IEC 60335-2-40. And the required minimum room area A_{min} to install the indoor unit with refrigerant charge m_c (kg) shall be in accordance with following:

A_{min}= (m_c /(2.5*LFL$^{\wedge(5/4)}$ * h_0))^², but not less than A_{min}=m_c/(h_0×0.2303)

where

* A_{min}: minimum installation area of an Indoor unit for a given refrigerant charge m_c (kg) and considering the installation height h_0, in m^2.
* h_0: release height, the vertical distance from the floor to the bottom (the point of release) of the indoor unit when the unit is installed, in m, and it shall not be less than 0.6m.
* m_c: total system refrigerant charge that could be released to the indoor area in case of undetected refrigerant leak, in kg.
* LFL: Lower Flammability Limit for R32, 0,307 kg/m^3.

The following table show the minimum room area (A_{min}) required for the installation of an indoor unit from a refrigerant system containing a certain refrigerant charge (m_c) of R32 (A2L refrigerant) and a certain release height (h_0).

m_c (kg)	Minimum room area A_{min} (m^2)							
	h_0 (m)							
	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9
1.84	7.20	6.15	5.71	5.33	4.99	4.70	4.44	4.21
2.0	8.51	7.25	6.25	5.79	5.43	5.11	4.82	4.57
2.2	10.30	8.77	7.57	6.59	5.97	5.62	5.31	5.03
2.4	12.26	10.44	9.00	7.84	6.89	6.13	5.79	5.48
2.6	14.38	12.26	10.57	9.21	8.09	7.17	6.39	5.94
2.8	16.68	14.21	12.26	10.68	9.38	8.31	7.41	6.65
3.0	19.15	16.32	14.07	12.26	10.77	9.54	8.51	7.64
3.2	21.79	18.56	16.01	13.94	12.26	10.86	9.68	8.69
3.4	24.60	20.96	18.07	15.74	13.84	12.26	10.93	9.81
3.6	27.58	23.50	20.26	17.65	15.51	13.74	12.26	11.00
3.8	30.72	26.18	22.57	19.66	17.28	15.31	13.66	12.26
4.0	34.04	29.01	25.01	21.79	19.15	16.96	15.13	13.58
4.2	37.53	31.98	27.58	24.02	21.11	18.70	16.68	14.97
4.4	41.19	35.10	30.26	26.36	23.17	20.52	18.31	16.43

NOTE

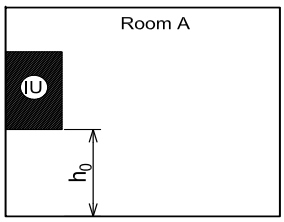
For intermediate refrigerant charges and installation height, select the higher charge value and the lower height value to choose the A_{min}. For example, if the refrigerant charge is 2.9kg and the installation height is 1.85m then Amin=8.51m^2 according to the table.

3.2.2 Installation type

There are 3 installation types according to the minimum room area requirement, as described below.

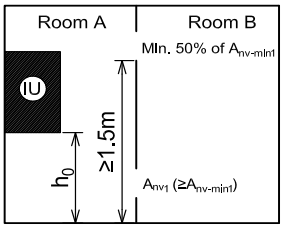
- Type 1

The indoor unit can be installed in an independent room A when the actual room area $A_{roomA} \geq A_{min}$ with a certain h_0 and m_c. Installation type 1 is shown below.



- Type 2

When $A_{roomA} < A_{min}$, an adjacent room B with two natural ventilation openings between room A and room B should be considered. If $A_{roomA+roomB} \geq A_{min}$, the indoor unit can be installed in room A or room B with a certain h_0 and m_c. Installation type 2 is shown below.



The reference minimum opening area Anv,min1 for natural ventilation between room A and room B with different h_0 are as shown in the following table.

* Release h_0=1.3m

Minimum opening for natural ventilation $A_{nv,min}$ (dm^2) h_0=1.3m									
m_c (kg)	A_{roomA} (m^2)								
	7	10	13	15	18	20	23	25	30
1.84	-	-	-	-	-	-	-	-	-
2.0	0.10	-	-	-	-	-	-	-	-
2.2	0.67	-	-	-	-	-	-	-	-
2.4	1.24	0.16	-	-	-	-	-	-	-
2.6	1.81	0.79	-	-	-	-	-	-	-
2.8	2.38	1.41	0.41	-	-	-	-	-	-
3.0	2.95	2.03	1.08	0.43	-	-	-	-	-
3.2	3.52	2.66	1.74	1.12	0.18	-	-	-	-
3.4	4.09	3.28	2.41	1.81	0.90	0.30	-	-	-
3.6	4.66	3.90	3.07	2.50	1.63	1.04	0.15	-	-
3.8	5.23	4.53	3.74	3.19	2.35	1.78	0.92	0.35	-
4.0	5.80	5.15	4.40	3.88	3.07	2.52	1.69	1.13	-
4.2	6.37	5.77	5.07	4.57	3.79	3.26	2.46	1.91	0.55
4.4	6.94	6.40	5.74	5.26	4.51	4.00	3.22	2.70	1.37

* Release height h_0=1.5m

Minimum opening for natural ventilation $A_{nv,min}$ (dm^2) h_0=1.5m								
m_c (kg)	A_{roomA} (m^2)							
	7	10	13	15	18	20	23	25
1.84	-	-	-	-	-	-	-	-
2.0	-	-	-	-	-	-	-	-
2.2	-	-	-	-	-	-	-	-
2.4	0.36	-	-	-	-	-	-	-
2.6	0.89	-	-	-	-	-	-	-
2.8	1.42	0.27	-	-	-	-	-	-
3.0	1.95	0.85	-	-	-	-	-	-
3.2	2.48	1.43	0.35	-	-	-	-	-
3.4	3.01	2.01	0.97	0.27	-	-	-	-
3.6	3.54	2.59	1.59	0.91	-	-	-	-
3.8	4.07	3.17	2.21	1.55	0.56	-	-	-
4.0	4.60	3.75	2.83	2.19	1.23	0.59	-	-
4.2	5.13	4.33	3.44	2.83	1.90	1.28	0.33	-
4.4	5.66	4.91	4.06	3.48	2.57	1.97	1.04	0.43

* Release height h_0=1.7m

Minimum opening for natural ventilation $A_{nv,min}$ (dm^2) h_0=1.7m						
m_c (kg)	A_{roomA} (m^2)					
	7	10	13	15	18	20
1.84	-	-	-	-	-	-
2.0	-	-	-	-	-	-
2.2	-	-	-	-	-	-
2.4	-	-	-	-	-	-
2.6	0.08	-	-	-	-	-
2.8	0.58	-	-	-	-	-
3.0	1.08	-	-	-	-	-
3.2	1.57	0.36	-	-	-	-
3.4	2.07	0.90	-	-	-	-
3.6	2.57	1.45	0.29	-	-	-
3.8	3.07	1.99	0.87	0.12	-	-
4.0	3.57	2.54	1.46	0.73	-	-
4.2	4.07	3.08	2.04	1.33	0.26	-
4.4	4.57	3.63	2.62	1.93	0.89	0.19

NOTE

* *The minimum opening area for natural ventilation between room A and room B is calculated by the following formula:*

$$A_{nv,min1}=1.51\times(m_c-m_{max})\times(A_{roomA}/m_{max})^{\wedge(1/2)}$$

$$m_{max}=0.571\times h_0\times(A_{roomA})^{\wedge 1/2}$$

where

$A_{nv,min1}$: minimum opening for natural ventilation between room A and room B, in dm^2.

A_{roomA}: room A area, in m^2.

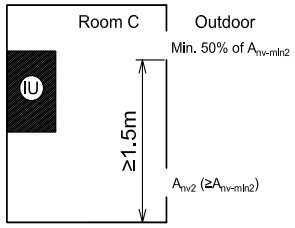
m_{max}: the allowable maximum refrigerant charge in the room A, in kg.

* *Mark "-" in the above table indicates that the room A is large enough for installation without adjacent room B.*

* *For intermediate refrigerant charges, room A area and installation height, select the higher charge value, the smaller room area and the lower height value to choose the $A_{nv,min1}$. For example, if the refrigerant charge is 2.9kg, room A area is 8m^2 and the installation height is 1.85m, then $A_{nv,min1}$=1.08dm^2 according to the table (Release height h_0=1.7m).*

- Type 3

If type 1 and type 2 cannot be selected for install the indoor unit, a non-occupied space room C shall be provided for installation. The indoor unit can be installed in the room C with 2 natural ventilation openings to outdoor, and no requirement to the minimum room area. Installation type 3 is shown below.



The reference minimum opening area Anv,min2 for natural ventilation from room C to outdoors are as shown in the following table.

Minimum opening for natural ventilation	
m_c (kg)	$A_{nv,min2}$ (dm^2)
1.84	6.85
2	7.14
2.2	7.49
2.4	7.82
2.6	8.14
2.8	8.45
3.0	8.75
3.2	9.03
3.4	9.31
3.6	9.58
3.8	9.84
4.0	10.10
4.2	10.35
4.4	10.59

NOTE

* *The minimum opening for natural ventilation from room C to outdoors is calculated by the following formula:*

$$A_{nv,min2}=5.05\times m_c^{\wedge(1/2)}$$

where

$A_{nv,min2}$: minimum opening for natural ventilation from room C to outdoors, in dm^2.

* *For intermediate refrigerant charges, select the higher charge value choose the $A_{nv,min2}$. For example, if the refrigerant charge is 2.9kg, then $A_{nv,min2}$=8.75dm^2.*

NOTE

The two natural ventilation openings in installation type 2 and type 3 must meet the requirements as below.

- For the lower opening
  - The opening shall be a permanent opening which cannot be closed.
  - The area of any openings must not above 300mm from the floor.
  - At least 50% of the required opening area $A_{nv,min}$ shall be below 200mm from the floor.
  - The bottom of the lower opening shall not be higher than the point of release when the unit is installed and not more than 100mm from the floor.
  - If opening extending to the floor, the height shall not be less than 20mm above the surface of the floor covering.
  - Natural ventilation to outdoors is not allowed below ground level.
- For the higher opening
  - The opening shall be a permanent opening which cannot be closed.
  - At least 1.5m above the floor.
  - The total size of the opening shall not be less than 50% of minimum area for $A_{nv,min}$.

CAUTION

- *Do not charge OXYGEN, ACETYLENE, or other flammable and poisonous gases into the refrigerant because an explosion can occur. It is recommended that oxygen free nitrogen be charged for these types of tests cycle when performing a leakage test or an airtightness test. These types of gases are extremely dangerous.*
- *Insulate the unions and flare-nuts at the piping connection part completely.*
- *Insulate the liquid piping completely to avoid a decrease of performance; if not, it will cause sweating on the surface of the pipe.*
- *Charge refrigerant correctly. Overcharging or insufficient charging could cause a compressor failure.*
- *Check for refrigerant leakage in detail. If a large refrigerant leakage occurred, it would cause difficulty with breathing or harmful gases would occur if a fire were being used in the room.*
- *If the flare nut is tightened too hard, the flare nut may crack after a long time and cause refrigerant leakage.*

4. BEFORE OPERATION

4.1 GENERAL NOTES

4.1.1 Selection of the installation location

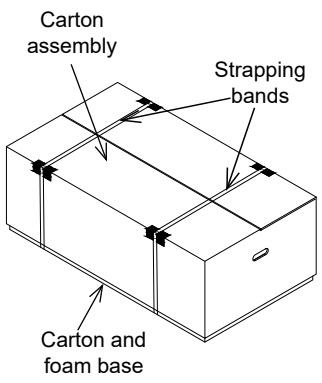
The indoor unit must be installed following these basic requirements:

- The indoor unit is intended to be installed in an indoor place and for ambient temperatures ranging 5~30°C. The ambient temperature around the indoor unit must be higher than 5°C to prevent water from freezing.
- The unit is prepared to be wall mounted (wall support is factory supplied), so make sure that selected wall is flat and is made of a non-combustible surface, strong enough for supporting the indoor unit weight.
- Be sure to maintain the recommended servicing space for future unit servicing and guarantee enough air circulation around the unit (See section “5.1 SERVICE SPACE”).
- Take into account that shut-off valve with filter (factory supplied) must be installed at the indoor unit inlet connections.
- Keep water draining provisions. The safety valve is provided with a drain pipe which are located at the drain pan of the unit.
- Protect the indoor unit against the entry of small animals (like rats) which could making contact with the wires, the drain pipe, electrical parts and may damage unprotected parts, and at the worst, a fire will occur.
- Install it in a no-frost environment.
- Do not install the indoor unit in a location with very high humidity.
- Do not install the indoor unit where electromagnetic waves are directly radiated to the electrical box.Install the unit in a place where in case of water leakage, any damage to the installation space cannot be produced.
- Install noise filter when the power supply emits harmful noises.
- To avoid fire or explosion, do not install the unit in flammable environment.
- The air to water heat pump must be installed by a service technician. The installation must comply with local and European regulations.
- Try to avoid to put any objects or tools above the indoor unit.

4.1.2 Unpacking

All units are packed by a cardboard box and plastic bag. Firstly to unpack it, place the unit on the assembly area as close as possible to its final installation location, to avoid damages in transport. Two persons are required.

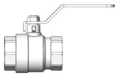
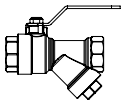
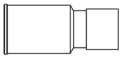
1. Cut the strapping bands and remove the adhesive tapes.
2. Remove the carton assembly and then the plastic bag around the unit.
3. Remove the indoor unit from the carton and foam base and place it carefully on the floor, as near as possible to its final location.



CAUTION

- *Be careful with the Installation and Operation manual and with the factory-supplied accessories located besides the unit.*
- *Two people are required when lifting because of the weight of the unit.*

4.2 FACTORY-SUPPLIED INDOOR UNIT COMPONENTS

Accessory	Image	Qty.	Remarks
Wall support		1	For hanging the unit on the wall
Gasket		6	Six gaskets for each connections between the indoor unit and shutoff valves (inlet/outlet)
Shut-off valve (G1")		1	Connect at the water inlet/ outlet of indoor unit, used to shut off the water flow.
Shut-off valve with filter (G1")		1	Connect at the water inlet/ outlet of indoor unit, used to shut off the water flow and filter impurities in water.
Cable tie		3	Used for wiring binding.
Drain pipe clamp		1	Used for fastening drain hose and drain pipe.
Drain pipe clamp		1	Used for fastening drain hose and drain pipe.
Drain pipe		1	Used for drain hose connection
Bolts		2	Used to fix the machine to the wall support
Instruction manual		1	Basic instructions for the installation of the device.

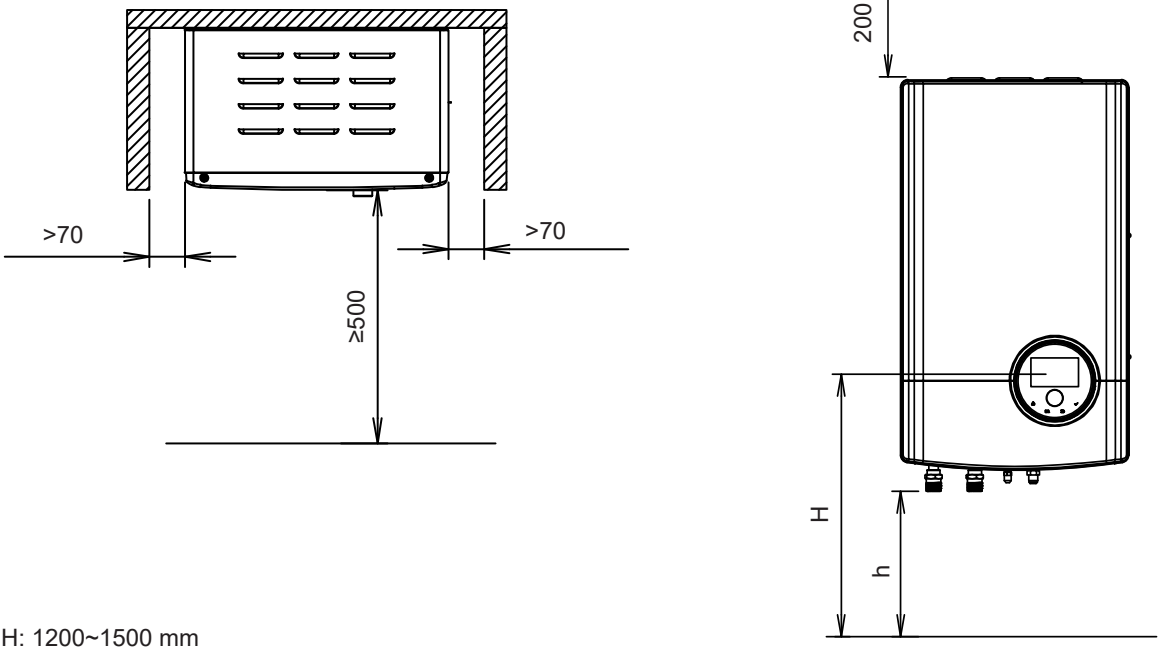
NOTE

- *The previous accessories are supplied inside the packing assembly (on the top of the indoor unit).*
- *Additional refrigerant piping (field supplied) for connections to outdoor unit needs to be available.*
- *If some of these accessories are not packed with the unit or any damage to the unit is detected, please contact your dealer.*

5. GENERAL DIMENSIONS

5.1 SERVICE SPACE

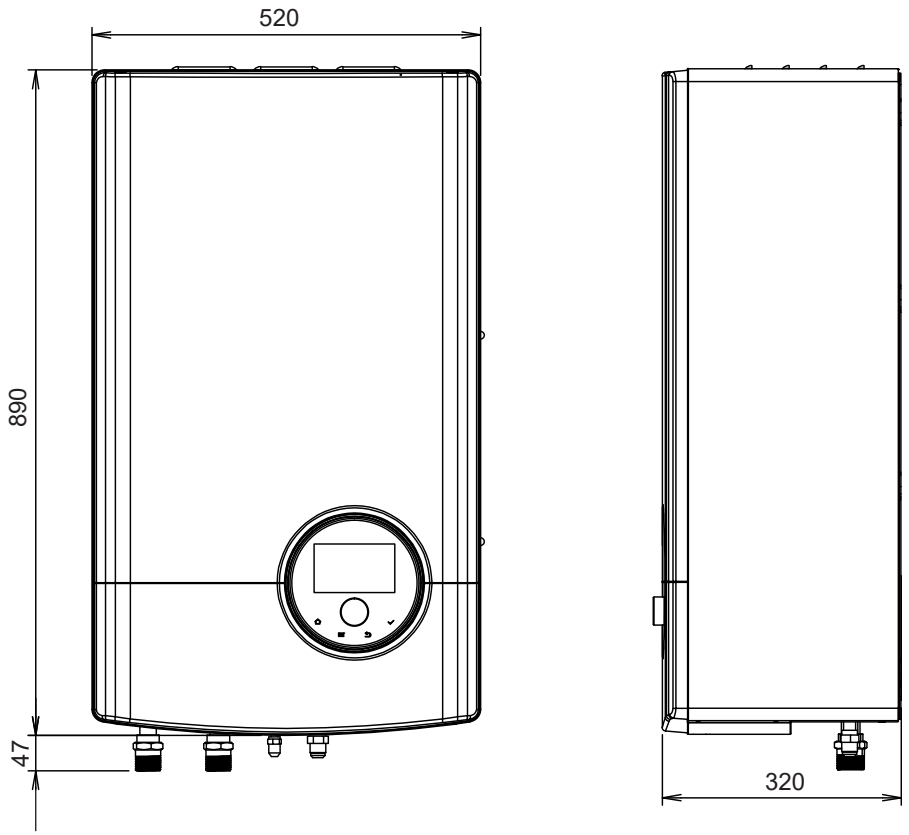
Unit: mm



H: 1200~1500 mm
Recommended unit height for proper access to the controller.
h: 350 mm
Minimum unit height for installing the shut-off valves and the first bending pipe line.

5.2 DIMENSIONAL DATA

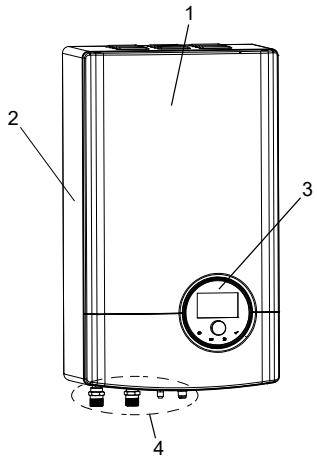
Unit: mm



6. INSTALLATION OF HI-THERMA SPLIT INDOOR UNIT

6.1 MAIN PARTS (DESCRIPTIONS)

No.	Part
1	Indoor unit front panel
2	Indoor unit surrounding panel
3	Master controller & controller frame
4	Piping connections



6.2 REMOVING THE PANELS

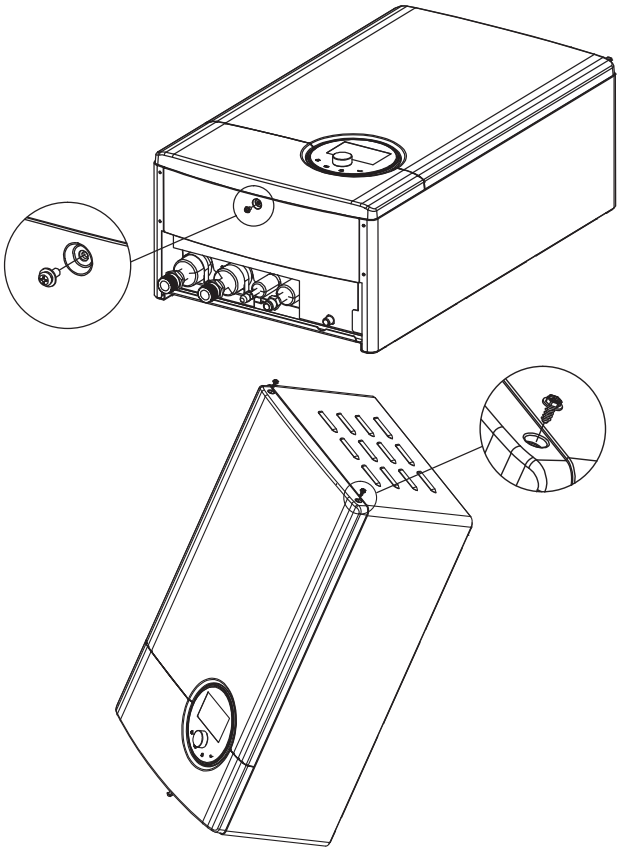
If it is necessary to access to the indoor unit components, please follow these operations.

6.2.1 Removing the front panel

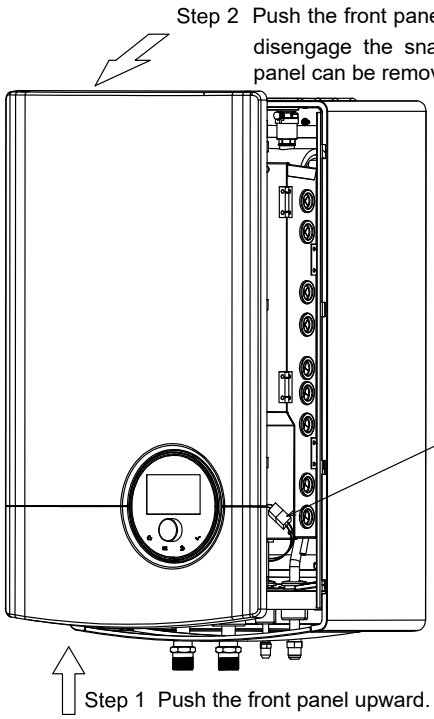
NOTE

The indoor unit front panel needs to be removed for any task inside the indoor unit.

1. Unscrew 1 screw at the bottom of the indoor unit and 2 screws on the top of unit.



2. Remove the front panel.



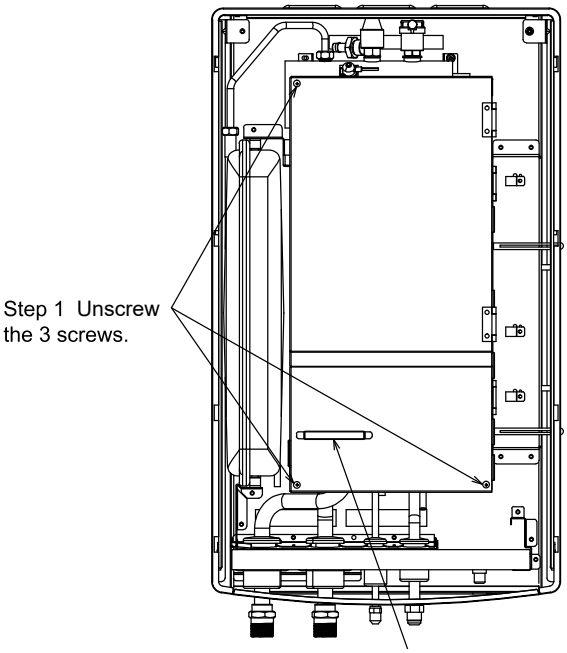
CAUTION

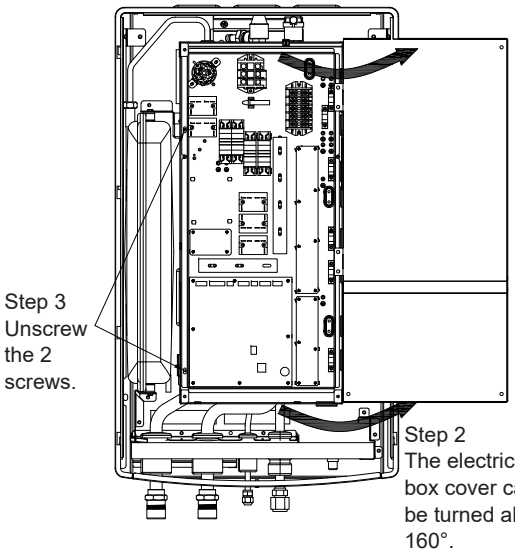
- *Take care with the LCD display of the master controller while removing the front panel.*
- *Be careful not to drop the front panel during operation.*
- *Take care when removing front panel, the parts inside the unit could be hot.*

6.2.2 Opening the electrical box

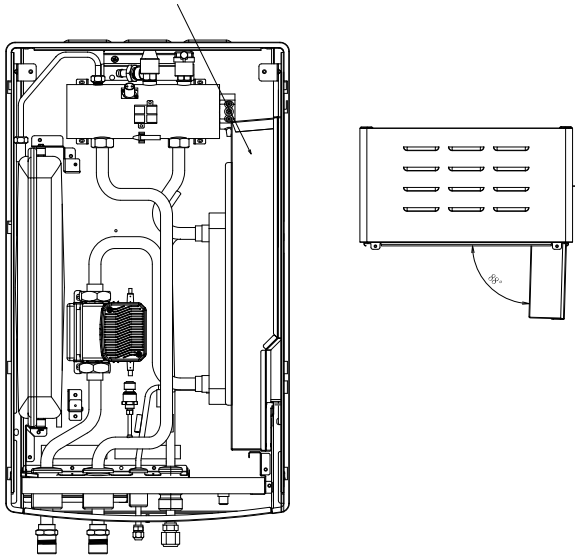
DANGER

- ***Disconnect the unit from the power supply before touching any of the parts in order to avoid an electric shock.***





Step 4 The electrical box can be turned about 88°.



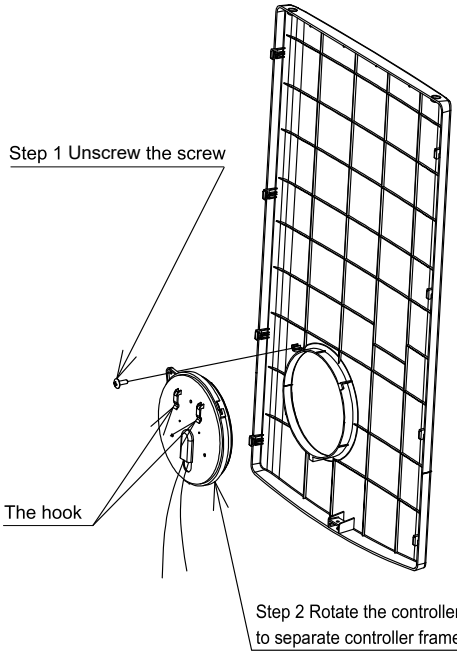
CAUTION

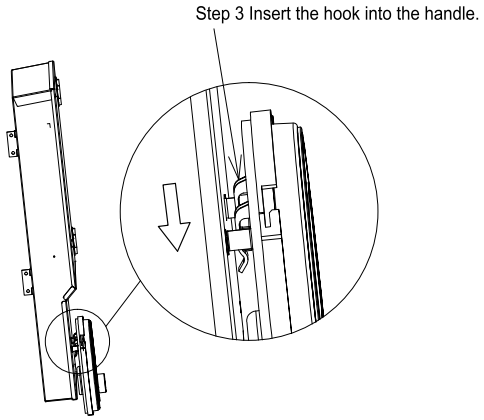
Take care with the electrical box components in order to avoid damaging.

6.2.3 Hanging the master controller

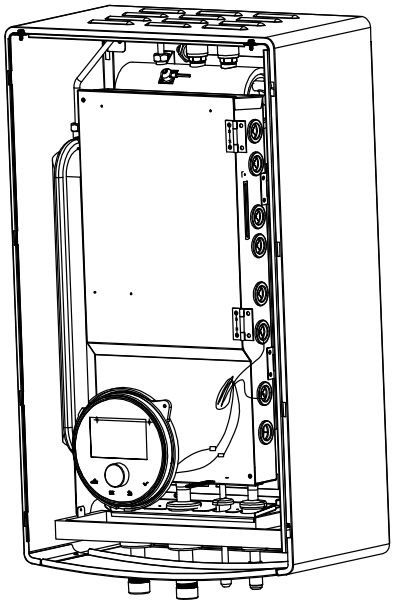
NOTE

The master controller can be hung on the handle of the electrical box cover.





Step 4 Complete hanging.



6.3 WALL MOUNTING

NOTE

Installation procedure

1 Wall mounting procedure
2 Water piping connection
3 Drain pipes connection
4 Refrigerant piping connection
5 Power and transmission wiring connection 6 Cover assembly
7 Test and check

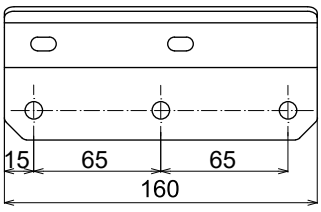
Wall mounting procedure

CAUTION

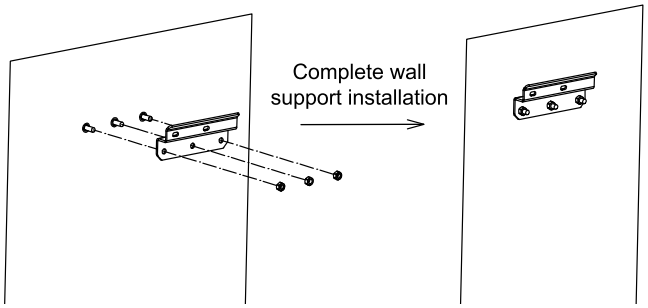
Make sure the wall has adequate strength to hang weight of the indoor unit.

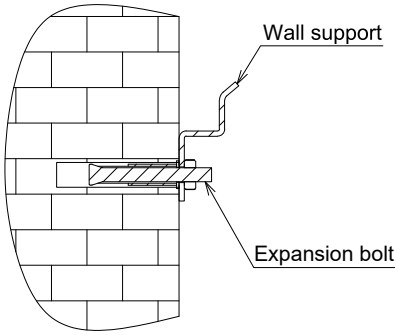
1. Fix the wall support (factory-supplied accessory) to the wall.
   Drill 3 holes according to the circular hole position of the wall support as shown below, and the hole diameter shall meet the requirements of M8 expansion bolts.

Unit: mm

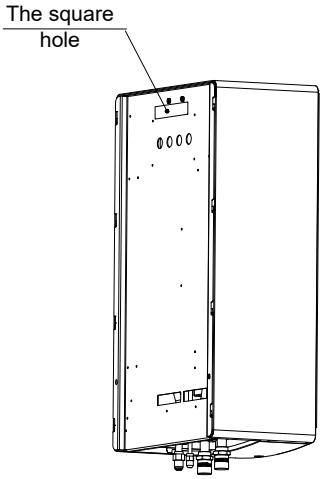


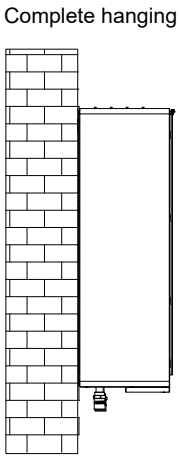
Using 3 M8 expansion bolts Fix the wall support to the wall. Make sure that the wall support is completely levelled.



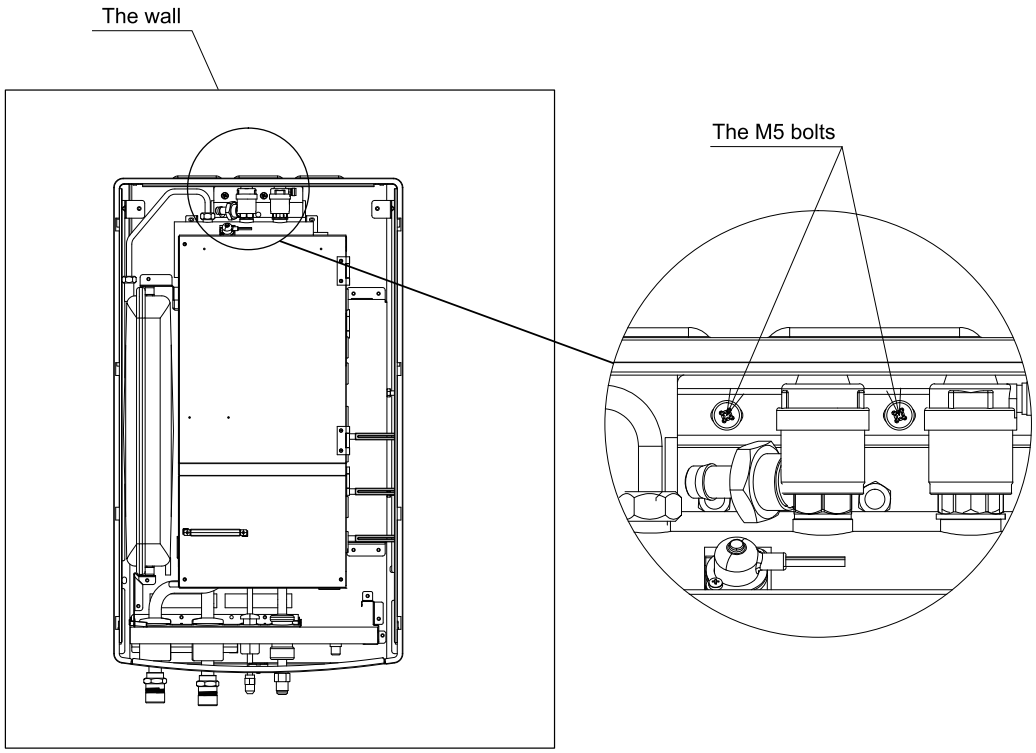


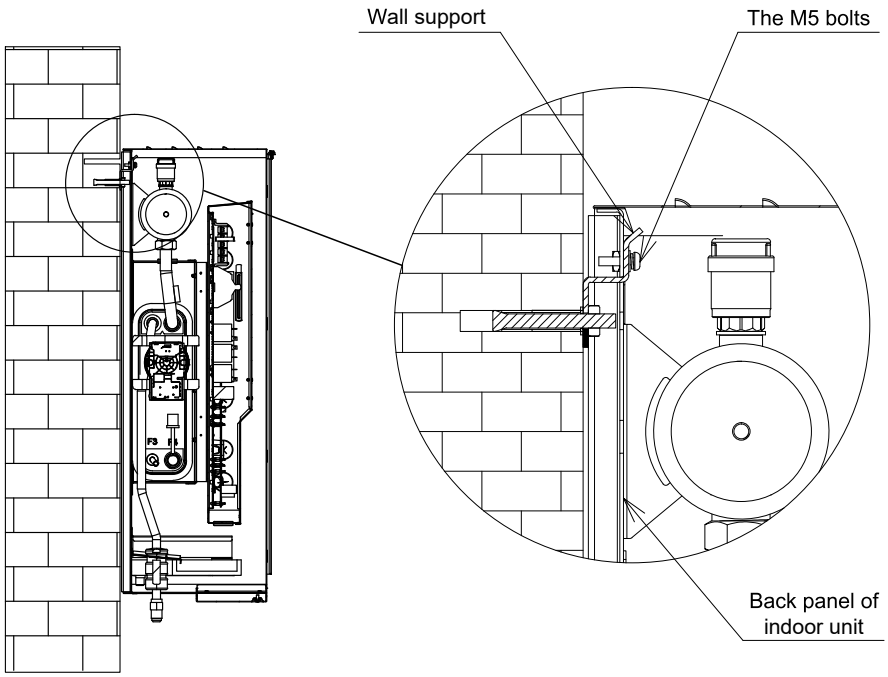
2. Hang the indoor unit on the wall support, using the square hole on the back panel of indoor unit. At least two persons are required in order to lift the unit because of its weight.





3. Fix the indoor unit to the wall support using the two M5 bolts (factory-supplied accessory).





7. PIPING WORK

Make sure that refrigerant piping installation complies with the legislation EN378 and local legislation.

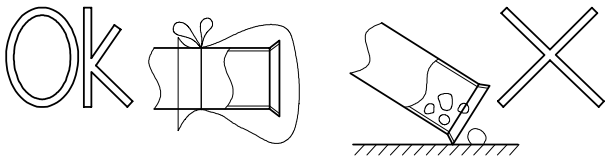
7.1 GENERAL NOTES BEFORE PERFORMING PIPING WORK

- Prepare locally-supplied copper pipes.
- Select the piping size with the correct thickness and correct material able to withstand sufficient pressure.
- Select clean copper pipes. Make sure that there is no dust or moisture inside the pipes. Blow the inside of the pipes with oxygen free nitrogen to remove any dust and foreign materials before connecting them.

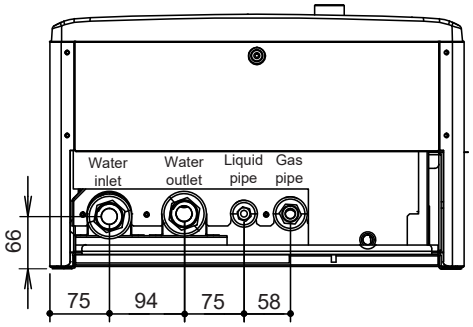
NOTE

A system with no moisture or oil contamination will give maximum performance and lifecycle compared to that of a poorly prepared system. Take particular care to ensure that all copper piping is clean and dry internally.

- Cap the end of the pipe when pipe is to be inserted through a wall hole.
- Do not put pipes on the ground directly without a cap or vinyl tape at the end of the pipe.



- If piping installation is not completed until next day or over a longer period of time, braze off the ends of the piping and charge with oxygen free nitrogen through a Schrader valve type access fitting to prevent moisture and particle contamination.
- It is advisable to insulate the water pipes, joints and connections in order to avoid heat loss and dew condensation on the surface of the pipes or accidental injures due to excessive heat on piping surfaces.
- Do not use insulation material that contains NH3, as it can damage copper pipe material and become a source of future leakage.
- It is recommended to use flexible joints for the water piping inlet and outlet in order to avoid vibration transmission.
- Refrigerant circuit and water circuit must be performed and inspected by a licensed technician and must comply with all relevant European and national regulations.
- Proper water pipe inspection should be performed after piping work to assure there is no water leakage in the water circuit.
- Location of Refrigerant and Water Pipeline are shown below.



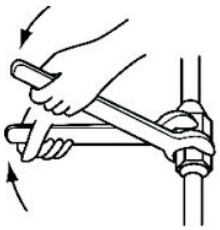
7.2 REFRIGERANT PIPING CONNECTION

Piping connection size of indoor unit is shown below.

Model	Gas pipe	Liquid pipe
100(3.5HP)	Ø 15.88 (5/8")	Ø 9.53 (3/8")
120(4.0HP)		
140(5.0HP)		
160(6.0HP)		

Torque required is shown below.

Pipe Diameter	Torque(N•m)
Ø 6.35	14~18
Ø 9.53	33~42
Ø 12.7	50~62
Ø 15.88	63~77



NOTE

Screw up the nut cap by two wrenches. Heat preservation material on site should be used to prevent heat leakage of gas pipe, liquid pipe and connecting nut cap.

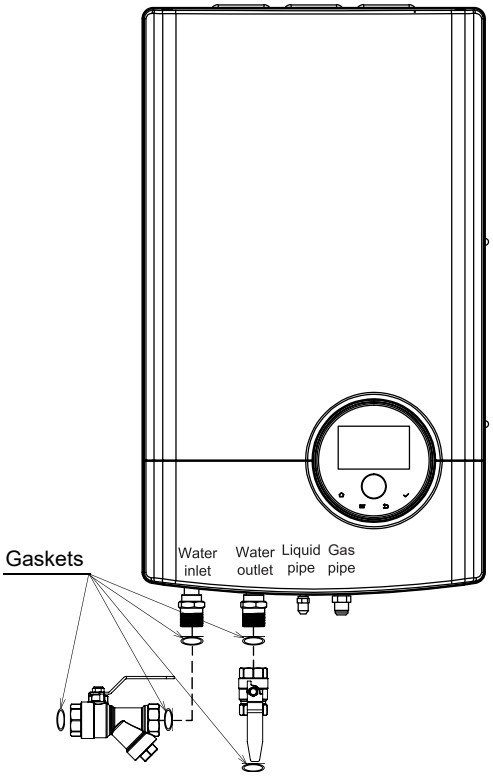
7.3 WATER PIPING CONNECTION

(1) Piping connection size of indoor unit.

Model	Water inlet	Water outlet
100(3.5HP)	G1" (male)	G1" (male)
120(4.0HP)		
140(5.0HP)		
160(6.0HP)		

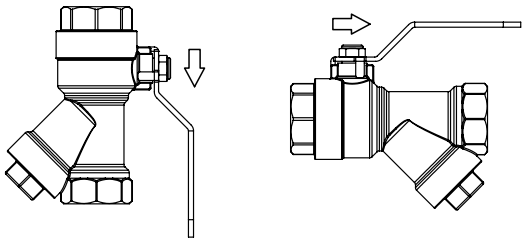
(2) Install shut-off valves

A shut-off valve and a shut-off valve with filter are provided with the unit. For convenience of repair and maintenance, install the shut-off valve with filter on water inlet pipe and the shut-off valve on water outlet pipe of indoor unit as follow.



NOTE

The shut-off valve can connect to the water inlet of indoor unit directly. The shut-off valve with filter must be installed at water inlet of indoor unit, and water flow direction and installation direction must be confirmed as shown below. The gasket in accessories can be installed at the two connections of shut-off valve and shut-off valve with filter.



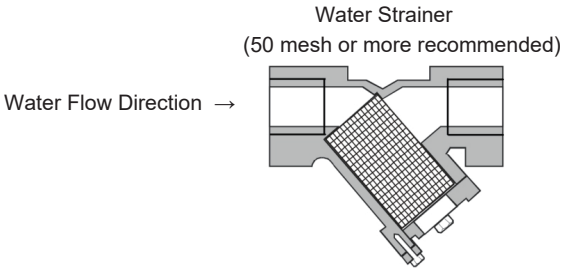
CAUTION

- *Rubber gasket must be mounted (factory supplied), otherwise water leakage may be caused.*
- *Note the location of shut-off valves, and the direction of shut-off valves and drain valve, which are essential to maintenance.*
- *Screw up shut-off valves by using two wrenches.*

(3) Additional water strainer

CAUTION

- *Provide a 50 mesh or more water strainer at the water inlet side of water piping. Otherwise, damage to the plate heat exchanger may occur. In the plate heat exchanger, water flows through a narrow space between the plates. Therefore, there is a possibility that freezing or corrosion may occur if foreign particles or dust clog the flow of water between the plates.*
- *This is not required when cooling mode is not used.*



- *The water piping connection needs to be completed after flushing the water system.*

CAUTION

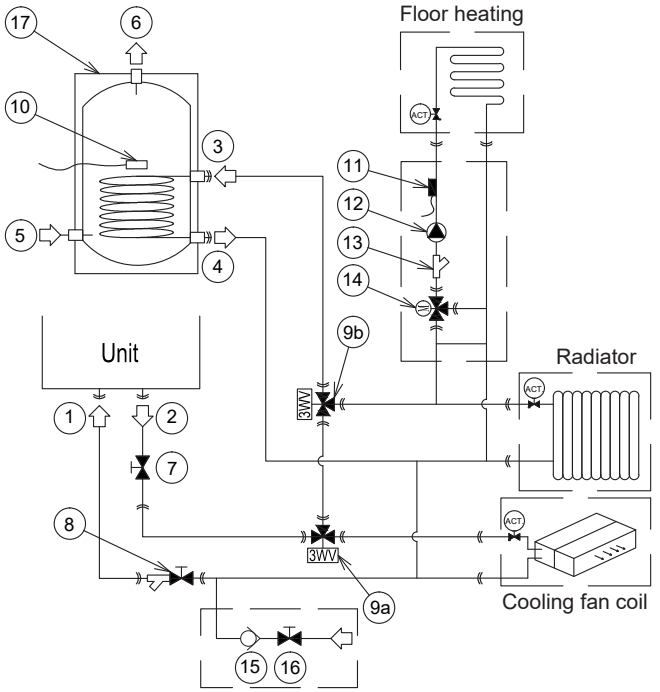
- **Maintenance:** *Check the water pressure at least once every 2 weeks. If the pressure is lower than the minimum allowable pressure, stop the system and inform the dealer to clean the water strainer.*

8. SPACE HEATING AND DHW

8.1 ADDITIONAL HYDRAULIC NECESSARY ELEMENTS

DANGER

Do not connect the power supply to the unit prior to filling the space heating circuit (and DHW circuit if it were the case) with water and checking water pressure and the total absence of any water leakage.

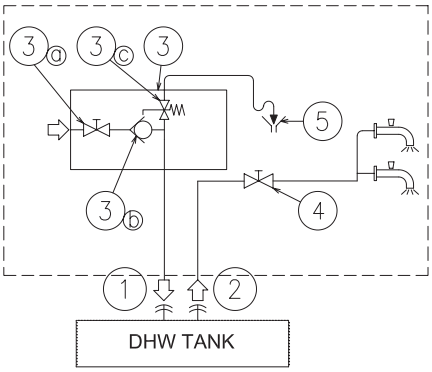


Nature	No.	Part name		
Piping connections	1	Water inlet of the unit		
	2	Water outlet of the unit		
	3	DHW tank inner coil inlet		
	4	DHW tank inner coil outlet		
	5	Water inlet (DHW)		
	6	Water outlet (DHW)		
Factory supplied	7	Shut-off valve		
	8	Shut-off valve with filter		
Optional accessories	9	3-way valve	9a	3WV Cooling
			9b	3WV DHW
	10	Thermistor (for DHW))		
	11	Thermistor (for Space heating))		
Field supplied	12	Water pump		
	13	Filter		
	14	Mixing valve		
	15	Check valve		
	16	Shut-off valve		
	17	Domestic hot water tank		

As an installation example of space heating / cooling and Domestic hot water (DHW), the following hydraulic elements are necessary to correctly perform the space heating / cooling and DHW water circuit:

- The factory supplied shut-off valve (7) need to be installed at water outlet of the unit, and shut-off valve with filter (8) need to be installed horizontally at water inlet of the unit.
- A water check valve (15) with a shut-off valve (16) must be connected to the water filling point when filling the water circuit. The check valve acts as a safety device to protect the installation.
- A domestic hot water tank (17) has to be installed in combination with the space heating / cooling.
- 3-way valves (9) must be connected at one point of the water outlet pipe of the installation, used to divert the water circulation for specific functions. As shown in example, connect straight through of 3-way valve to DHW tank inner coil.
- DHW thermistor (10) must be installed to reach the inner wall of the DHW tank and keep in good contact with it. Space heating thermistor (10) must be installed on the metal tube close to space heating, and keep in good contact with it.
- Mixing valve (14) is recommended to use ESBE ARA661, which operation mode is 3-point SPDT. If mixing valve of other brands or models are used, the operation mode must be 3-point SPDT, and power supply must be 220-240V ~ 50Hz. The rotation time can be set in the master controller.

Additionally, the following elements are required for the DHW circuit:



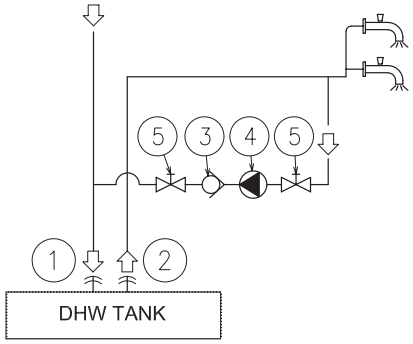
Nature	No.	Part name	
Piping connections	1	Supplementary water inlet of DHW tank	
	2	DHW tank outlet	
Field supplied	3	Pressure and temperature relief valve	
		3a	Shut-off valve
		3b	Water check valve
		3c	Safety valve
	4	Shut-off valve	
	5	Draining	

- **A Shut-off valve (field supplied):**
  The shut-off valve (4) must be connected after the DHW tank outlet (2) in order to make easier any maintenance work.
- A Security water valve (Field-supplied):
  This accessory (3) is a pressure and temperature relief valve that must be installed as near as possible to the Supplementary water inlet of DHW tank (1). It should ensure a correct draining (5) for the discharge valve of this valve. This security water valve should provide the following:
  - Pressure protection
  - Non-return function
  - Shut-off valve
  - Filling
  - Draining

NOTE

The discharge pipe should always be open to the atmosphere, free of frost and in continuous slope to the down side in case that water leakage exists.

In case of a recirculation circuit for the DHW circuit, the following elements are required:



Nature	No.	Part name
Piping connections	1	Supplementary water inlet of DHW tank
	2	DHW tank outlet
Field supplied	3	Water check valve
	4	Water pump
	5	Shut-off valve

- **A DHW pump (field supplied):** This water pump (3) will help to correctly recirculate the hot water to the DHW inlet.
- **A Water check valve (field supplied):** This accessory (3) is connected after the recirculation water pump (4) in order to ensure the nonreturn of water.
- **Two Shut-off valves (field supplied) (5):** One before the recirculation water pump (4) and other after the water check valve accessory (3).

CAUTION

The water check valve shall be confirmed installed in the correct direction. Otherwise, serious damages may occur in the DHW tank.

8.2 REQUIREMENTS AND RECOMMENDATIONS FOR HYDRAULIC CIRCUIT

8.2.1 Requirements for anti-freezing

- When the unit is stopped during shut-off periods and the ambient temperature is very low, the water inside the pipes and the circulating pump may freeze, thus damaging the pipes and the water pump. In these cases, the installer shall ensure that the water temperature inside the pipes does not fall below the freezing point. In order to prevent this, the unit has a self-protection mechanism which should be activated (refer to “9.6 SETTING OF DIP SWITCHES ON PCB1”).
- Even if the unit is stopped, the water pump may run under some circumstances, i.e, when the anti-freezing function is triggered.
- Keep the unit power on and water system unblocked to prevent water freezing, otherwise an alarm may occur.
- If the water system is blocked, an alarm of water flow will occur to stop the whole system.
- If machine is stopped for a long period of time in winter, drain out water in circuit and water pipes to prevent freezing.
- The anti-freezing protection is effective better with Auxiliary electric heater connected. It is advisable to install the Auxiliary electric heater for those models in which these are not supplied but optional.
- However, in case of a power failure or unit failure, these functions cannot guarantee protection.

8.2.2 Minimum required water volume

The following part shows the minimum water volume in the system for product protection (anti-hunting) and temperature drop at defrosting.

- *Minimum required water volume in each single water circuit of DHW / SWP for product protection (anti-hunting).*
  Water volume in each single water circuit of DHW / SWP need be greater than 40L.
- *Minimum required water volume in single water circuit of space cooling for product protection (anti-hunting).*
  The following table shows the minimum water volume needed in single water circuit of space cooling.

Model	100/120 (3.5HP/4.0HP)	140/160 (5.0HP/6.0HP)
Minimum required water volume	60L	90L

- *Minimum required water volume during defrosting.*
  The following table shows the minimum water volume needed in single water circuit of space heating in case of safe defrosting.

Lowest possible operation water temperature in single water circuit of space heating	100/120 (3.5HP/4.0HP)	140/160 (5.0HP/6.0HP)
≥25°C	71 L	88 L
20-25°C	115 L	143 L
15-20°C	183 L	229 L
10-15°C	229 L	286 L

NOTE

- *The values shown on the table are based on theoretical installation conditions. And the value can be different depending on each specific installation.*
- *To calculate minimum water volume the internal water volume of the unit is NOT included.*
- *Consult with local technical engineer under the special occasions where operation water temperature in single water circuit of space heating is lower than 20°C.*

8.2.3 Minimum required water flow

Check that the water pump of the water circuit works within the pump operating range and that the water flow is over the unit minimum value.

Model	min. water flow(L/min)
100 (3.5HP)	13.3
120 (4.0HP)	15.0
140 (5.0HP)	18.3
160 (6.0HP)	20.0

8.2.4 Additional information about hydraulic circuit

- An additional special water filter is highly recommended to be installed on the space heating (field installation), in order to remove possible particles remaining from brazing which cannot be removed by the field supplied shut-off valve with filter.
- Put insulation on the pipes in order to avoid heat losses.
- Whenever possible, sluice valves should be installed for water piping, in order to minimize flow resistance and to maintain sufficient water flow.
- Ensure that the installation complies with applicable legislation in terms of piping connection and materials, hygienic measures, testing and the possible required use of some specific components like thermostatic mixing valves.
- The maximum water pressure is 3 bar (nominal opening pressure of the safety valve). Provide adequate reduction pressure device in the water circuit to ensure that the maximum pressure is NOT exceeded.
- The water pressure can be read on master controller, detected by the water pressure sensor located at inlet of plate heat exchanger. If water pressure exceeded 3 bar, the water pressure displayed on master controller would flash.
- Ensure that the drain pipes connected to the safety valve and to the air purge valve are properly driven to avoid water being in contact with unit components.
- Make sure that all field supplied components installed in the piping circuit can withstand the water pressure and the water temperature range in which the unit can operate. The units are conceived for exclusive use in a closed water circulation.
- The internal air pressure of the expansion vessel will be adapted to the water volume of the final installation (factory supplied with 1 bar of internal air pressure).
- Drain taps must be provided at all low points of the installation to permit complete drainage of the circuit during servicing.
- The maximum piping length depends on the maximum pressure availability in the water outlet pipe. Please check the pump curves.
- The unit is equipped with an air purge valve (factory supplied) at the highest location of the unit. If this location is not the highest of the water installation, air might be trapped inside the water pipes, which could cause system malfunction. In that case additional air purge valves (field supplied) should be installed to ensure no air enters the water circuit.
- For heating floor system, the air should be purged by mean of an external pump and an open circuit to avoid air bags.

8.3 WATER FILLING

(1) Check that a water check valve (field supplied) with a shutoff valve (field supplied) is connected to the water filling point (water inlet connection) for filling the hydraulic circuit (see “8.1 Additional hydraulic necessary elements).

(2) Make sure all the valves are open (water inlet/outlet shut-off valves and the rest of valves of the water circuit installation components).

(3) Ensure that the air purge valve of the unit is open when installation (turn the screw cap of air purge valve twice at least).

(4) Check that the drain pipes connected to the safety valve (keep the outlet of drain pipes located in the drain pan) are correctly connected to the general draining system. The safety valve is later used as an air purging device during the water filling procedure.

(5) Fill the water circuit with water until the pressure displayed on the controller reaches 2.0 ± 0.2 bar. During all the operation conditions, the normal pressure range of water circuit is 1 ~ 2.5 bar.

NOTE

While the system is being filled with water, it is highly recommended to operate the safety valve manually so as to help with the air purging procedure.

(6) Remove as much air from inside the water circuit as possible through the air purge valve and other air vents in the installation (fan coils, radiators...).

(7) There are two methods to start the air purge procedure:

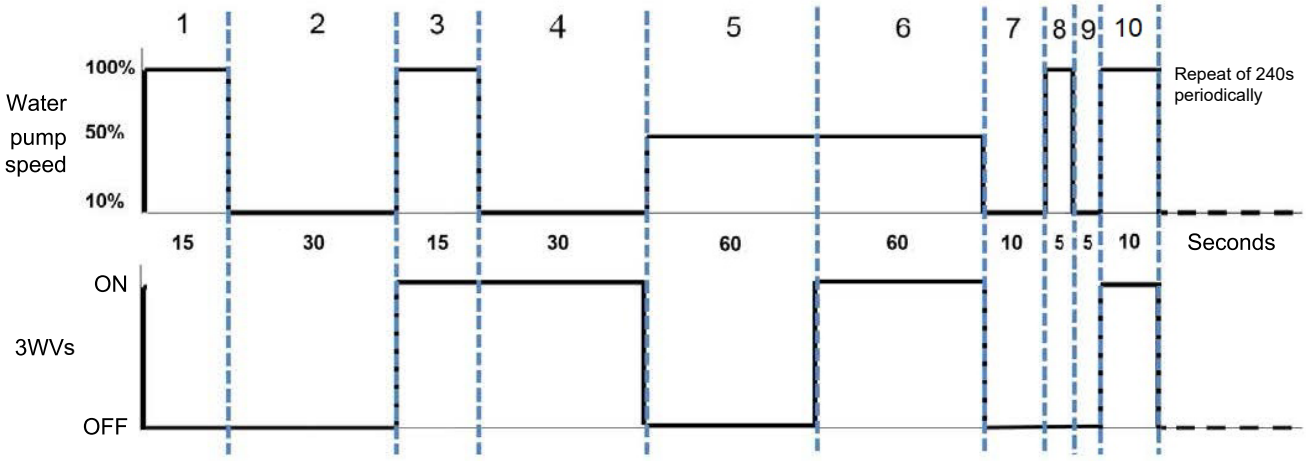
a. Using the master controller to start air purge. (Refer to the master controller manual)

b. Using DSW4-1 of the PCB1:
DSW4-1 ON: Start air purge
DSW4-1 OFF: Stop air purge

(8) If a little quantity of air is still remaining in the water circuit, it will be removed by the automatic air purge valve of the unit during the first hours of operation. Once the air in the installation has been removed, a reduction of water pressure in the circuit is very likely to occur. Therefore, additional water should be filled by booster pump until water pressure returns to approximate 2.0 bar.

NOTE

- *The unit is equipped with an automatic air purge valve (factory supplied) at the highest location of the unit. Anyway, if there are higher points in the water installation, air might be trapped inside water pipes, which could cause system malfunction. In that case, additional air purge valves (field supplied) should be installed to ensure no air enters into the water circuit. The air purge valve should be located at points which are easily accessible for servicing.*
- *The water pressure indicated on the master controller may vary depending on the water temperature (the higher temperature, the higher pressure). Nevertheless, it must remain above 1 bar in order to prevent air from entering the circuit.*
- *Fill in the circuit with tap water. The water in the heating installation must comply with EN directive 98/83 EC. Non-sanitary controlled water is not recommended (for example, water from wells, rivers, lakes, etc.) .*
- *The maximum water pressure is 3 bar (nominal opening pressure of the safety valve). Provide adequate reduction pressure device in the water circuit to ensure that the maximum pressure is NOT exceeded.*
- *For heating floor system, air should be purged by means of an external pump and an open circuit to prevent the formation of air pockets.*
- *Check carefully for leaks in the water circuit, connections and circuit elements.*
- *During water filling, it is necessary to ensure that water enters the unit from the water inlet to ensure that all water passes through the shut-off valve with filter to filter impurities, otherwise it may block the components inside the unit.*



NOTE

- The unit will stop for at least 6 min before starting next air purge cycle.

(9) Check Water Volume:
The unit has a built-in 8L expansion vessel, and default initial pressure is 1 bar. To ensure the unit works normally, the initial pressure of expansion vessel should be adjusted according to the circulated water volume.

- Use water volume checklist below to decide whether initial pressure of expansion vessel needs to be adjusted.
- Use water volume checklist to confirm the total volume of water in installation system is below the allowed maximum water volume.
- Installation height difference: height difference between highest point of water circulation and the unit. If the unit is mounted at the highest point, above all water pipes, the installation height is deemed to be 0 m.
- Calculate initial pressure of expansion vessel. Decide initial pressure (Pg) according to the maximum installation height difference (H), see below:

Pg=H/10+0.3

Unit: H (m), Pg (bar)

- The process of calculating allowed maximum water volume in whole circulation is:
  - Calculate maximum water volume corresponding to initial pressure Pg by using maximum water volume curve as shown below.
  - Confirm the total maximum water volume in water circulation is smaller than above value. Otherwise, the expansion vessel in the unit is smaller for system.

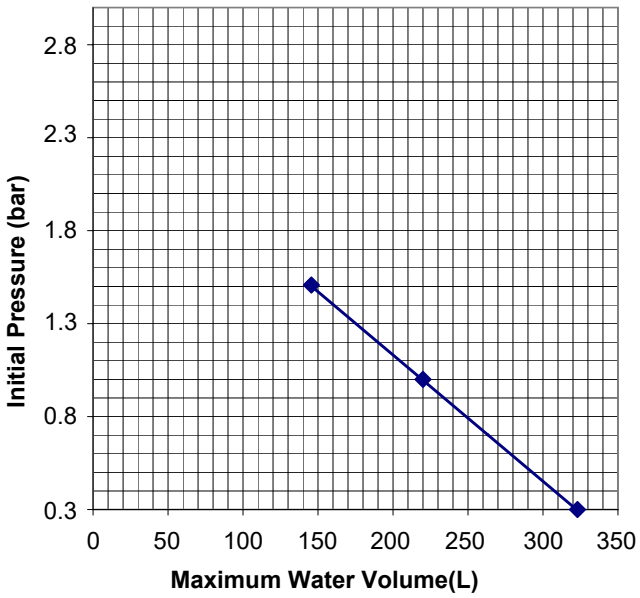
NOTE

- *0.3 bar is the minimum initial pressure and 1.5 bar is the maximum initial pressure of expansion vessel set outside the factory.*
- *When initial pressure in expansion vessel is set as 0.3 bar at minimum, the water quantity required by system is higher than the limit value, it may be considered replacing expansion vessel with bigger volume.*

Water Volume Checklist

	Installation height difference (a)	Water Volume	
		≤220L	>220L
Safety Valve (3 bar)	≤7m	No need to adjust initial pressure of expansion vessel	Things need to do : Must reduce initial pressure. Calculate it based on the section “Check water volume”. Ensure water volume is lower than allowed maximum water volume (using the figures below).
	>7m	Things need to do : Must increase initial pressure. Calculate it based on the section “Check water volume”. Ensure water volume is lower than allowed maximum water volume (using the figures below).	The expansion vessel is too small to install. (It needs proper expansion vessel or use safety valve with high activated pressure that is supplied from local place)

Maximum Water Volume Curve Graph



8.4 DHW TANK SELECTION AND INSTALLATION

NOTE

- *This DHW tank is designed for heat pump type heating system. DHW shall be selected according to the requirements in this instruction and on-site use requirements.*
- *If the selection, installation and wiring are not carried out according to the requirements in this instruction, we would not be responsible for the problems caused by the DHW tank.*
- *Hot water may cause serious burns. Test water temperature with hands. Use after the water is mixed till proper temperature.*
- *Connecting of water pipe with tap water pipe should be operated by qualified staff using proper piping material according to local regulations and standards.*
- *When the high domestic hot water temperature can be a potential risk for human injuries, a mixing valve (field supplied) shall be installed at the hot water outlet connection of the DHW tank. This mixing valve shall secure that the hot water temperature at the hot water tap never rise above a set maximum value. This maximum allowable hot water temperature shall be selected according to the applicable legislation.*

8.4.1 DHW tank selection

When selecting a tank for DHW operation, take into consideration the following points:

- The volume of the tank has to meet with the daily consumption in order to avoid stagnation of water.
- Fresh water must circulate inside the DHW tank water circuit at least one time per day during the first days after the installation has been performed. Additionally, flush the system with fresh water when there is no consumption of DHW during long periods of time.
- Try to avoid long runs of water piping between the tank and the DHW installation in order to decrease possible temperature losses.
- If the domestic cold water entry pressure is higher than the equipment's design pressure, a adequate pressure reducer must be installed to ensure that the maximum pressure is NOT exceeded.

1 Storage capacity

The storage capacity of the DHW tank depends on the daily water demand and the combination method. The daily water demand is estimated with the following calculation formula for consumption:

$$D_i(T) = D_i(60\ °C) \times (60-T_i\ /\ T-T_i)$$

Where:

Di (T):	Water demand at T temperature
Di (60°C):	Domestic hot water demand at 60 °C
T:	Temperature of the DHW tank
Ti:	Temperature of the inlet cold water

- Calculation of Di (60 °C):

The standard consumption, expressed in daily litres per person and determined by technical installation regulations of each country, is used to calculate the domestic hot water demand at 60 °C, Di(60 °C). This quantity is then multiplied by the expected number of users of the installation. In the following example, the domestic hot water demand at 60 °C has been considered as 30 litres per person, in a detached house with 4 residents.

- Calculation of T:

The temperature of the DHW tank refers to the temperature of the accumulated water inside the tank, prior to operation. This temperature is usually between 45 °C and 65 °C. It has been considered as 45 °C in this example.

- Calculation of Ti:

The temperature of the inlet cold water refers to the temperature of the water being supplied to the tank. Since this temperature is usually between 10 °C and 15 °C, it has been considered as 12 °C in this example.

- Example:

Di(T)= 30 x 4 x (60-12 / 45-12) = 174.5 litres/day

174.5 x 2(*) = 349 litres/day approximate demand of hot water

NOTE

(*) It is recommended to multiply the calculated consumption by two, in case that the installation is in a detached house. This is done to ensure a steady supply of hot water. In the case of a multifamily installation, it is not necessary to increase the forecast of hot water demand, given the lower simultaneity factor.

2 Coil Face Area

The coil face area is a key parameter for DHW tank. To improve the heating efficiency, the coil face area should be adjusted according to the capacity.

The coil face area should be no less than the values listed in the table below.

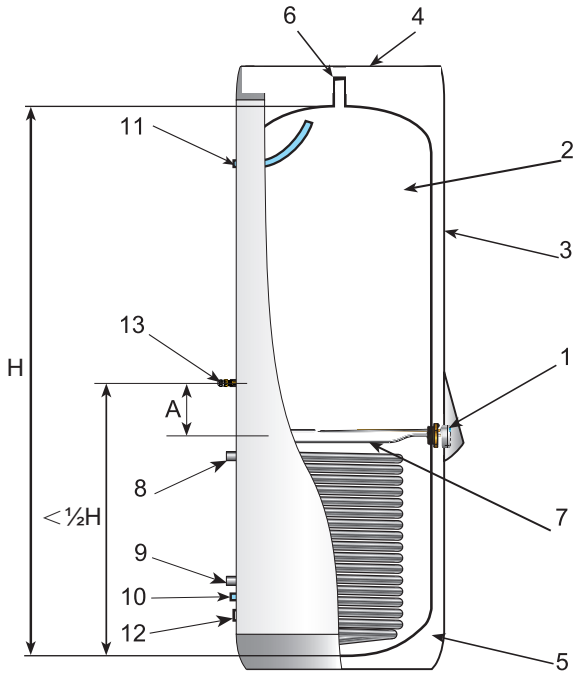
Storage Capacity(L)	100	150	200	250	300
Coil Face Area(m^2)	1.5	1.5	1.8	1.8	2.0

NOTE

Smaller coil face area will lead to worse heating efficiency. In that condition, the heat pump will start and stop frequently which causes more time and more power consumption to heat up the DHW tank.

3 Structural Drawings

The typical structure of the DHW tank is shown as below (for reference only):



Ref.	Name
1	Control panel
2	Storage tank
3	External covering
4	Top covering
5	Thermal insulation
6	Temperature pressure valve connection port
7	DHW electric heater
8	DHW tank inner coil inlet
9	DHW tank inner coil outlet
10	DHW tank water inlet
11	DHW tank water outlet
12	Drainage outlet
13	Thermistor for DHW

For different storage capacity, the structural design of the DHW tank may be different. The parameters of the typical structure shown in the left are recommended as follows:

Ref.	Recommended value(mm)*
A	Min.150

*Please check and adjust according to the actual situation.

NOTE

(1) *Thermistor for DHW*

① *The DHW tank including the thermistor, the DHW electric heater and the DHW tank inner coil must be designed and installed in accordance with the local regulation.*

② *The position of the thermistor is very important. The reasonable position will help to ensure the detection accuracy of the DHW temperature. It is related to the operation of the heat pump.*

(2) *DHW electric heater*

① *The electric heater is necessary to heat up the DHW tank in the following conditions:*

- *Supplement the heat pump to heat up the DHW tank when the heating capacity of the heat pump is insufficient in low ambient temperature.*
- *Heat up the DHW tank when the operating conditions exceed the limitation, see details in Section "1 GENERAL INFORMATION".*

② *The capacity of the DHW electric heater is related to the storage capacity of the DHW tank, and should be selected according to the following demand.*

- *Larger capacity of the DHW electric heater is beneficial to heat up the DHW tank, but will consume more power, while smaller capacity of the electric heater will cost more time to heat up the DHW tank.*

CAUTION

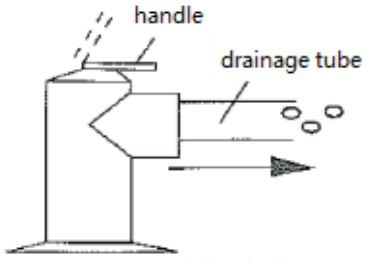
- *The temperature pressure valve and the temperature protection device (covered by the control panel) must be installed according to local regulation and performed by qualified professionals referring to Section "8.4.2 Safety device".*

8.4.2 Safety device

1 Temperature pressure valve

A temperature pressure valve which fit with local national requirements should be installed together with DHW tank to avoid the excessive higher temperature and pressure.

- Temperature pressure valve must be tightly connected with drainage pipe. Drainage pipe must be connected as shown below and introduced to building down corner (The water temperature in drainage pipe may be high, note burns).
- Temperature pressure valve in DHW tank can not be connected for other purposes.
- Check temperature pressure valve once half a year. When checking, open temperature pressure valve handle (see below), temperature pressure valve will smoothly drain water out. The water temperature may be high, note burns. Reset after it is errorless. If drainage fails, contact local dealer for repair.
- Temperature pressure valve and its drainage pipe must keep smooth and not blocked.



CAUTION

- *If DHW tank is not used for more than 2 weeks, a certain amount of hydrogen will gather in DHW tank. It is recommended to open temperature pressure valve handle or water outlet faucet for several minutes to release hydrogen. However, do not open hot water faucet in dishcleaning machine and washing machine, etc. When hydrogen is released, do not make open flame or operate other electrical apparatus. When gas is released, releasing sound will be heard.*
- *Temperature pressure valve is used to prevent too high temperature in DHW tank (> 94°C, recommended) and water pressure (> 0.85MPa, recommended).*

2 Temperature protection switch

- When using the DHW electric heater, an Auto Restore Temperature Protection Switch (THe2) has to be installed to prevent the DHW temperature from being heated uncontrollable. When DHW temperature exceeds the protection value, the temperature protection switch opens, and auto restores when DHW temperature reduces below the protection value. The protection value can be selected according to temperature requirement of DHW. The recommended protection value is 80°C.
- Temperature Protection Switch / Temperature fuse (THe1) is connected in the DHW electric heater power supply circuit, which can directly cut off the power supply of DHW electric heater when DHW temperature exceeds the protection value.
  The recommended protection value is 90°C.
- The detail wiring diagram of DHW tank is shown in section “9.3.4 Wiring of DHW”.

CAUTION

- *Do not install DHW electric heater without temperature protection device.*
- *Electrical box cover must be opened by qualified electrician. Power off before open electrical box cover.*

8.4.3 DHW tank installation

NOTE

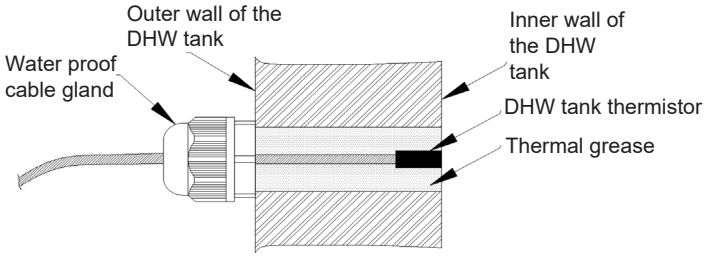
- *Recommend installing this equipment to balcony or outdoor at temperature from 0°C to 43°C.*
- *DHW tank is mounted near floor drain to connect temperature pressure valve drainage pipe.*
- *Do not install DHW tank in place with corrosive gas.*
- *Installation location is free from frosting.*
- *Installation location must bear weight of DHW tank containing water.*
- *Ensure dimension of water pipe is above 1 inch (recommend DN40 water pipe), provide enough volume to pipeline and reduced resistance in pipeline system.*
- *DHW tank is located in a place that is convenient for repair and ensure electrical box is open.*
- *No accumulated water around installation location.*
- *Arrange filter at water inlet pipe, preventing domestic water contaminated by impurities.*
- *Ensure DHW tank is full of water before energizing.*

Install DHW tank

(1) Check DHW tank for complete accessories.

(2) When mounted on ground, ensure the bottom of DHW tank is flat and vertically. If mounted in bath room where water exists, recommend installing on a foundation higher than ground, preventing the bottom being soaked by water.

(3) To ensure the measurement accuracy, the DHW tank thermistor should be coated with thermal grease. The water proof cable gland (field supplied) is recommended to secure the sensor firmly. The DHW tank sensor must be installed to reach the inner wall of the DHW tank and keep in good contact with it.



⚠ CAUTION

- *DHW tank supplies hot water from tap water. Domestic hot water is only used when tap water is connected.*
- *For safety, do not add ethylene glycol into water circulation. If added, water will be contaminated when heat exchanger coil leaks.*
- *When water hardness is more than 250-300 ppm, recommend using softened water to reduce DHW tank scale.*
- *Immediately flush DHW tank with fresh water after installation. Flush once every day in first five days of installation.*
- *Try to avoid long runs of water piping between the tank and the DHW installation in order to decrease possible temperature losses.*
  If the domestic cold water entry pressure is higher than the DHW tank's design pressure, a pressure reducer must be fitted.
- *After used for a while (depend on local water quality and use frequency), clean DHW tank and remove scales.*
  a. *Power off and close water inlet valve.*
  b. *Open water outlet valve and drainage valve to empty DHW tank.*

  ⚠ CAUTION

  When scales are removed, temperature in DHW tank may be a little high, it should prevent burns or drainage equipment damaged.

  c. *Close drainage valve after cleaning several minutes with water inlet valve opened. Ensure effluent water is closed after DHW tank is full of water. Power on and get back to work.*
- *Always check DHW tank and its surroundings has accumulated water or not. If leak, contact local dealer.*

8.5 WATER CONTROL

It is necessary to analyze the quality of water by checking pH, electrical conductivity, ammonia ion content, sulphur content, and others. The following is the recommended standard water quality.

Item	Chilled water system		Tendency (1)	
	Circulating water (20°C less than)	Supply water	Corro-sion	Depos-its of scales
Standard Quality pH (25 °C)	6.8 ~ 8.0	6.8 ~ 8.0	●	●
Electrical Conductivity (mS/m) (25 °C) {μS/cm} (25 °C) (2)	Less than 40 Less than 400	Less than 30 Less than 300	●	●
Chlorine Ion (mg Cl^-/L)	Less than 50	Less than 50	●	
Sulphur Acid Ion (mg H_4SO^-/L)	Less than 50	Less than 50	●	
The amount of Acid consumption (pH 4.8) (mg $CaCO_3$/L)	Less than 50	Less than 50		●
Total Hardness (mg $CaCO_3$/L)	Less than 70	Less than 70		●
Calcium Hardness (mg $CaCO_3$/L)	Less than 50	Less than 50		●
Silica L (mg SIO_2/L)	Less than 30	Less than 30		●
Reference Quality Total Iron (mg Fe/L)	Less than 1.0	Less than 0.3	●	●
Total Copper (mg Cu/L)	Less than 1.0	Less than 0.1	●	
Sulphur Ion (mg S^{2-}/L)	It shall not be detected		●	
Ammonium Ion (mg NH_4^+/L)	Less than 1.0	Less than 0.1	●	
Remaining Chlorine (mg Cl/L)	Less than 0.3	Less than 0.3	●	
Floating Carbonic Acid (mg CO_2/L)	Less than 4.0	Less than 4.0	●	
Index of Stability	6.8 ~ 8.0	-	●	●

Item	DHW space	Tendency (1)	
	Water supplied	Corrosion	Deposits of scales
Electrical Conductivity (mS/m) (25°C) {μS/cm} (25 °C) (2)	100~2000	●	●
Chlorine Ion (mg Cl^-/L)	Max 250	●	
Sulphate (mg/L)	Max 250	●	
Combination of chloride and sulphate (mg/L)	Max 300	●	●
Total Hardness (mg $CaCO_3$ /L)	60~150		●

NOTE

- *(1) The mark "●" in the table means the factor concerned with the tendency of corrosion or deposits of scales.*
- *(2) The value showed in "{}" are for reference only according to the former unit.*

⚠ CAUTION

- *Water should be subjected to filtration or to a softening treatment with chemicals before application as treated water.*
- *No antifreeze agent shall be added to the water circuit.*
- *To avoid deposits of scale on the heat exchangers surface it is mandatory to ensure a high water quality with low levels of $CaCO_3$.*
- ***To prevent the storage tank from corrosion, the electronic anode(optional accessory) can be installed.***

9. ELECTRICAL AND CONTROL SETTINGS

9.1 GENERAL CHECK

(1) Ensure all electrical apparatus used on site (power switch, circuit breaker, lead, conduit and terminal board) are selected according to technical manual and national and local codes. Wiring must be made according to national and local codes.

(2) Check voltage is within rated voltage ± 10%. In case of low voltage, system will not start. In case of high voltage, electrical parts will be burnt out.

(3) Confirm earth wire is connected.
Use wires which are not lighter than the polychloroprene sheathed flexible cord (code designation 60245 IEC 57).

Model	Power supply	Operation mode	Max. current (A)	Power supply cables	Transmitting cables	CB (A)	ELB (No. of poles/A/mA)	Terminal Board
				EN60335-1	EN60335-1			
AHM-(100/120/140/160)HCDSAA	220-240V ~ 50Hz	Without DHW electric heater	1.91	3 x 2.5mm²	2 x 0.75 mm²	16	2/16/30	TB1(L,N)
		With DHW electric heater(3kW)	16.26	3 x 4.0 mm²		20	2/20/30	TB1(L,N)
		Auxiliary electric heater	28.70	3 x 6.0 mm²	-	32	2/32/30	TB(L,N)
AHM-(100/120/140/160)HEDSAA	380-415V 3N ~ 50Hz	Without DHW electric heater	1.91	3 x 2.5 mm²	2 x 0.75 mm²	16	2/16/30	TB1(L,N)
		With DHW electric heater(3kW)	16.26	3 x 4.0 mm²		20	2/20/30	TB1(L,N)
		Auxiliary electric heater	9.66	4 x 2.5 mm²	-	16	3/16/30	TB(R,S,T)

CB: Air circuit breaker.
ELB: Earth leakage breaker.

⚠ CAUTION

- ***Turn OFF the main power switch of the indoor unit and the outdoor unit and wait for more than 10 minutes before electrical wiring work or a periodical check is performed.***
- ***The data corresponding to DHW electric heater is calculated in combination with the domestic hot water tank with 3kW DHW electric heater. The DHW electric heater which power is equal or lower than 3kW, can be drived directly by indoor unit. As for the DHW electric heater which power is over 3kW, the unit can only provide control signal.***

NOTE

(1) *Field wiring shall be in conformity to local laws and regulations, and all wiring operations must be performed by qualified professionals.*

(2) *Refer to relevant standards for Above-noted power supply cables size.*

(3) *Where power supply cable is connected through junction box in series, be sure to determine the total current and choose wires based on the table below. Selection according to EN 60335-1.*

Current i (A)	Wire size (mm^2)
i ≤ 6	2.5
6 < i ≤ 10	2.5
10 < i ≤ 16	2.5
16 < i ≤ 25	4
25 < i ≤ 32	6
32 < i ≤ 40	10
40 < i ≤ 63	16
63 < i	※1

※ *1: In the case that current exceeds 60A, do not connect cables in series.*

(4) *As a minimum, the chosen wires shall not be lighter than the polychloroprene sheathed flexible cord (code designation 60245 IEC 57).*

(5) *The wiring specifications for weak current transmission circuit shall not be lower than that for RVV(S)P shielded wires or equivalent, and the shielding layer shall be grounded.*

(6) *A switch that can ensure all-pole disconnection shall be installed between power supply and air conditioning unit in such a manner that the contact spacing shall not be less than 3 mm.*

(7) *Once the power cord is damaged, the dealer or the professionals from designated maintenance department must be contacted in a timely manner for repair and replacement.*

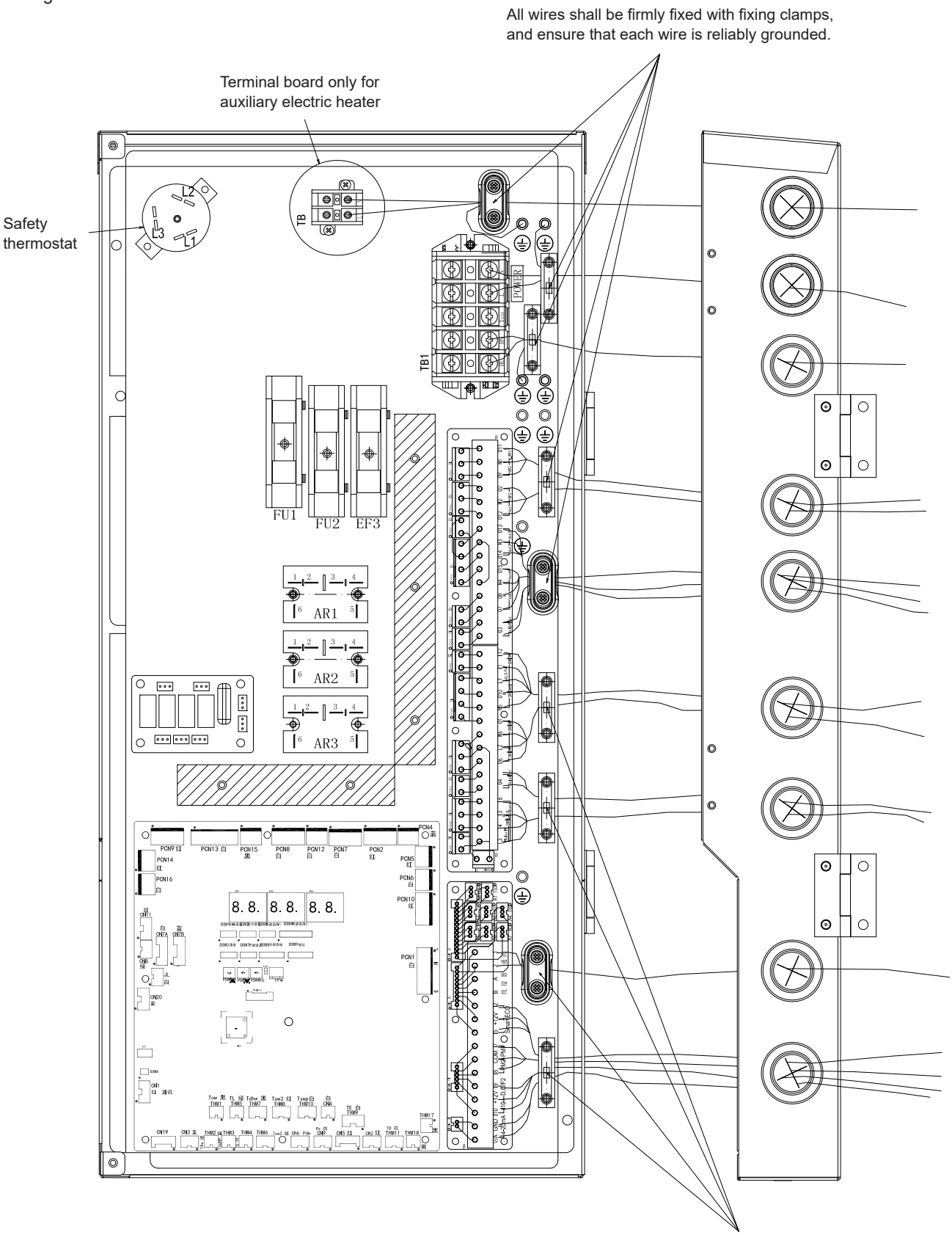
(8) *For the installation of power cord, the earth wire must be longer than the current-carrying conductor.*

(9) *This appliance can be connected only to a supply with system impedance no more than 0.3Ω. If necessary, please consult your supply authority for system impedance information.*

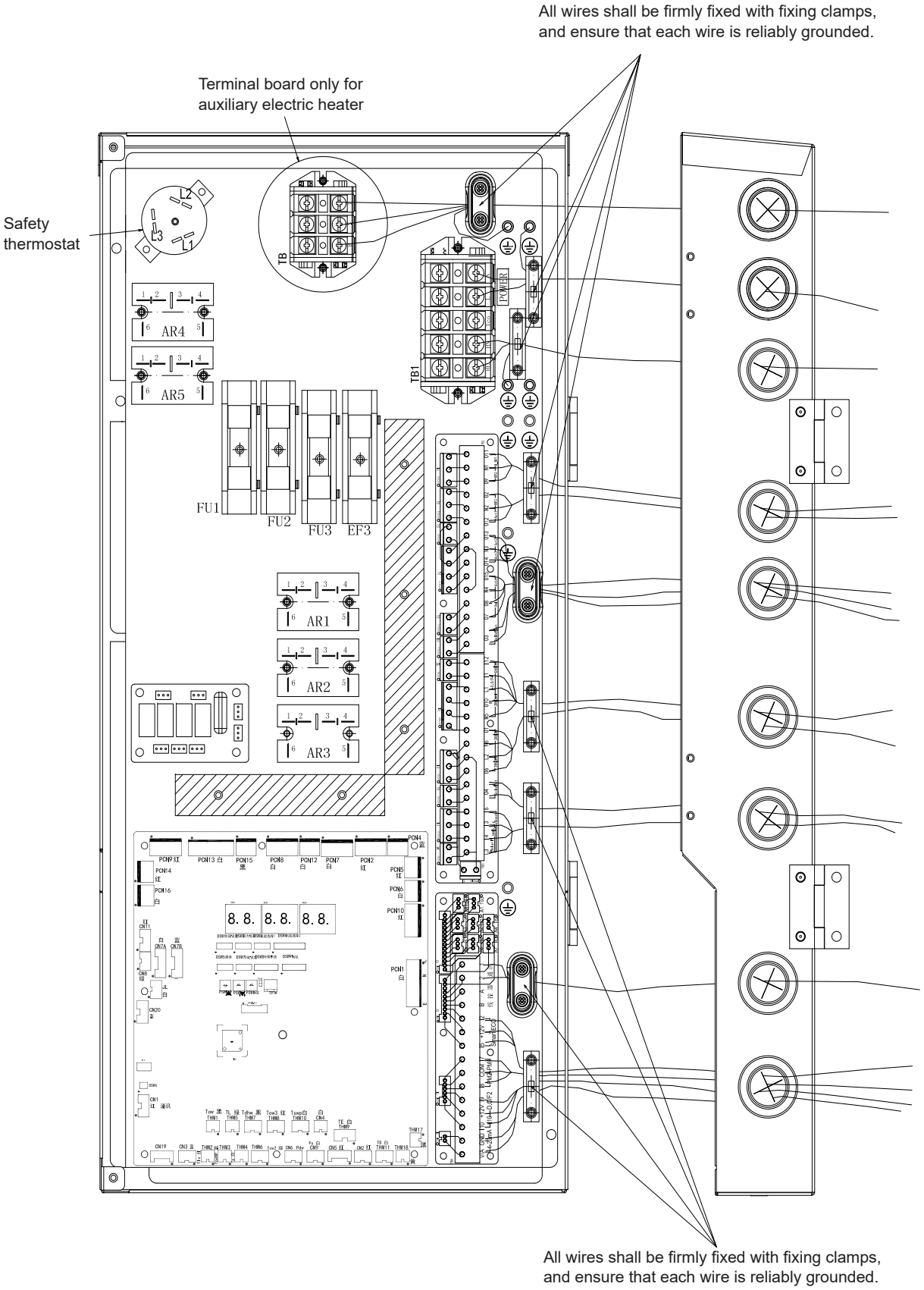
9.2 WIRING

1. The electrical box inner wiring and wire fixing shall be operated as shown below.

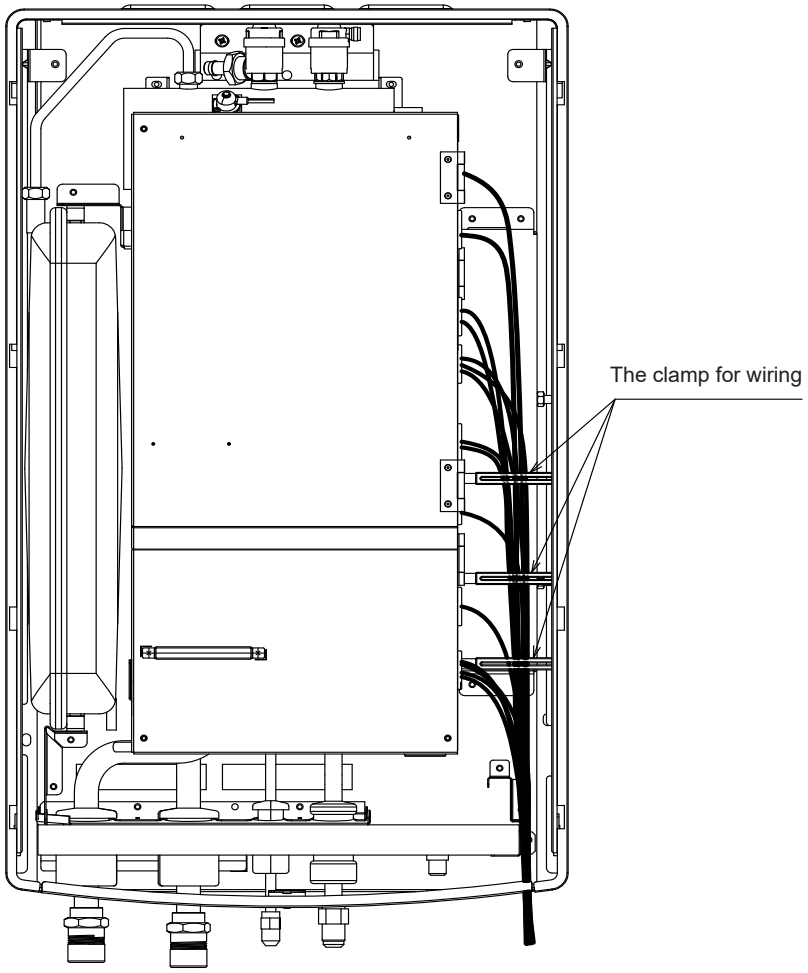
Single-Phase:



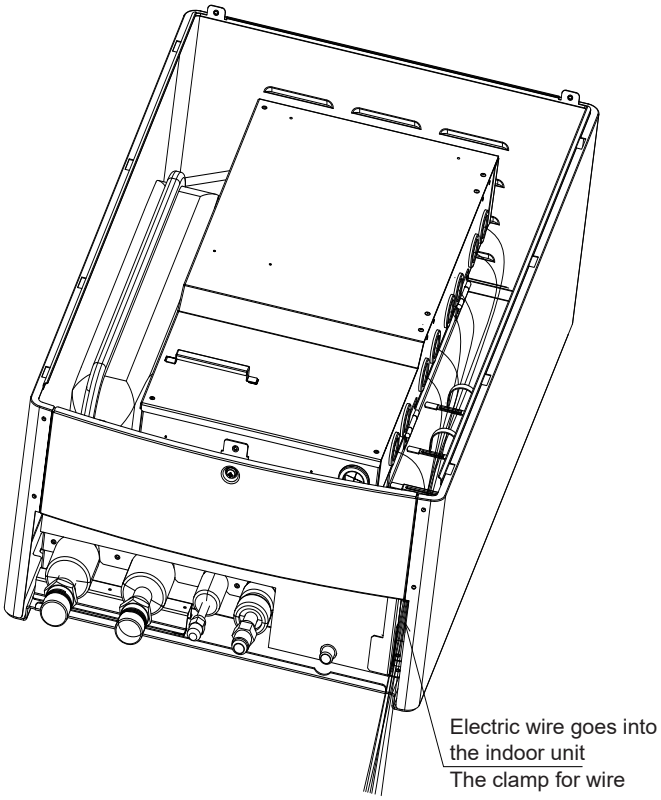
Three-Phase:


All wires shall be firmly fixed with fixing clamps, and ensure that each wire is reliably grounded.
Terminal board only for auxiliary electric heater
Safety thermostat
L2
L3
L1
TB
TB1
POWER
AR4
AR5
AR1
AR2
AR3
FU1
FU2
FU3
EF3
All wires shall be firmly fixed with fixing clamps, and ensure that each wire is reliably grounded.

2. The wiring route outside electrical box, as below.



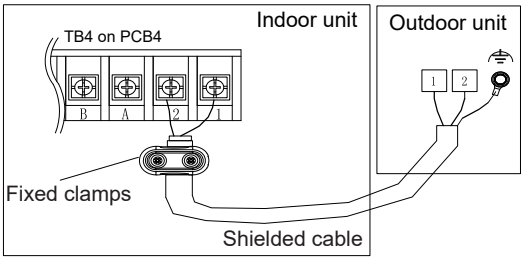
3. All wires enter the unit.



9.3 TERMINAL BOARD CONNECTIONS

9.3.1 Indoor / outdoor transmission wiring

- The transmission is wired to terminals 1-2.
- The shielding layer shall be grounded.



- Use twist pair wires (0.75 mm²) for transmission wiring between outdoor unit and indoor unit. The wiring must consist of 2-core wires (Do not use wire with more than 3 cores).
- Use shielded wires for transmission wiring to protect the units from noise interference, with a length of less than 300 m and a size in compliance with local codes.
- In the event that a conduit tube for field-wiring is not used, fix rubber bushes to the panel with adhesive.

⚠ CAUTION

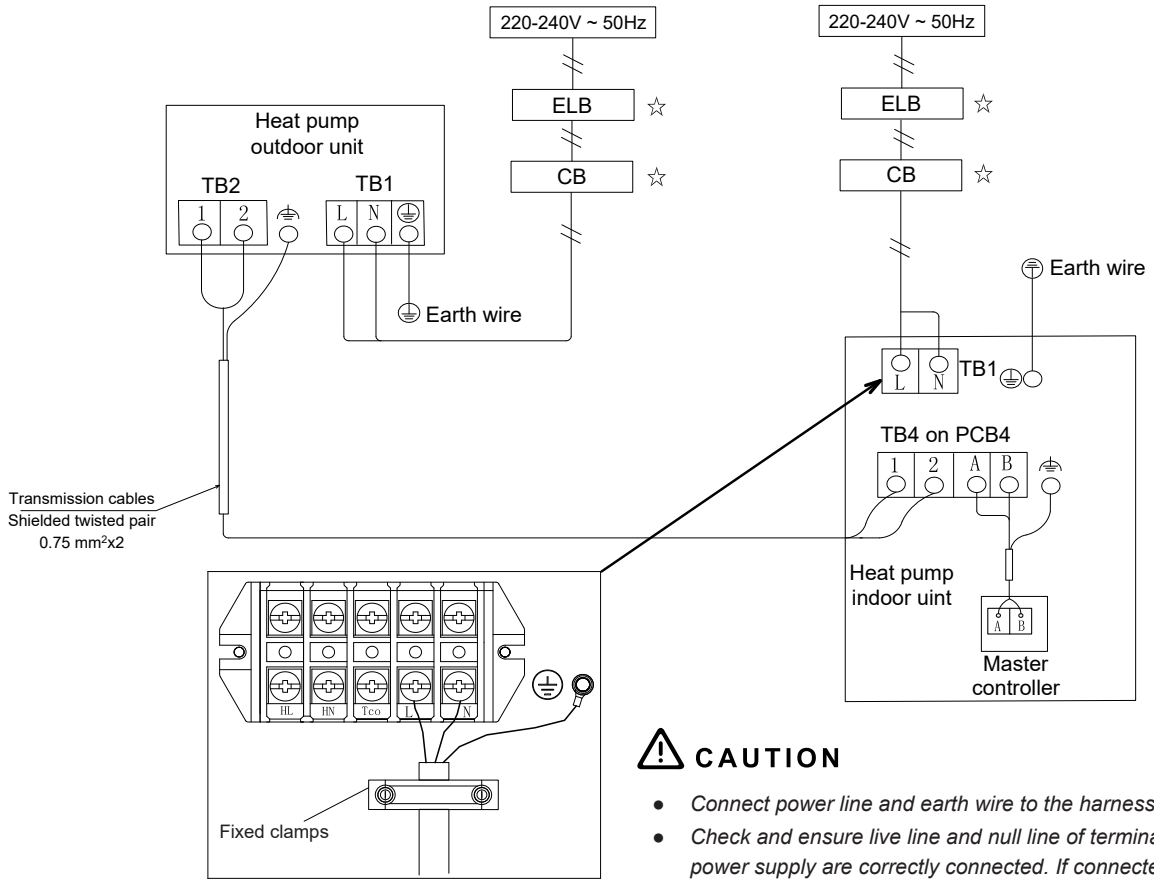
Ensure that the transmission wiring is not wrongly connected to any live part that could damage the PCB.

9.3.2 Terminal board 1 (Main power supply)

The main power supply connection is wired to the Terminal board (TB1) as follows:

TB: Terminal board
CB: Air circuit breaker
ELB: Earth leakage breaker

: Power supply cables
: Transmission cables
☆ : Field supplied, not cantained in the indoor unit



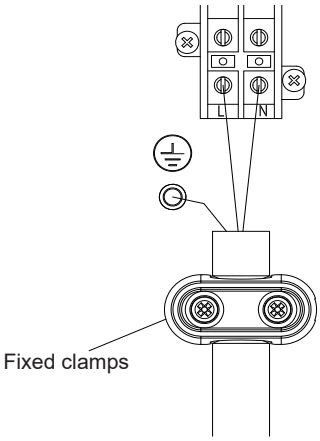
⚠ CAUTION

- *Connect power line and earth wire to the harness.*
- *Check and ensure live line and null line of terminal boards in power supply are correctly connected. If connected incorrectly, some parts may be damaged.*

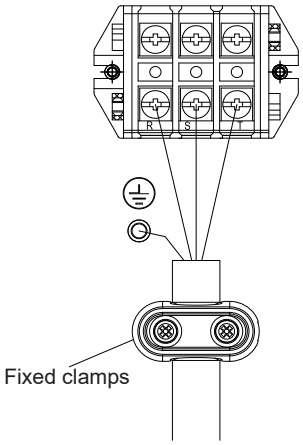
9.3.3 Terminal board (Auxiliary electric heater)

The power supply connection for auxiliary electric heater is wired to the Terminal board (TB) as follows:

Single-Phase:



Three-Phase:



⚠ CAUTION

- *Connect power line and earth wire to the harness.*
- *Check and ensure live line and null line of terminal boards in power supply are correctly connected. If connected incorrectly, some parts may be damaged.*

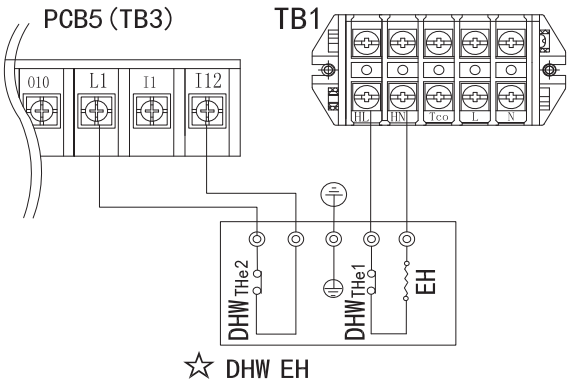
9.3.4 Wiring of DHW

⚠ CAUTION

The electric heater of the DHW tank needs to meet the relevant requirements of local laws and regulations. It is necessary to protect it through a temperature fuse and a temperature protection switch.

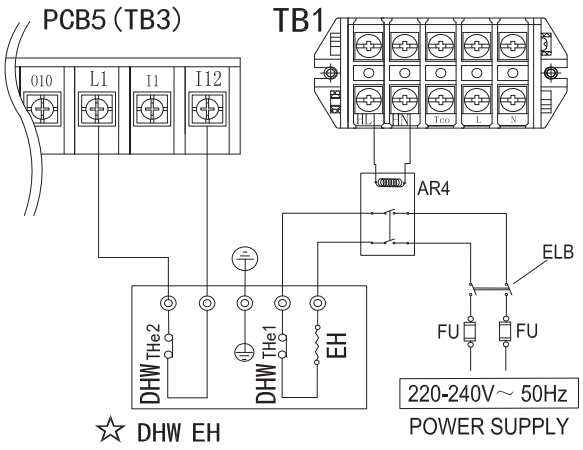
1 Electric heater power ≤ 3 kW.

Power line connection should give concern to live line and null line, and be grounded strictly.



2 Electric heater power > 3 kW.

When the capacity of the electric heater is greater than 3 kW, the terminal HL/HN only provides control signals to control the ON/OFF of the AC contactor.



Codes	Indications	Recommended parameters
DHW EH	DHW electric heater assembly	
EH	DHW electric heater	
THe1	Temperature protection switch / Temperature fuse *Connected in the DHW electric heater power supply circuit, directly cut off the power supply of DHW electric heater when DHW temperature exceeds the protection value.*	Protection value 90 °C
THe2	Temperature protection switch (Auto restore) *When DHW temperature exceeds the protection value, the temperature protection switch open, and auto restore when DHW temperature reduce below the protection value. The unit can detect this temperature protection switch is open and cuts off the power supply DHW electric heater.*	Protection value 80 °C
AR4	AC contactor (repeater)	Selection according to EH (DHW) specifications
FU	Fuse	

⚠ CAUTION

Electrical wiring must be performed by professional technician according to national regulations.

- *Correctly mount cable water proof head and electrical box cover, preventing short circuit caused by water intruding into electrical box.*
- *To install the DHW electric heater which power is ≤ 3kW, power line requirements are shown below:*

	Power Source	Rated Current	Power Source Cable Size
			EN60335-1*
DHW tank power supply	220V-240V ~ 50Hz	15A	3 × 2.5mm^2
DHW tank temperature switch	220V-240V ~ 50Hz	-	2 × 0.75~2.5mm^2

* Code designation 60245 IEC 57

a. *Installation of on-site wire must complies with applicable legislation.*

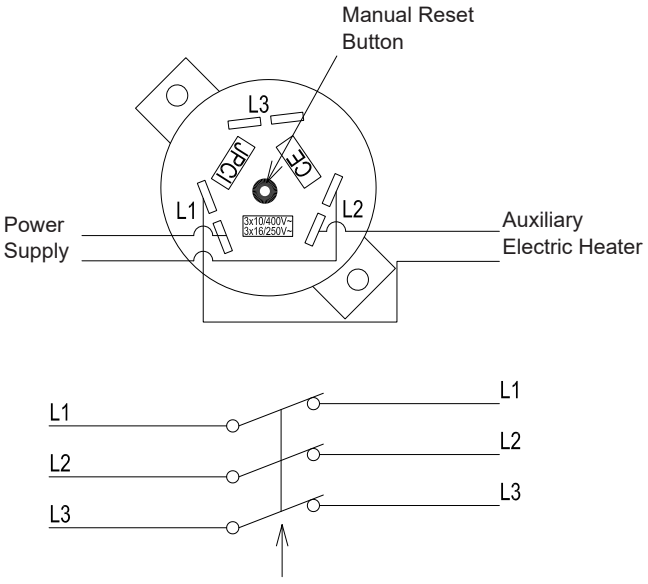
b. *When power line is connected in series, total current value selects power line specification.*

- *Thermistor of DHW tank is weak current signal, preventing mixed with strong current signal.*
- *The DHW tank must have temperature protection devices recommended in this section to ensure the power supply of DHW electric heater can be cut off in time when the DHW temperature is too high.*

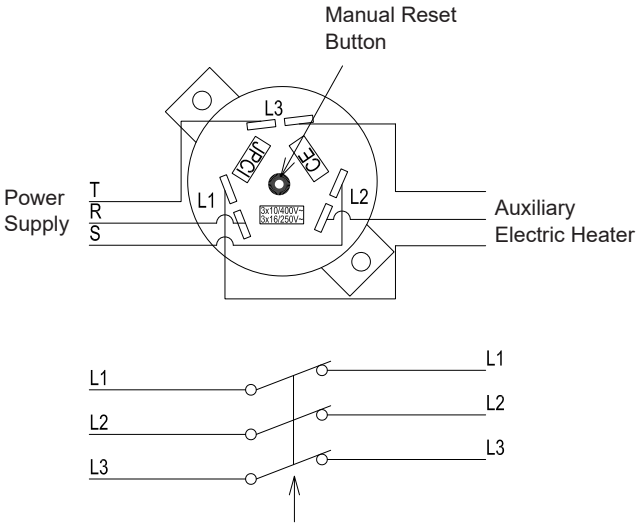
9.4 SAFETY THERMOSTAT

The typical structure of the safety thermostat is shown as below (for reference only):

Single-Phase:



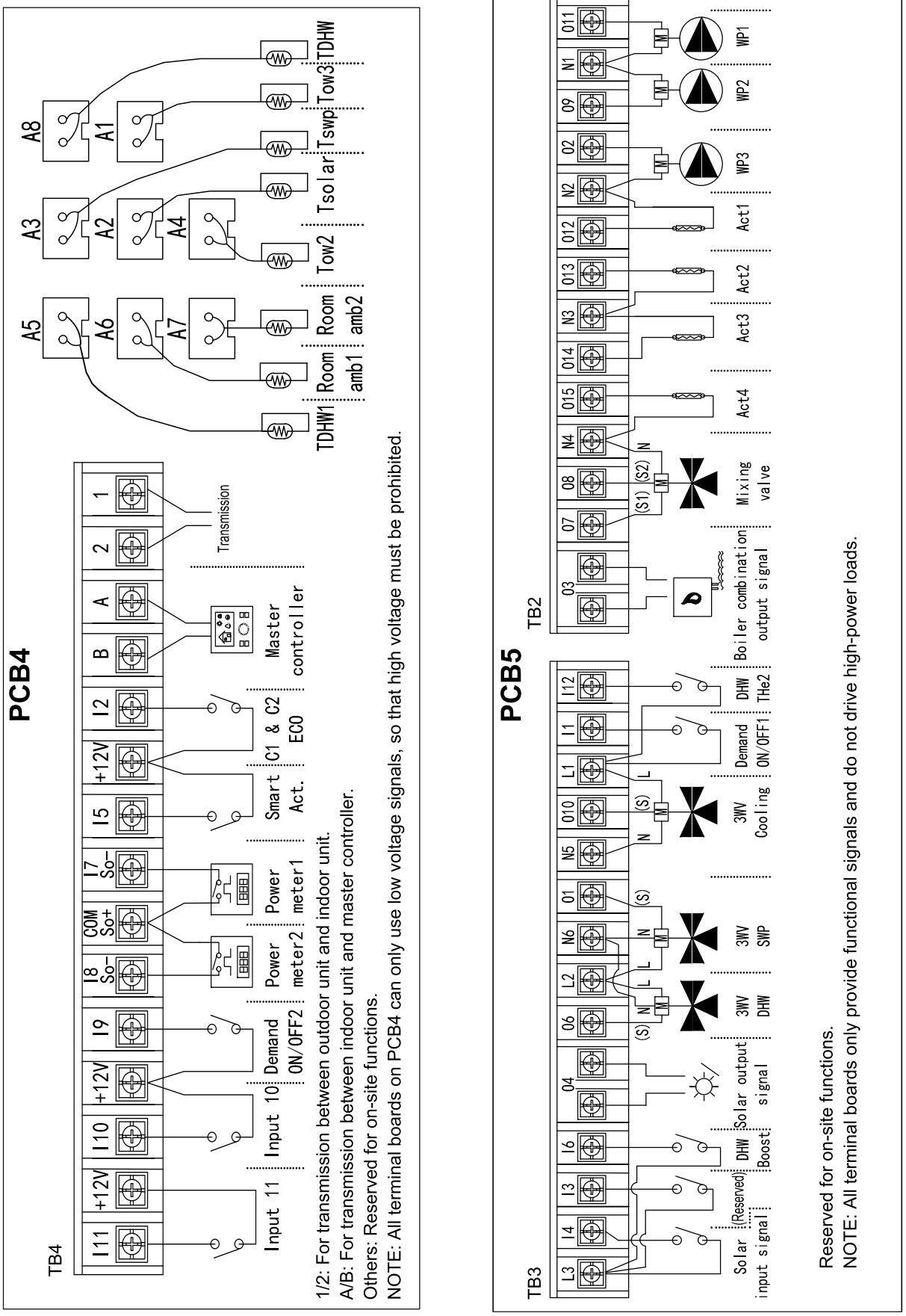
Three-Phase:



NOTE

- The safety thermostat directly cuts off the power supply of auxiliary electric heater when the temperature exceeds the cut-off value.
- Cut-off temperature: 85 ± 5°C.
- When the temperature is below 40°C, press the manual reset button to reset.

9.5 OPTIONAL INDOOR UNIT WIRING (ACCESSORIES)



NOTE

Inputs and outputs printed on the board are the setting before shipment options. By means of the master controller, some other inputs and output functions can be configured and used.

Input - Setting before shipment

Mark	Description	Default settings	Available input codes	Terminals	Specification
I1	Input 1	i - 08 (Demand ON/OFF 1)	i - 00~17 (Except i - 07/12)	I1, L1 on TB3	Closed/Open 220-240V ~ 50Hz
I2	Input 2	i - 13 (Cycle 1 and 2 ECO mode)	i - 00~17 (Except i - 07/12)	I2, +12V on TB4	Closed/Open 12V DC
I3	Input 3	i - 00 (No function)	i - 00~17 (Except i - 07/12)	I3, L3 on TB3	Closed/Open 220-240V ~ 50Hz
I4	Input 4	i - 04 (Solar in)	i - 00~17 (Except i - 07/12)	I4, L3 on TB3	Closed/Open 220-240V ~ 50Hz
I5	Input 5	i - 02 (Smart Act.)	i - 00~17 (Except i - 07/12)	I5, +12V on TB4	Closed/Open 12V DC
I6	Input 6	i - 06 (DHW Boost)	i - 00~17 (Except i - 07/12)	I6, L3 on TB3	Closed/Open 220-240V ~ 50Hz
I7	Input 7	i - 07 (Power meter 1)	i - 00~17	I7, COM on TB4	Closed/Open 12V DC
I8	Input 8	i - 12 (Power meter 2)	i - 00~17	I8, COM on TB4	Closed/Open 12V DC
I9	Input 9	i - 09 (Demand ON/OFF 2)	i - 00~17 (Except i - 07/12)	I9, +12V on TB4	Closed/Open 12V DC
I10	Input 10	i - 00 (No function)	i - 00~17 (Except i - 07/12)	I10, +12V on TB4	Closed/Open 12V DC
I11	Input 11	i - 00 (No function)	i - 00~17 (Except i - 07/12)	I11, +12V on TB4	Closed/Open 12V DC

⚠ CAUTION

Functions i - 05(Forced Heating/Cooling) /Functions i - 10(Forced heating)/Functions i - 11(Forced cooling) cannot be used at the same time.

Input - All input codes descriptions:

Input codes	Mark	Description
i - 00	No Function	-
i - 02	Smart Act./ SG Ready Input 1	This function must be used to stop or limit the heat pump and Auxiliary electric heater when restricted by Electric company. It allows an external Smart switch device to switch off or reduce consumption of the heat pump and Auxiliary electric heater during time of peak electricity demand. In case of using Smart Grid application, this input is used as a digital input 1 and allows four different operating modes.
i - 03	Swimming pool Demand ON/OFF	Optional input signal can be configured as function of “Swimming pool Demand ON/OFF” to operate SWP. Switch ON/OFF of SWP can also be controlled by master controller. Closed: Start SWP operation (Switch ON and Demand ON) Open: Stop SWP operation (Switch OFF and Demand OFF)
i - 04	Solar in	In case of combining Unit with solar panels, this input is used as a feedback for solar station ready operation. Closed: Solar in ON to trigger solar pump operation ON Open: Solar in OFF to trigger solar pump operation OFF
i - 05	Forced Heating/Cooling	Heating/cooling can be changed by an input of an external contact signal. Heating/cooling can also be changed over by master controller. Closed: Heating mode Open: Cooling mode
i - 06	DHW Boost	With this function enabled, it is possible to request a heating up of the DHW when user requires an instantaneous delivery of DHW. Triggering input signal can also Switch ON DHW.
i - 07	Power meter 1	Input used as kW/h pulse count for Energy data recording, used to count energy data or the total energy data.
i - 08	Demand ON/OFF 1	Optional input signal can be configured as function of “Demand ON/OFF 1” or “Demand ON/OFF 2” and selected as room thermostat. Closed: Corresponding room thermostat Switch ON and Thermo ON. Open: Corresponding room thermostat Switch OFF and Thermo OFF. Corresponding room thermostat can also be Switch ON/OFF by Rooms function on Master controller.
i - 09	Demand ON/OFF 2	
i - 10	Forced heating	Forced Heating mode by input of contact signal, Heating can also be changed over by master controller. Closed: Forced Heating mode Open: No action
i - 11	Forced cooling	Forced Cooling mode by input of contact signal, Cooling can also be changed over by master controller. Closed: Forced Cooling mode Open : No action
i - 12	Power meter 2	Input used as kW/h pulse count for Energy data recording, used to count energy data or the total energy data.
i - 13	Cycle 1 and 2 ECO mode	Cycle 1 and Cycle 2 Water ECO offset. Current water temperature setting is reduced or increased by the indicated parameter in space heating mode or space cooling mode. Closed: Cycle 1 and Cycle 2 Water ECO offset enabled Open: Cycle 1 and Cycle 2 Water ECO offset disabled
i - 14	Cycle 1 ECO mode	Cycle 1 Water ECO offset. Current water temperature setting is reduced or increased by the indicated parameter in space heating mode or space cooling mode. Closed: Cycle 1 Water ECO offset enabled Open: Cycle 1 Water ECO offset disabled
i - 15	Cycle 2 ECO mode	Cycle 2 Water ECO offset. Current water temperature setting is reduced or increased by the indicated parameter in space heating mode or space cooling mode. Closed: Cycle 2 Water ECO offset enabled Open: Cycle 2 Water ECO offset disabled
i - 16	Force OFF	Force OFF the unit include Water Cycle 1, Water Cycle 2, DHW and SWP. Switch ON/OFF of different function can also be controlled by master controller. Closed: Forced OFF the unit include Water Cycle 1, Water Cycle 2, DHW and SWP. Open: No action
i - 17	SG Ready Input 2	In case of using Smart Grid application, this input is used as a digital input 2 and allows four different operating modes.

Output - Setting before shipment

Mark	Description	Default settings	Available output codes	Terminals		Specification
O1	Output 1	o - 01 (3WV SWP)	o - 00 ~ 30 (Except o - 02/08/17/21)	Power supply	L2, N6 on TB3	ON/OFF 220-240V ~ 50Hz Max. 1A
				Signal line	O1 on TB3	
O2	Output 2	o - 02 (WP3)	o - 00 ~ 30 (Except o - 17)	O2, N2 on TB2		ON/OFF 220-240V ~ 50Hz Max. 1A
O3	Output 3	o - 03 (Boiler combination)	o - 00 ~ 30 (Except o - 02/08/17/21)	O3 on TB2		Free voltage
O4	Output 4	o - 04 (Solar out)	o - 00 ~ 30 (Except o - 02/08/17/21)	O4 on TB3		Free voltage
O5	Output 5	o - 17 (DHW Electric Heater)	o - 00 ~ 30	HL, HN on TB1		ON/OFF 220-240V ~ 50Hz Max. 15A
O6	Output 6	o - 18 (3WV DHW)	o - 00 ~ 30 (Except o - 02/08/17/21)	Power supply	L2, N6 on TB3	ON/OFF 220-240V ~ 50Hz Max. 1A
				Signal line	O6 on TB3	
O7	Output 7	o - 19 (Mixing valve Close)	o - 00 ~ 30 (Except o - 02/08/17/21)	O7, N4 on TB2		ON/OFF 220-240V ~ 50Hz Max. 1A
O8	Output 8	o - 20 (Mixing valve Open)	o - 00 ~ 30 (Except o - 02/08/17/21)	O8, N4 on TB2		ON/OFF 220-240V ~ 50Hz Max. 1A
O9	Output 9	o - 21 (WP2)	o - 00 ~ 30 (Except o - 17)	O9, N1 on TB2		ON/OFF 220-240V ~ 50Hz Max. 1A
O10	Output 10	o - 22 (3WV Cooling)	o - 00 ~ 30 (Except o - 02/08/17/21)	Power supply	L1, N5 on TB3	ON/OFF 220-240V ~ 50Hz Max. 1A
				Signal line	O10 on TB3	
O11	Output 11	o - 08 (WP1)	o - 00 ~ 30 (Except o - 17)	O11, N1 on TB2		ON/OFF 220-240V ~ 50Hz Max. 1A
O12	Output 12	o - 23 (Act1)	o - 00 ~ 30 (Except o - 02/08/17/21)	O12, N2 on TB2		ON/OFF 220-240V ~ 50Hz Max. 1A
O13	Output 13	o - 24 (Act2)	o - 00 ~ 30 (Except o - 02/08/17/21)	O13, N3 on TB2		ON/OFF 220-240V ~ 50Hz Max. 1A
O14	Output 14	o - 25 (Act3)	o - 00 ~ 30 (Except o - 02/08/17/21)	O14, N3 on TB2		ON/OFF 220-240V ~ 50Hz Max. 1A
O15	Output 15	o - 26 (Act4)	o - 00 ~ 30 (Except o - 02/08/17/21)	O15, N4 on TB2		ON/OFF 220-240V ~ 50Hz Max. 1A

Output - All output codes descriptions:

Output codes	Mark	Description
o - 00	No Function	-
o - 01	3WV SWP	In case of combining Unit with swimming pool, this output is used to drive 3-way valve diverting to the swimming pool heat exchanger. Output ON signal when swimming pool function is operating.
o - 02	WP3	In case of combining Unit with hydraulic separator, this output is used to drive relay of water pump 3.
o - 03	Boiler combination	In case of combining Unit with boiler, this output is used to Start/Stop it.
o - 04	Solar out	In case of combining Unit with solar panel, this output is used to drive relay of solar pump.
o - 05	Alarm signal	Output ON signal when an Alarm Code occurs.
o - 06	SWP signal	Output ON signal in case that Swimming pool function is demand ON.
o - 07	Cooling signal	Output ON signal in case that Space Cooling is Thermo-ON.
o - 08	WP1	In case of the pipeline connected to the unit is long leading to low water flow rate, this output is used to drive relay of an extra WP1 that can be cascaded with inside EC WP1 to offer additional hydraulic head. The extra WP1 works equally with inside EC WP1.
o - 09	Heating signal	Output ON signal in case that Space Heating is Thermo-ON.
o - 10	DHW signal	Output ON signal in case that DHW is demand ON or DHW Electric Heater is ON.
o - 11	Solar overheat	Output ON signal in case that solar panels overheat protection is activated.
o - 12	Defrost	Output ON signal in case that the outdoor unit is defrosting.
o - 13	DHW pump	Output ON signal to drive relay of a re-circulation pump in case of re-circulation pump is available for DHW tank.
o - 14	Heater relay 1	Copy ON/OFF signal of Auxiliary electric heater output terminal 1.
o - 15	Heater relay 2	Copy ON/OFF signal of Auxiliary electric heater output terminal 2.
o - 16	c1 water ON/OFF	Output ON signal in case that Water Cycle1 switch ON.
o - 17	DHW Electric Heater	Output ON signal in case the DHW Electric Heater is Enabled and meet the ON conditions.
o - 18	3WV DHW	In case of combining Unit with DHW, this output is used to drive 3-way valve diverting to the sanitary tank inner coil. Output ON signal when DHW function is operating.
o - 19	Mixing valve Close	Mixing valve has two operation terminals of closing valve and opening valve. Optional output signal need be configured as function of "Mixing valve Close" and "Mixing valve Open" to drive mixing valve.
o - 20	Mixing valve Open	
o - 21	WP2	When Water Cycle 2 is available Optional Output signal need be configured to drive relay of water pump 2.
o - 22	3WV Cooling	In case of combining Unit with cooling fan coil, this output is used to drive 3-way valve diverting to cooling fan coil. Output ON signal when space cooling is operating.
o - 23	Act1	Room actuators, output ON signal in case the corresponding Room Thermostat is Thermo ON (heating and cooling). When the following conditions are met, Room actuators also Output ON: ① Air purge ② Anti-freezing ③ Screed Drying ④ Retry operation due to anti freezing (alarm-76 , d1-31, d1-03) ⑤ Outdoor Unit defrost without Room Thermostat Thermo ON ⑥ Overrun after requiring OFF
o - 24	Act2	
o - 25	Act3	
o - 26	Act4	
o - 27	Act5	
o - 28	Act6	
o - 29	Act7	
o - 30	WPc1	When Water Cycle 1 is available Optional Output signal can be configured to drive relay of exclusive water pump of Water Cycle 1.

Auxiliary sensor - Setting before shipment

Mark	Description	Default settings	Available auxiliary sensor codes
A1	Auxsensor 1	a - 01 (Tow3)	a - 00 ~ 14
A2	Auxsensor 2	a - 03 (Tsolar)	a - 00 ~ 14
A3	Auxsensor 3	a - 02 (Tswp)	a - 00 ~ 14
A4	Auxsensor 4	a - 05 (Tow2)	a - 00 ~ 14
A5	Auxsensor 5	a - 14 (TDHW1)	a - 00 ~ 14
A6	Auxsensor 6	a - 07 (Room_amb1)	a - 00 ~ 14
A7	Auxsensor 7	a - 08 (Room_amb2)	a - 00 ~ 14

Auxiliary sensor codes - All Auxiliary sensor codes descriptions:

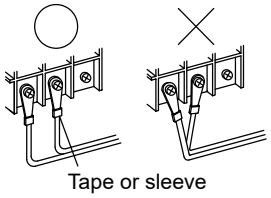
Auxiliary sensor codes	Mark	Description
a - 00	No Function	-
a - 01	Tow3	This sensor is used in case to combine Unit with hydraulic separator to detect Hot water temperature detection of hydraulic separator.
a - 02	Tswp	In case of combining Unit with swimming pool, this sensor is used to detect swimming pool water temperature.
a - 03	Tsolar	In case of combining Unit with solar panels, this sensor is used to Detect Hot water temperature of solar panels.
a - 04	Ta_ao	Optional Second Outdoor Ambient Temperature sensor accessory can be connected to the Auxiliary sensor in case that the heat pump is located in a non-suitable position for this measurement.
a - 05	Tow2	When Water Cycle 2 is available, auxiliary sensor need be configured as function of “Tow2” to detect outlet water temperature of Water Cycle 2.
a - 06	duty	Used to detect duty signal when duty signal control is Enabled, the duty signal type can be 0-10V, 0-5V or 4-20mA.
a - 07	Room_amb1	Rooms function on master controller is selected as room thermostat, and in this scenario, auxiliary sensor can be configured as function of “Room_amb1-7”, and can be selected as room temperature detection of specific room.
a - 08	Room_amb2	
a - 09	Room_amb3	
a - 10	Room_amb4	
a - 11	Room_amb5	
a - 12	Room_amb6	
a - 13	Room_amb7	
a - 14	TDHW1	The sensor of TDHW1 is auxiliary sensor to detect tank water temperature of lower side.

DANGER

- ***Do not connect or adjust any wiring or connections unless the main power switch is OFF.***
- ***When using more than one power source, check and ensure that all of them are turned OFF before operating the indoor unit.***
- ***Avoid wiring installation in contact with the refrigerant pipes, water pipes, edges of plates and electrical components inside the unit to prevent damage, which may cause electric shock or short circuit.***

CAUTION

- *After changing the input settings, output settings and auxiliary sensor settings on the master controller, it needs to be powered off and on again to take effect.*
- *Use a dedicated power circuit for the indoor unit. Do not use a power circuit shared with the outdoor unit or any other appliance.*
- *Make sure that all wiring and protection devices are properly selected, connected, identified and fixed to the corresponding terminals of the unit, specially the protection (earth) and power wiring, taking into account the applicable national and local regulations. Establish proper earthing. Incomplete earthing may cause electric shock.*
- *Protect the indoor unit against the entry of small animals (like rodents) which could damage the drain pipe and any internal wire or any other electrical part, leading to electric shock or short-circuit.*
- *Keep a distance between each wiring terminal and attach insulation tape or sleeve as shown in the figure.*



Tape or sleeve

9.6 SETTING OF DIP SWITCHES ON PCB1

NOTE

- *The mark "■" indicates the dip switches positions.*
- *No mark "■" indicates pin position is not affected.*
- *The figures show the settings before shipment or after selection.*
- *"Not used" means that the pin must not be changed. A malfunction might occur if changed.*

CAUTION

Before setting dip switches, first turn the power supply OFF and then set the position of dip switches. If the switches are set without turning the power supply OFF, the contents of the setting are invalid.

(1) DSW1: Unit model setting

No setting is required.

Split


(2) DSW2: Unit capacity setting

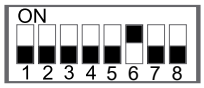
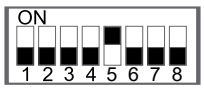
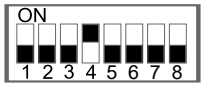
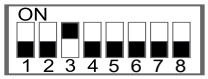
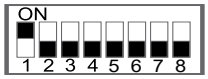
No setting is required.

100 (3.5 HP)	120 (4.0 HP)	140 (5.0 HP)	160 (6.0 HP)
			

(3) DSW3: Additional setting

Setting before shipment	
ON: Cancel 70 alarm (Water pressure abnormality)	
Anti-freezing settings ON: Whole water cycle does anti-freezing. OFF: Only primary cycle does anti-freezing.	

(4) DSW4: Additional setting

Setting before shipment	
Water pump forced ON	
Auxiliary electric heater forced OFF	
ON: Anti-freezing enabled OFF: Anti-freezing disabled	
Water pump mode when Thermo OFF ON:Operate periodically OFF:Operate constantly	
Manual emergency setting ON:Manual emergency enabled OFF:Manual emergency disabled	
DHW electric heater allowance setting ON:DHW electric heater cancel forced OFF OFF:DHW electric heater forced OFF	
DHW 3-way valve forced ON	
Start air purge	

(5) DSW5: Additional setting

Setting before shipment	
ON: Cancel 75/78 alarm (Water pressure abnormality)	
ON: WP3 operates in cooling mode	
ON: Cancel alarm of thermistor Tow2	

(6) DSW6: Fuse reset

Setting before shipment	

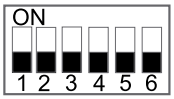
(7) DSW7: Additional setting

Setting before shipment	
ON: Cancel alarm of thermistor Tow3	

(8) DSW8: Refrigeration system No. setting

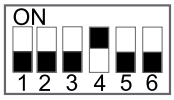
Setting is required.

Use binary encoding method. Before shipment are all OFF.



Max No.63 are available to set when all the equipment are connected to corresponding Central Control System.

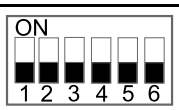
Ex: Set refrigeration system No. as 8.



Calculation in binary:$8=0\times2^{(1-1)}+0\times2^{(2-1)}+0\times2^{(3-1)}+1\times2^{(4-1)}+0\times2^{(5-1)}+0\times2^{(6-1)}$

(9) DSW9: Indoor unit No. setting

No setting is required.

Setting before shipment	

10. TEST RUN

NOTE

NEVER operate the unit without careful inspection.

10.1 CHECKLIST BEFORE TEST RUN

Do NOT operate the system before the following checks are OK:

You have read the complete installation instructions of outdoor unit, indoor unit and master controller carefully.	☐
The **indoor unit** is properly mounted.	☐
The **outdoor unit** is properly mounted.	☐
The following field wiring has been carried out according to this document and the applicable legislation: ▪ Between the local power supply and the outdoor unit ▪ Between indoor unit and outdoor unit ▪ Between the local power supply and the indoor unit ▪ Between the indoor unit and the valves (if applicable) ▪ Between the indoor unit and the room thermostat (if applicable) ▪ Between the indoor unit and the DHW tank (if applicable)	☐ ☐ ☐ ☐ ☐ ☐ ☐
The system is properly **earthed** and the earth terminals are tightened.	☐
The **fuses** or locally installed protection devices are installed according to this document, and have NOT been bypassed.	☐
The **power supply voltage** matches the voltage on the **Nameplate** of the unit.	☐
There are NO **loose connections** or damaged electrical components in the electrical box.	☐
There are NO **damaged components** or **squeezed pipes** on the inside of the indoor and outdoor units.	☐
Only for DHW tank with **electric heater**: **Temperature protection switch (Auto restore)** has been already wired. **Temperature protection switch / Temperature fuse** has been already wired.	☐
There are NO **refrigerant leaks**.	☐
The **water pipes** are thermally insulated.	☐
The correct pipe size of **refrigerant pipes** (gas and liquid) are installed and the **pipes** are properly insulated.	☐
There is NO **water leakage** inside the indoor unit.	☐
The **shut-off valves** are properly installed and fully open.	☐
The **stop valves** (gas and liquid) on the outdoor unit are fully open.	☐
The **air purge valve** is open.	☐
The **safety valve** purges water when open.	☐
The **minimum water volume** is guaranteed in all conditions. See “Check Water Volume” under section "8.3 WATER FILLING”.	☐
The **DHW tank** is filled completely.	☐

CAUTION

- *The unit starts only when all check points are cleared up.*
- *Pay attention when system is running:*

  (A) Do not touch any parts of discharge pipelines, because the discharge temperature of compressor can be more than 90°C.

  (B) Do not press AC contactor button, otherwise serious accident may be caused.
- *Do not touch any electrical components in 10 minutes after main power supply is cut off.*

10.2 CHECKLIST DURING TEST RUN

The **minimum flow rate** during electric heater/defrost operation is guaranteed in all conditions. See section “8.2 REQUIREMENTS AND RECOMMENDATIONS FOR HYDRAULIC CIRCUIT” and “8.3 WATER FILLING”.	☐
To perform **an air purge**.	☐
To perform **a test run**.	☐
To perform **an actuator test run**.	☐
Underfloor screed drying function The underfloor screed drying function is started (if necessary).	☐

CAUTION

- *When performing test run of floor heating, higher temperature in indoor unit (up to 55 °C) will damage floors due to expansion and contraction. Recommend it is within 30 minutes.*
- *Use the controller to start test run (refer to the manual of master controller).*
- *It is normal that after indoor unit is energized, it may directly enter anti-freezing running mode, and water pump automatically runs if outdoor temperature is very low.*

10.3 CHECK THE MINIMUM FLOW RATE

1	Check the hydraulic configuration to find out which space heating loops can be closed by mechanical, electronic, or other valves.	—
2	Close all space heating loops that can be closed.	—
3	Start the pump test run. See setting of DSW4-8 in section “9.6 SETTING OF DIP SWITCHES ON PCB1”.	—
4	Read out the flow rate and modify the bypass valve setting to reach the minimum required flow rate + 2L/min.	—

11. TECHNICAL PARAMETERS

Technical parameters

Model(s):	Outdoor unit:	AHW-100HC(E)DS1
	Indoor unit:	AHM-100HC(E)DSAA
Air-to-water heat pump:		yes
Water-to-water heat pump:		no
Brine-to-water heat pump:		no
Low-temperature heat pump:		no
Equipped with a supplementary heater:		yes
Heat pump combination heater:		no
Parameters shall be declared for		Low temperature application.
Parameters shall be declared for		average climate conditions.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	Prated	8.5	kW	Seasonal space heating energy efficiency	ηs	190	%
Declared capacity for heating for part load at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = – 7 °C	Pdh	7.54	kW	Tj = – 7 °C	COPd	3.02	-
Tj = +2 °C	Pdh	4.58	kW	Tj = +2 °C	COPd	4.83	-
Tj = +7 °C	Pdh	2.89	kW	Tj = +7 °C	COPd	6.54	-
Tj = +12 °C	Pdh	2.59	kW	Tj = +12 °C	COPd	6.06	-
Tj =bivalent temperature	Pdh	7.54	kW	Tj =bivalent temperature	COPd	3.02	-
Tj = operation limit temperature	Pdh	8.21	kW	Tj = operation limit temperature	COPd	2.79	-
Tj = – 15 °C (if TOL < – 20 °C)	Pdh	-	kW	Tj = – 15 °C (if TOL < – 20 °C)	COPd	-	-
Bivalent temperature	Tbiv	-7	°C	Operation limit temperature	TOL	-10	°C
Cycling interval capacity for heating	Pcych	-	kW	Cycling interval efficiency	COPcyc	-	-
Degradation co-efficient (**)	Cdh	0.9	-	Heating water operating limit temperature	WTOL	-	°C

Power consumption in modes other than active mode				Supplementary heater			
Off mode	P_{OFF}	0.005	kW	Rated heat output (*)	Psup	0.3	kW
Thermostat-off mode	P_{TO}	0.009	kW				
Standby mode	P_{SB}	0.005	kW	Type of energy input		Electric	
Crankcase heater mode	P_{CK}	0	kW				

Other items							
Capacity control		variable		Rated air flow rate, outdoors		3900	m^3/h
Sound power level, indoors/outdoors	L_{WA}	44/62	dB				
Annual energy consumption	Q_{HE}	3645	kWh				

Contact details

Qingdao Hisense Hitachi Air-conditioning Systems Co., Ltd.

No. 218, Qianwangang Road, Economic and Technological Development Zone, Qingdao, China

(*) For heat pump space heaters and heat pump combination heaters, the rated heat output Prated is equal to the design load for heating Pdesignh, and the rated heat output of a supplementary heater Psup is equal to the supplementary capacity for heating sup(Tj).

(**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0,9.

Technical parameters

Model(s):	Outdoor unit:	AHW-120HC(E)DS1
	Indoor unit:	AHM-120HC(E)DSAA
Air-to-water heat pump:		yes
Water-to-water heat pump:		no
Brine-to-water heat pump:		no
Low-temperature heat pump:		no
Equipped with a supplementary heater:		yes
Heat pump combination heater:		no
Parameters shall be declared for		Low temperature application.
Parameters shall be declared for		average climate conditions.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	Prated	9.5	kW	Seasonal space heating energy efficiency	ηs	187	%
Declared capacity for heating for part load at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = – 7 °C	Pdh	8.40	kW	Tj = – 7 °C	COPd	3.16	-
Tj = +2 °C	Pdh	5.12	kW	Tj = +2 °C	COPd	4.52	-
Tj = +7 °C	Pdh	3.22	kW	Tj = +7 °C	COPd	6.44	-
Tj = +12 °C	Pdh	2.52	kW	Tj = +12 °C	COPd	7.13	-
Tj =bivalent temperature	Pdh	8.40	kW	Tj =bivalent temperature	COPd	3.16	-
Tj = operation limit temperature	Pdh	9.07	kW	Tj = operation limit temperature	COPd	2.78	-
Tj = – 15 °C (if TOL < – 20 °C)	Pdh	-	kW	Tj = – 15 °C (if TOL < – 20 °C)	COPd	-	-
Bivalent temperature	Tbiv	-7	°C	Operation limit temperature	TOL	-10	°C
Cycling interval capacity for heating	Pcych	-	kW	Cycling interval efficiency	COPcyc	-	-
Degradation co-efficient (**)	Cdh	0.9	-	Heating water operating limit temperature	WTOL	-	°C

Power consumption in modes other than active mode				Supplementary heater			
Off mode	POFF	0.005	kW	Rated heat output (*)	Psup	0.4	kW
Thermostat-off mode	PTO	0.009	kW				
Standby mode	PSB	0.005	kW	Type of energy input		Electric	
Crankcase heater mode	PCK	0	kW				

Other items							
Capacity control		variable		Rated air flow rate, outdoors		3900	m^3/h
Sound power level, indoors/outdoors	LWA	44/64	dB				
Annual energy consumption	QHE	4125	kWh				

Contact details

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No. 218, Qianwangang Road, Economic and Technological Development Zone, Qingdao, China

(*) For heat pump space heaters and heat pump combination heaters, the rated heat output Prated is equal to the design load for heating Pdesignh, and the rated heat output of a supplementary heater Psup is equal to the supplementary capacity for heating sup(Tj).

(**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0,9.

Technical parameters

Model(s):	Outdoor unit:	AHW-140HC(E)DS1
	Indoor unit:	AHM-140HC(E)DSAA
Air-to-water heat pump:		yes
Water-to-water heat pump:		no
Brine-to-water heat pump:		no
Low-temperature heat pump:		no
Equipped with a supplementary heater:		yes
Heat pump combination heater:		no
Parameters shall be declared for		Low temperature application.
Parameters shall be declared for		average climate conditions.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	Prated	11.9	kW	Seasonal space heating energy efficiency	ηs	181	%
Declared capacity for heating for part load at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = – 7 °C	Pdh	10.50	kW	Tj = – 7 °C	COPd	2.97	-
Tj = +2 °C	Pdh	6.39	kW	Tj = +2 °C	COPd	4.40	-
Tj = +7 °C	Pdh	4.21	kW	Tj = +7 °C	COPd	6.21	-
Tj = +12 °C	Pdh	3.90	kW	Tj = +12 °C	COPd	7.42	-
Tj =bivalent temperature	Pdh	10.50	kW	Tj =bivalent temperature	COPd	2.97	-
Tj = operation limit temperature	Pdh	11.82	kW	Tj = operation limit temperature	COPd	2.65	-
Tj = – 15 °C (if TOL < – 20 °C)	Pdh	-	kW	Tj = – 15 °C (if TOL < – 20 °C)	COPd	-	-
Bivalent temperature	Tbiv	-7	°C	Operation limit temperature	TOL	-10	°C
Cycling interval capacity for heating	Pcych	-	kW	Cycling interval efficiency	COPcyc	-	-
Degradation co-efficient (**)	Cdh	0.9	-	Heating water operating limit temperature	WTOL	-	°C

Power consumption in modes other than active mode				Supplementary heater			
Off mode	POFF	0.005	kW	Rated heat output (*)	Psup	0.0	kW
Thermostat-off mode	PTO	0.009	kW				
Standby mode	PSB	0.005	kW	Type of energy input		Electric	
Crankcase heater mode	PCK	0	kW				

Other items							
Capacity control		variable		Rated air flow rate, outdoors		4200	m^3/h
Sound power level, indoors/outdoors	LWA	44/66	dB				
Annual energy consumption	QHE	5320	kWh				

Contact details

Qingdao Hisense Hitachi Air-conditioning Systems Co., Ltd.

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(*) For heat pump space heaters and heat pump combination heaters, the rated heat output Prated is equal to the design load for heating Pdesignh, and the rated heat output of a supplementary heater Psup is equal to the supplementary capacity for heating sup(Tj).
(**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0,9.

Technical parameters

Model(s):	Outdoor unit:	AHW-160HC(E)DS1
	Indoor unit:	AHM-160HC(E)DSAA
Air-to-water heat pump:		yes
Water-to-water heat pump:		no
Brine-to-water heat pump:		no
Low-temperature heat pump:		no
Equipped with a supplementary heater:		yes
Heat pump combination heater:		no
Parameters shall be declared for		Low temperature application.
Parameters shall be declared for		average climate conditions.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	Prated	13.0	kW	Seasonal space heating energy efficiency	ηs	177	%
Declared capacity for heating for part load at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = – 7 °C	Pdh	11.53	kW	Tj = – 7 °C	COPd	2.86	-
Tj = +2 °C	Pdh	6.98	kW	Tj = +2 °C	COPd	4.23	-
Tj = +7 °C	Pdh	4.67	kW	Tj = +7 °C	COPd	6.21	-
Tj = +12 °C	Pdh	3.90	kW	Tj = +12 °C	COPd	7.45	-
Tj =bivalent temperature	Pdh	11.53	kW	Tj =bivalent temperature	COPd	2.86	-
Tj = operation limit temperature	Pdh	12.75	kW	Tj = operation limit temperature	COPd	2.64	-
Tj = – 15 °C (if TOL < – 20 °C)	Pdh	-	kW	Tj = – 15 °C (if TOL < – 20 °C)	COPd	-	-
Bivalent temperature	Tbiv	-7	°C	Operation limit temperature	TOL	-10	°C
Cycling interval capacity for heating	Pcych	-	kW	Cycling interval efficiency	COPcyc	-	-
Degradation co-efficient (**)	Cdh	0.9	-	Heating water operating limit temperature	WTOL	-	°C

Power consumption in modes other than active mode				Supplementary heater			
Off mode	POFF	0.005	kW	Rated heat output (*)	Psup	0.3	kW
Thermostat-off mode	PTO	0.009	kW				
Standby mode	PSB	0.005	kW	Type of energy input		Electric	
Crankcase heater mode	PCK	0	kW				

Other items							
Capacity control		variable		Rated air flow rate, outdoors		4200	m^3/h
Sound power level, indoors/outdoors	LWA	44/67	dB				
Annual energy consumption	QHE	5999	kWh				

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(**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0,9.

Technical parameters

Model(s):	Outdoor unit:	AHW-100HC(E)DS1
	Indoor unit:	AHM-100HC(E)DSAA
Air-to-water heat pump:		yes
Water-to-water heat pump:		no
Brine-to-water heat pump:		no
Low-temperature heat pump:		no
Equipped with a supplementary heater:		yes
Heat pump combination heater:		no
Parameters shall be declared for		Medium temperature application.
Parameters shall be declared for		average climate conditions.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	Prated	8.0	kW	Seasonal space heating energy efficiency	ηs	140	%
Declared capacity for heating for part load at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = – 7 °C	Pdh	7.08	kW	Tj = – 7 °C	COPd	2.18	-
Tj = +2 °C	Pdh	4.30	kW	Tj = +2 °C	COPd	3.44	-
Tj = +7 °C	Pdh	2.89	kW	Tj = +7 °C	COPd	4.83	-
Tj = +12 °C	Pdh	2.57	kW	Tj = +12 °C	COPd	6.75	-
Tj =bivalent temperature	Pdh	7.08	kW	Tj =bivalent temperature	COPd	2.18	-
Tj = operation limit temperature	Pdh	7.91	kW	Tj = operation limit temperature	COPd	1.73	-
Tj = – 15 °C (if TOL < – 20 °C)	Pdh	-	kW	Tj = – 15 °C (if TOL < – 20 °C)	COPd	-	-
Bivalent temperature	Tbiv	-7	°C	Operation limit temperature	TOL	-10	°C
Cycling interval capacity for heating	Pcych	-	kW	Cycling interval efficiency	COPcyc	-	-
Degradation co-efficient (**)	Cdh	0.9	-	Heating water operating limit temperature	WTOL	-	°C

Power consumption in modes other than active mode				Supplementary heater			
Off mode	POFF	0.005	kW	Rated heat output (*)	Psup	0.1	kW
Thermostat-off mode	PTO	0.009	kW				
Standby mode	PSB	0.005	kW	Type of energy input		Electric	
Crankcase heater mode	PCK	0	kW				

Other items							
Capacity control		variable		Rated air flow rate, outdoors		3900	m^3/h
Sound power level, indoors/outdoors	LWA	44/61	dB				
Annual energy consumption	QHE	4617	kWh				

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(**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0,9.

Technical parameters

Model(s):	Outdoor unit:	AHW-120HC(E)DS1
	Indoor unit:	AHM-120HC(E)DSAA
Air-to-water heat pump:		yes
Water-to-water heat pump:		no
Brine-to-water heat pump:		no
Low-temperature heat pump:		no
Equipped with a supplementary heater:		yes
Heat pump combination heater:		no
Parameters shall be declared for		Medium temperature application.
Parameters shall be declared for		average climate conditions.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	Prated	9.1	kW	Seasonal space heating energy efficiency	ηs	135	%
Declared capacity for heating for part load at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = – 7 °C	Pdh	8.07	kW	Tj = – 7 °C	COPd	2.11	-
Tj = +2 °C	Pdh	4.78	kW	Tj = +2 °C	COPd	3.27	-
Tj = +7 °C	Pdh	3.29	kW	Tj = +7 °C	COPd	4.89	-
Tj = +12 °C	Pdh	2.64	kW	Tj = +12 °C	COPd	6.14	-
Tj =bivalent temperature	Pdh	8.07	kW	Tj =bivalent temperature	COPd	2.11	-
Tj = operation limit temperature	Pdh	8.69	kW	Tj = operation limit temperature	COPd	1.69	-
Tj = – 15 °C (if TOL < – 20 °C)	Pdh	-	kW	Tj = – 15 °C (if TOL < – 20 °C)	COPd	-	-
Bivalent temperature	Tbiv	-7	°C	Operation limit temperature	TOL	-10	°C
Cycling interval capacity for heating	Pcych	-	kW	Cycling interval efficiency	COPcyc	-	-
Degradation co-efficient (**)	Cdh	0.9	-	Heating water operating limit temperature	WTOL	-	°C

Power consumption in modes other than active mode				Supplementary heater			
Off mode	POFF	0.005	kW	Rated heat output (*)	Psup	0.4	kW
Thermostat-off mode	PTO	0.009	kW				
Standby mode	PSB	0.005	kW	Type of energy input		Electric	
Crankcase heater mode	PCK	0	kW				

Other items							
Capacity control		variable		Rated air flow rate, outdoors		3900	m^3/h
Sound power level, indoors/outdoors	LWA	44/64	dB				
Annual energy consumption	QHE	5448	kWh				

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(**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0,9.

Technical parameters

Model(s):	Outdoor unit:	AHW-140HC(E)DS1
	Indoor unit:	AHM-140HC(E)DSAA
Air-to-water heat pump:		yes
Water-to-water heat pump:		no
Brine-to-water heat pump:		no
Low-temperature heat pump:		no
Equipped with a supplementary heater:		yes
Heat pump combination heater:		no
Parameters shall be declared for		Medium temperature application.
Parameters shall be declared for		average climate conditions.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	Prated	11.7	kW	Seasonal space heating energy efficiency	ηs	129	%
Declared capacity for heating for part load at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = – 7 °C	Pdh	10.33	kW	Tj = – 7 °C	COPd	2.22	-
Tj = +2 °C	Pdh	6.35	kW	Tj = +2 °C	COPd	3.04	-
Tj = +7 °C	Pdh	4.31	kW	Tj = +7 °C	COPd	4.36	-
Tj = +12 °C	Pdh	3.76	kW	Tj = +12 °C	COPd	6.25	-
Tj =bivalent temperature	Pdh	10.33	kW	Tj =bivalent temperature	COPd	2.22	-
Tj = operation limit temperature	Pdh	11.50	kW	Tj = operation limit temperature	COPd	1.91	-
Tj = – 15 °C (if TOL < – 20 °C)	Pdh	-	kW	Tj = – 15 °C (if TOL < – 20 °C)	COPd	-	-
Bivalent temperature	Tbiv	-7	°C	Operation limit temperature	TOL	-10	°C
Cycling interval capacity for heating	Pcych	-	kW	Cycling interval efficiency	COPcyc	-	-
Degradation co-efficient (**)	Cdh	0.9	-	Heating water operating limit temperature	WTOL	-	°C

Power consumption in modes other than active mode				Supplementary heater			
Off mode	POFF	0.005	kW	Rated heat output (*)	Psup	0.2	kW
Thermostat-off mode	PTO	0.009	kW				
Standby mode	PSB	0.005	kW	Type of energy input		Electric	
Crankcase heater mode	PCK	0	kW				

Other items							
Capacity control		variable		Rated air flow rate, outdoors		4200	m^3/h
Sound power level, indoors/outdoors	LWA	44/66	dB				
Annual energy consumption	QHE	7340	kWh				

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(**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0,9.

Technical parameters

Model(s):	Outdoor unit:	AHW-160HC(E)DS1
	Indoor unit:	AHM-160HC(E)DSAA
Air-to-water heat pump:		yes
Water-to-water heat pump:		no
Brine-to-water heat pump:		no
Low-temperature heat pump:		no
Equipped with a supplementary heater:		yes
Heat pump combination heater:		no
Parameters shall be declared for		Medium temperature application.
Parameters shall be declared for		average climate conditions.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	Prated	12.5	kW	Seasonal space heating energy efficiency	ηs	128	%
Declared capacity for heating for part load at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = – 7 °C	Pdh	11.10	kW	Tj = – 7 °C	COPd	2.24	-
Tj = +2 °C	Pdh	6.57	kW	Tj = +2 °C	COPd	3.06	-
Tj = +7 °C	Pdh	4.30	kW	Tj = +7 °C	COPd	4.33	-
Tj = +12 °C	Pdh	3.76	kW	Tj = +12 °C	COPd	5.75	-
Tj =bivalent temperature	Pdh	11.10	kW	Tj =bivalent temperature	COPd	2.24	-
Tj = operation limit temperature	Pdh	12.03	kW	Tj = operation limit temperature	COPd	1.89	-
Tj = – 15 °C (if TOL < – 20 °C)	Pdh	-	kW	Tj = – 15 °C (if TOL < – 20 °C)	COPd	-	-
Bivalent temperature	Tbiv	-7	°C	Operation limit temperature	TOL	-10	°C
Cycling interval capacity for heating	Pcych	-	kW	Cycling interval efficiency	COPcyc	-	-
Degradation co-efficient (**)	Cdh	0.9	-	Heating water operating limit temperature	WTOL	-	°C

Power consumption in modes other than active mode				Supplementary heater			
Off mode	POFF	0.005	kW	Rated heat output (*)	Psup	0.5	kW
Thermostat-off mode	PTO	0.009	kW				
Standby mode	PSB	0.005	kW	Type of energy input		Electric	
Crankcase heater mode	PCK	0	kW				

Other items							
Capacity control		variable		Rated air flow rate, outdoors		4200	m^3/h
Sound power level, indoors/outdoors	LWA	44/67	dB				
Annual energy consumption	QHE	7900	kWh				

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(**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0,9.

Technical parameters

Model(s):	Outdoor unit:	AHW-100HC(E)DS1
	Indoor unit:	AHM-100HC(E)DSAA
Air-to-water heat pump:		yes
Water-to-water heat pump:		no
Brine-to-water heat pump:		no
Low-temperature heat pump:		no
Equipped with a supplementary heater:		yes
Heat pump combination heater:		no
Parameters shall be declared for		Low temperature application.
Parameters shall be declared for		warmer climate conditions.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	Prated	9.7	kW	Seasonal space heating energy efficiency	ηs	266	%
Declared capacity for heating for part load at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = – 7 °C	Pdh	-	kW	Tj = – 7 °C	COPd	-	-
Tj = +2 °C	Pdh	9.32	kW	Tj = +2 °C	COPd	3.57	-
Tj = +7 °C	Pdh	6.25	kW	Tj = +7 °C	COPd	5.82	-
Tj = +12 °C	Pdh	2.73	kW	Tj = +12 °C	COPd	8.81	-
Tj =bivalent temperature	Pdh	6.25	kW	Tj =bivalent temperature	COPd	5.82	-
Tj = operation limit temperature	Pdh	9.32	kW	Tj = operation limit temperature	COPd	3.57	-
Tj = – 15 °C (if TOL < – 20 °C)	Pdh	-	kW	Tj = – 15 °C (if TOL < – 20 °C)	COPd	-	-
Bivalent temperature	Tbiv	7	°C	Operation limit temperature	TOL	2	°C
Cycling interval capacity for heating	Pcych	-	kW	Cycling interval efficiency	COPcyc	-	-
Degradation co-efficient (**)	Cdh	0.9	-	Heating water operating limit temperature	WTOL	-	°C

Power consumption in modes other than active mode				Supplementary heater			
Off mode	POFF	0.005	kW	Rated heat output (*)	Psup	0.4	kW
Thermostat-off mode	PTO	0.002	kW				
Standby mode	PSB	0.005	kW	Type of energy input		Electric	
Crankcase heater mode	PCK	0	kW				

Other items							
Capacity control		variable		Rated air flow rate, outdoors		3900	m^3/h
Sound power level, indoors/outdoors	LWA	44/61	dB				
Annual energy consumption	QHE	1932	kWh				

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(**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0,9.

Technical parameters

Model(s):	Outdoor unit:	AHW-120HC(E)DS1
	Indoor unit:	AHM-120HC(E)DSAA
Air-to-water heat pump:		yes
Water-to-water heat pump:		no
Brine-to-water heat pump:		no
Low-temperature heat pump:		no
Equipped with a supplementary heater:		yes
Heat pump combination heater:		no
Parameters shall be declared for		Low temperature application.
Parameters shall be declared for		warmer climate conditions.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	Prated	10.8	kW	Seasonal space heating energy efficiency	ηs	256	%
Declared capacity for heating for part load at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = – 7 °C	Pdh	-	kW	Tj = – 7 °C	COPd	-	-
Tj = +2 °C	Pdh	10.30	kW	Tj = +2 °C	COPd	3.56	-
Tj = +7 °C	Pdh	6.93	kW	Tj = +7 °C	COPd	5.74	-
Tj = +12 °C	Pdh	3.05	kW	Tj = +12 °C	COPd	8.23	-
Tj =bivalent temperature	Pdh	6.93	kW	Tj =bivalent temperature	COPd	5.74	-
Tj = operation limit temperature	Pdh	10.30	kW	Tj = operation limit temperature	COPd	3.56	-
Tj = – 15 °C (if TOL < – 20 °C)	Pdh	-	kW	Tj = – 15 °C (if TOL < – 20 °C)	COPd	-	-
Bivalent temperature	Tbiv	7	°C	Operation limit temperature	TOL	2	°C
Cycling interval capacity for heating	Pcych	-	kW	Cycling interval efficiency	COPcyc	-	-
Degradation co-efficient (**)	Cdh	0.9	-	Heating water operating limit temperature	WTOL	-	°C

Power consumption in modes other than active mode				Supplementary heater			
Off mode	POFF	0.005	kW	Rated heat output (*)	Psup	0.5	kW
Thermostat-off mode	PTO	0.002	kW				
Standby mode	PSB	0.005	kW	Type of energy input		Electric	
Crankcase heater mode	PCK	0	kW				

Other items							
Capacity control		variable		Rated air flow rate, outdoors		3900	m^3/h
Sound power level, indoors/outdoors	LWA	44/64	dB				
Annual energy consumption	QHE	2225	kWh				

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(**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0,9.

Technical parameters

Model(s):	Outdoor unit:	AHW-140HC(E)DS1
	Indoor unit:	AHM-140HC(E)DSAA
Air-to-water heat pump:		yes
Water-to-water heat pump:		no
Brine-to-water heat pump:		no
Low-temperature heat pump:		no
Equipped with a supplementary heater:		yes
Heat pump combination heater:		no
Parameters shall be declared for		Low temperature application.
Parameters shall be declared for		warmer climate conditions.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	Prated	12.8	kW	Seasonal space heating energy efficiency	ηs	254	%
Declared capacity for heating for part load at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = – 7 °C	Pdh	-	kW	Tj = – 7 °C	COPd	-	-
Tj = +2 °C	Pdh	13.24	kW	Tj = +2 °C	COPd	3.23	-
Tj = +7 °C	Pdh	8.26	kW	Tj = +7 °C	COPd	5.44	-
Tj = +12 °C	Pdh	3.75	kW	Tj = +12 °C	COPd	8.08	-
Tj =bivalent temperature	Pdh	8.26	kW	Tj =bivalent temperature	COPd	5.44	-
Tj = operation limit temperature	Pdh	13.24	kW	Tj = operation limit temperature	COPd	3.23	-
Tj = – 15 °C (if TOL < – 20 °C)	Pdh	-	kW	Tj = – 15 °C (if TOL < – 20 °C)	COPd	-	-
Bivalent temperature	Tbiv	7	°C	Operation limit temperature	TOL	2	°C
Cycling interval capacity for heating	Pcych	-	kW	Cycling interval efficiency	COPcyc	-	-
Degradation co-efficient (**)	Cdh	0.9	-	Heating water operating limit temperature	WTOL	-	°C

Power consumption in modes other than active mode				Supplementary heater			
Off mode	POFF	0.005	kW	Rated heat output (*)	Psup	0.0	kW
Thermostat-off mode	PTO	0.002	kW				
Standby mode	PSB	0.005	kW	Type of energy input		Electric	
Crankcase heater mode	PCK	0	kW				

Other items							
Capacity control		variable		Rated air flow rate, outdoors		4200	m^3/h
Sound power level, indoors/outdoors	LWA	44/64	dB				
Annual energy consumption	QHE	2672	kWh				

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(**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0,9.

Technical parameters

Model(s):	Outdoor unit:	AHW-160HC(E)DS1
	Indoor unit:	AHM-160HC(E)DSAA
Air-to-water heat pump:		yes
Water-to-water heat pump:		no
Brine-to-water heat pump:		no
Low-temperature heat pump:		no
Equipped with a supplementary heater:		yes
Heat pump combination heater:		no
Parameters shall be declared for		Low temperature application.
Parameters shall be declared for		warmer climate conditions.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	Prated	13.9	kW	Seasonal space heating energy efficiency	ηs	248	%
Declared capacity for heating for part load at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = – 7 °C	Pdh	-	kW	Tj = – 7 °C	COPd	-	-
Tj = +2 °C	Pdh	13.90	kW	Tj = +2 °C	COPd	3.15	-
Tj = +7 °C	Pdh	8.95	kW	Tj = +7 °C	COPd	5.38	-
Tj = +12 °C	Pdh	4.03	kW	Tj = +12 °C	COPd	8.01	-
Tj =bivalent temperature	Pdh	8.95	kW	Tj =bivalent temperature	COPd	5.38	-
Tj = operation limit temperature	Pdh	13.90	kW	Tj = operation limit temperature	COPd	3.15	-
Tj = – 15 °C (if TOL < – 20 °C)	Pdh	-	kW	Tj = – 15 °C (if TOL < – 20 °C)	COPd	-	-
Bivalent temperature	Tbiv	7	°C	Operation limit temperature	TOL	2	°C
Cycling interval capacity for heating	Pcych	-	kW	Cycling interval efficiency	COPcyc	-	-
Degradation co-efficient (**)	Cdh	0.9	-	Heating water operating limit temperature	WTOL	-	°C

Power consumption in modes other than active mode				Supplementary heater			
Off mode	POFF	0.005	kW	Rated heat output (*)	Psup	0.0	kW
Thermostat-off mode	PTO	0.002	kW				
Standby mode	PSB	0.005	kW	Type of energy input		Electric	
Crankcase heater mode	PCK	0	kW				

Other items							
Capacity control		variable		Rated air flow rate, outdoors		4200	m^3/h
Sound power level, indoors/outdoors	LWA	44/67	dB				
Annual energy consumption	QHE	2969	kWh				

Contact details

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(**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0,9.

Technical parameters

Model(s):	Outdoor unit:	AHW-100HC(E)DS1
	Indoor unit:	AHM-100HC(E)DSAA
Air-to-water heat pump:		yes
Water-to-water heat pump:		no
Brine-to-water heat pump:		no
Low-temperature heat pump:		no
Equipped with a supplementary heater:		yes
Heat pump combination heater:		no
Parameters shall be declared for		Medium temperature application.
Parameters shall be declared for		warmer climate conditions.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	Prated	9.5	kW	Seasonal space heating energy efficiency	ηs	165	%
Declared capacity for heating for part load at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = – 7 °C	Pdh	-	kW	Tj = – 7 °C	COPd	-	-
Tj = +2 °C	Pdh	9.23	kW	Tj = +2 °C	COPd	2.44	-
Tj = +7 °C	Pdh	6.08	kW	Tj = +7 °C	COPd	3.51	-
Tj = +12 °C	Pdh	2.57	kW	Tj = +12 °C	COPd	5.44	-
Tj =bivalent temperature	Pdh	6.08	kW	Tj =bivalent temperature	COPd	3.51	-
Tj = operation limit temperature	Pdh	9.23	kW	Tj = operation limit temperature	COPd	2.44	-
Tj = – 15 °C (if TOL < – 20 °C)	Pdh	-	kW	Tj = – 15 °C (if TOL < – 20 °C)	COPd	-	-
Bivalent temperature	Tbiv	7	°C	Operation limit temperature	TOL	2	°C
Cycling interval capacity for heating	Pcych	-	kW	Cycling interval efficiency	COPcyc	-	-
Degradation co-efficient (**)	Cdh	0.9	-	Heating water operating limit temperature	WTOL	-	°C

Power consumption in modes other than active mode				Supplementary heater			
Off mode	POFF	0.005	kW	Rated heat output (*)	Psup	0.2	kW
Thermostat-off mode	PTO	0.002	kW				
Standby mode	PSB	0.005	kW	Type of energy input		Electric	
Crankcase heater mode	PCK	0	kW				

Other items							
Capacity control		variable		Rated air flow rate, outdoors		3900	m^3/h
Sound power level, indoors/outdoors	LWA	44/61	dB				
Annual energy consumption	QHE	3005	kWh				

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(**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0,9.

Technical parameters

Model(s):	Outdoor unit:	AHW-120HC(E)DS1
	Indoor unit:	AHM-120HC(E)DSAA
Air-to-water heat pump:		yes
Water-to-water heat pump:		no
Brine-to-water heat pump:		no
Low-temperature heat pump:		no
Equipped with a supplementary heater:		yes
Heat pump combination heater:		no
Parameters shall be declared for		Medium temperature application.
Parameters shall be declared for		warmer climate conditions.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	Prated	9.5	kW	Seasonal space heating energy efficiency	ηs	165	%
Declared capacity for heating for part load at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = – 7 °C	Pdh	-	kW	Tj = – 7 °C	COPd	-	-
Tj = +2 °C	Pdh	9.23	kW	Tj = +2 °C	COPd	2.44	-
Tj = +7 °C	Pdh	6.08	kW	Tj = +7 °C	COPd	3.51	-
Tj = +12 °C	Pdh	2.57	kW	Tj = +12 °C	COPd	5.44	-
Tj =bivalent temperature	Pdh	6.08	kW	Tj =bivalent temperature	COPd	3.51	-
Tj = operation limit temperature	Pdh	9.23	kW	Tj = operation limit temperature	COPd	2.44	-
Tj = – 15 °C (if TOL < – 20 °C)	Pdh	-	kW	Tj = – 15 °C (if TOL < – 20 °C)	COPd	-	-
Bivalent temperature	Tbiv	7	°C	Operation limit temperature	TOL	2	°C
Cycling interval capacity for heating	Pcych	-	kW	Cycling interval efficiency	COPcyc	-	-
Degradation co-efficient (**)	Cdh	0.9	-	Heating water operating limit temperature	WTOL	-	°C

Power consumption in modes other than active mode				Supplementary heater			
Off mode	POFF	0.005	kW	Rated heat output (*)	Psup	0.2	kW
Thermostat-off mode	PTO	0.002	kW				
Standby mode	PSB	0.005	kW	Type of energy input		Electric	
Crankcase heater mode	PCK	0	kW				

Other items							
Capacity control		variable		Rated air flow rate, outdoors		3900	m^3/h
Sound power level, indoors/outdoors	LWA	44/61	dB				
Annual energy consumption	QHE	3005	kWh				

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(**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0,9.

Technical parameters

Model(s):	Outdoor unit:	AHW-140HC(E)DS1
	Indoor unit:	AHM-140HC(E)DSAA
Air-to-water heat pump:		yes
Water-to-water heat pump:		no
Brine-to-water heat pump:		no
Low-temperature heat pump:		no
Equipped with a supplementary heater:		yes
Heat pump combination heater:		no
Parameters shall be declared for		Medium temperature application.
Parameters shall be declared for		warmer climate conditions.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	Prated	12.7	kW	Seasonal space heating energy efficiency	ηs	167	%
Declared capacity for heating for part load at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = – 7 °C	Pdh	-	kW	Tj = – 7 °C	COPd	-	-
Tj = +2 °C	Pdh	13.18	kW	Tj = +2 °C	COPd	2.4	-
Tj = +7 °C	Pdh	8.18	kW	Tj = +7 °C	COPd	3.55	-
Tj = +12 °C	Pdh	3.68	kW	Tj = +12 °C	COPd	5.34	-
Tj =bivalent temperature	Pdh	8.18	kW	Tj =bivalent temperature	COPd	3.55	-
Tj = operation limit temperature	Pdh	13.18	kW	Tj = operation limit temperature	COPd	2.4	-
Tj = – 15 °C (if TOL < – 20 °C)	Pdh	-	kW	Tj = – 15 °C (if TOL < – 20 °C)	COPd	-	-
Bivalent temperature	Tbiv	7	°C	Operation limit temperature	TOL	2	°C
Cycling interval capacity for heating	Pcych	-	kW	Cycling interval efficiency	COPcyc	-	-
Degradation co-efficient (**)	Cdh	0.9	-	Heating water operating limit temperature	WTOL	-	°C

Power consumption in modes other than active mode				Supplementary heater			
Off mode	POFF	0.005	kW	Rated heat output (*)	Psup	0.0	kW
Thermostat-off mode	PTO	0.002	kW				
Standby mode	PSB	0.005	kW	Type of energy input		Electric	
Crankcase heater mode	PCK	0	kW				

Other items							
Capacity control		variable		Rated air flow rate, outdoors		4200	m^3/h
Sound power level, indoors/outdoors	LWA	44/64	dB				
Annual energy consumption	QHE	4005	kWh				

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(**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0,9.

Technical parameters

Model(s):	Outdoor unit:	AHW-160HC(E)DS1
	Indoor unit:	AHM-160HC(E)DSAA
Air-to-water heat pump:		yes
Water-to-water heat pump:		no
Brine-to-water heat pump:		no
Low-temperature heat pump:		no
Equipped with a supplementary heater:		yes
Heat pump combination heater:		no
Parameters shall be declared for		Medium temperature application.
Parameters shall be declared for		warmer climate conditions.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	Prated	13.8	kW	Seasonal space heating energy efficiency	ηs	162	%
Declared capacity for heating for part load at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = – 7 °C	Pdh	-	kW	Tj = – 7 °C	COPd	-	-
Tj = +2 °C	Pdh	13.85	kW	Tj = +2 °C	COPd	2.38	-
Tj = +7 °C	Pdh	8.84	kW	Tj = +7 °C	COPd	3.44	-
Tj = +12 °C	Pdh	3.99	kW	Tj = +12 °C	COPd	5.28	-
Tj =bivalent temperature	Pdh	8.84	kW	Tj =bivalent temperature	COPd	3.44	-
Tj = operation limit temperature	Pdh	13.85	kW	Tj = operation limit temperature	COPd	2.38	-
Tj = – 15 °C (if TOL < – 20 °C)	Pdh	-	kW	Tj = – 15 °C (if TOL < – 20 °C)	COPd	-	-
Bivalent temperature	Tbiv	7	°C	Operation limit temperature	TOL	2	°C
Cycling interval capacity for heating	Pcych	-	kW	Cycling interval efficiency	COPcyc	-	-
Degradation co-efficient (**)	Cdh	0.9	-	Heating water operating limit temperature	WTOL	-	°C

Power consumption in modes other than active mode				Supplementary heater			
Off mode	POFF	0.005	kW	Rated heat output (*)	Psup	0.0	kW
Thermostat-off mode	PTO	0.002	kW				
Standby mode	PSB	0.005	kW	Type of energy input		Electric	
Crankcase heater mode	PCK	0	kW				

Other items							
Capacity control		variable		Rated air flow rate, outdoors		4200	m3/h
Sound power level, indoors/outdoors	LWA	44/67	dB				
Annual energy consumption	QHE	4448	kWh				

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