

Brivis ICE – Fixed Speed Operation & Installation Manual



This appliance must be installed in accordance with:

- Manufacturer's Installation Instructions
- Current AS/NZS 3000, AS/NZS 1677.2, AS 4211.3,

AS 4254, AS/NZS 5141, HB 276-2004

• Local Regulations and Municipal Building Codes including local OH&S requirements

This appliance must be installed, maintained and removed by an Authorised Person.

For continued safety of this appliance it must be installed and maintained in accordance with the manufacturer's instructions.



OPERATING TABLE OF CONTENTS

Warni	Warnings and Important Information5			
1.	Operating Manual	7		
1.1	Introduction	7		
1.2	Privacy Notification	7		
1.3	How does your ICE system work?	7		
1.4	Operating your Brivis Networker Wall Control (if applicable)	8		
1.5	Operating the Fan Only	9		
1.6	Coded Messages	10		
1.7	Reset the Add-On System	10		
1.8	Lock the Networker	11		
2.	Service & Maintenance	12		
2.1	Customer Care Program	12		
2.2	Contact Customer Care	12		
2.3	Product Registration	13		
2.4	Maintenance	13		
Gener	al User Guide	14		
Ope	ration and Maintenance	14		
Ope	rating Your System	14		
Coo	ling Cycle	15		
Zon	ed Systems	15		
Care &	Maintenance	16		
Cus	tomer Care Program	16		
Perf	orming Routine Maintenance	16		
Clea	nning the Air Filter	16		
Clea	aning the Outdoor Unit	16		
Gen	eral Maintenance	17		
Maiı	ntenance - Pre-Season Inspection	17		
Che	cking The Air Filter	17		
Unit	Support	17		
Non	-Brivis Field Supplied Accessories	17		
Sav	e A Service Call	18		
Whe	en to Call for Service	19		
Ser\	vice Maintenance Schedule - Ducted Air Conditioning Systems	20		
Insta	allation Record - Installer Details	∠ I 21		
Insta Dier	analion Record - System Details	∠⊺ 21		
Jein		<u> </u>		
Warra	nty	22		
Conta	cts	56		



PLEASE REFER TO ANY OPERATING MANUALS AND USER OPERATING GUIDES ACCOMPANYING ANCILLARY EQUIPMENT (WHERE FITTED)

This page is intentionally blank

WARNINGS AND IMPORTANT INFORMATION



READ ALL INSTRUCTIONS BEFORE USING THE APPLIANCE.

Always comply with the following precautions to avoid dangerous situations and to ensure optimum performance.

Failure to carefully read and follow all instructions in this manual can result in equipment malfunction, property damage, personal injury and/or death.

WARNINGS: WHEN IGNORED, CAN RESULT IN SERIOUS INJURY OR DEATH.

CAUTIONS: WHEN IGNORED, CAN RESULT IN MINOR INJURY OR PRODUCT DAMAGE.

REGULATORY / INSTALLATION

This appliance shall be installed in accordance with:

Manufacturer's Installation Instructions.

Current AS/NZS 3000, AS/NZS 5141. See "1.3 Codes / Regulations" on page 33

Local Regulations and Municipal Building Codes including local OH&S requirements.

This appliance must be installed, maintained and removed by Authorised Personnel.

For continued safety of this appliance it must be installed and maintained in accordance with the manufacturers instructions.

This appliance uses R410A refrigerant.

This appliance is heavy, use 2 people or mechanical lifting device. Improper lifting may result in serious injury.

Take care when opening or unpacking this appliance. Failure to do so may result in serious injury or product failure.

DO NOT modify the electrical wiring of this appliance. If the control power wiring is damaged or deteriorated then it must be replaced by an authorised person. Failure to do so may result in electric shock, fire, serious injury or product failure.

DO NOT install the air conditioner on an unstable or non level surface or where there may be a danger of it falling. It may result in death, serious injury, or product failure.

DO NOT install the outdoor unit where noise may cause nuisance.

DO NOT install the outdoor unit where it will be exposed to sea wind (salt spray) as this will reduce durability.

ACHIEVING OPTIMAL PERFORMANCE

For optimal performance ensure to use the air conditioner within the temperature ranges list to the right.

Using the air conditioner outside of these ranges, will activate certain safety protection features, that will affect the appliances performance.

TEMPERATURE	COOL MODE
ROOM	17°C ~ 32°C
OUTDOOR	-5°C ~ 46°C

WARRANTY EXCLUSIONS

Brivis product warranty excludes faults and failures caused by improper use and abuse; fair wear and tear; or failure to follow instructions regarding service and maintenance. It is very important that you maintain your appliance and have it serviced regularly. It is a condition of warranty that you adhere to the maintenance and service requirements as set out in this manual. Compliance with these requirements will prolong the useful life of your appliance and help ensure it operates efficiently. The "Service Maintenance Schedule - Ducted Air Conditioning Systems" on page 20 specifies specific items to be performed at prescribed intervals by qualified licensed technicians. The schedule should also be fully completed and retained as a record of who carried out the service, the date and actions taken.

IMPORTANT: Failure to carry out the requisite maintenance, servicing and recording requirements may void your product warranty. Please refer to "Service Maintenance Schedule - Ducted Air Conditioning Systems" on page 20 and "Warranty" on page 22 for full details.



OPERATION

DO NOT let the air conditioner run for extended periods when the humidity is very high or when doors or windows are left open. As this may result in an excessive operational loading and lead to product failure.

DO NOT cover or place articles on any part of this appliance.

DO NOT touch, operate or clean the air conditioner with wet hands. It may result in electric shock or product failure.

DO NOT insert hands or other objects through the air inlet or outlet of the appliance it may result in electric shock or product failure.

DO NOT place a heater or other heating appliances near this appliance, always ensure sufficient ventilation when using this appliance and a heating appliance at the same time. Failure to do so may result in product miss-operation.

Turn main power off before cleaning. Failure to do so may result in fire, electric shock, or product failure.

DO NOT use solvents, abrasives or harsh detergent to clean any part or surface of this appliance or spray water or allow liquids to enter the indoor unit. The enclosure of the appliance and remote control can be cleaned using a soft, damp cloth and a mild detergent.

NEVER touch the metal parts of the air conditioner when you remove the air filter. It may result in electric shock or product failure.

DO NOT leave flammable materials near the appliance. It may result in explosion or fire.

If there is excessive noise, smell or smoke coming from the appliance, turn the appliance **OFF**, isolate the power supply and contact a service agent.

DO NOT operate the appliance if it has been submerged into water due to flooding, contact a service agent. Failure to do so may result in electric shock, fire, serious injury, or product failure.

This appliance is **NOT** intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do not play with the appliance.

The air conditioning system is designed to achieve consumer comfort. It is not designed for commercial applications requiring a controlled atmosphere (i.e. computer rooms, food preservation, etc.)

DO NOT block the inlet or outlet of air flow. It may result product failure.

DO NOT drink the condensate water drained from the appliance. This condensate is not potable and may present a health risk if consumed.

DO NOT expose people, animals or plants directly to the cold or hot discharge of the appliance. It may result in serious injury.

DO NOT mix the batteries for the remote control with other types of batteries or mix new batteries with used batteries. Failure to do so may result in product failure. **STOP** using the remote control if there is a battery fluid leak.

DO NOT use an extension cord, manually extend the power cord, or connect other appliances to the same outlet as the air conditioner. Poor electrical connections, poor insulation, and insufficient voltage can cause fire.



A NOTE ON ILLUSTRATIONS

The illustrations used in this manual are for explanatory purposes only and the shape of your indoor unit may vary slightly from that which is shown in this manual.

1. OPERATING MANUAL

1.1 INTRODUCTION

Congratulations on your purchase of a Brivis ICE Add-On cooling split system. To achieve the performance and efficiency expected from your new ICE system, please ensure the Installer is a qualified tradesperson, that the Installer has commissioned the unit and instructed you on its operation. Please also take the time to read the contents of this manual, register your product warranty and retain this document for future reference.



- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been give supervision or instruction concerning the use of the appliance by a person responsible for their safety.
- Children should be supervised to ensure they do not play with the appliance.
- Do not place articles on or against this appliance
- Do not use or store flammable materials near this appliance
- Do not spray aerosols in the vicinity of this appliance while it is in operation
- Do not modify this appliance

1.2 PRIVACY NOTIFICATION

Brivis Climate Systems Pty Ltd is the registered owner of the Brivis brand. Brivis will collect "personal information" from you when you complete your warranty and maintenance registration form. This personal information is collected under the guidance of the Privacy Information Protection Act 1998. The purpose of collecting this information is to:

- Process your request for us to provide service activities for you
- Register your purchase of equipment for warranty
- Register your request for a survey/quotation for Heating Ventilation Air Conditioning goods and services

The intended recipients of the information are:

- Employees of Brivis
- Federal and State Governments who may require the information for administration purposes

While the supply of the information by you is voluntary, if you cannot provide or do not wish to provide the information sought, Brivis may not be able to provide the services you request. If you have already provided information but have changed your mind and do not want the information used, you may make application for access or amendment for that information not to be used.

You have a right of access to, and correction of, the information concerning yourself in accordance with the relevant procedures under the Act.

Enquiries concerning this matter can be addressed to the Business Practices Officer of Brivis, who can be contacted on 1300 BRIVIS.

1.3 HOW DOES YOUR ICE SYSTEM WORK?

When the ICE system is operating, the outdoor unit blows hot air out resulting in cooled liquid refrigerant entering the indoor coil unit. This cooled liquid refrigerant expands into the indoor coil by the means of expansion orifice plates fitted on the indoor coil cabinet. The expanded refrigerant temperature drops significantly and cools down the entire indoor coil. Then the heater fan blows the air from your home through the ICE coil cooling and dehumidifying it. The movement of this cooled air through your home will draw the heat from the house, so be sure that doors or windows are fully closed.

Whenever possible start the unit early to prevent the build up of heat within the house. The amount of cooling available from any type of ICE system is dependent on the outside weather conditions.

Your Installer will have determined the system's design conditions, zoning configuration (if applicable), and capabilities. Should you require more information, please consult your Installer.

1.4 OPERATING YOUR BRIVIS NETWORKER WALL CONTROL (IF APPLICABLE)

The Brivis Networker wall control operates the complete heating and cooling system, communicating key information and sensing the temperature. Table 1 details the functions and symbols of the networker control unit. The networker does not require batteries. If the networker display is blank, check that the 240V power supply and the thermostat cable are correctly connected. The following text explains how to switch into the cooling mode. For more details please refer to your heater manual.



Table 1. Networker Wall Control Unit Features

Symbol	Description	Symbol	Description
	On/Off: Turns the networker on and off.	7) 2) 3) 4) 5)	Variable Keys: Provide various functions depending on the selected program or mode. Functions are available only when text, a black box, or and arrow appears on the screen beside the key.
Fn	Function (Fn): Used in conjunction with Keys 1 or Key 2 to activate special functions, such as message repeating and networker locking. The Fn button also activates the LED backlight.		Flame: Indicates that the heater is switched on. Flashes during cool-down.
	Mode: Enables switching between a heater and cooler when both are connected to the networker. When selected, the active mode appears at the bottom of the screen, e.g. <i>Cooling</i> .	5-	Fan: Displays when the cooling/heating is switched on; indicates that the fan is active. Flashes during cooldown.
V	Heartbeat: When flashing, this icon indicates that room temperature is being sensed from this networker.		Thermometer: Registers the current room temperature. The small marker beside the thermometer indicates the temperature that the unit is currently set to maintain.
PROG	Program (PROG): Provides access to the programmable settings of the networker.		Padlock: Indicates that the networker is locked. Refer to Section 1.8 on page 11
AUTO	Auto (AUTO): Switches between the preset program and manual operation.		Snowman: (Add-on air-conditioning only) Indicates the refrigeration compressor is running. Flashes when the compressor is in a safeguard time off period.
\bigcirc	Rotary Dial: Rotated to change settings.	Cisplay)	Provides information about the system, such as the current time (top left), day of the week (left side), and selected appliance (bottom). The display also scrolls messages across the top of the screen, for added information such as operational states.

Appliance Operating Symbols

When the Networker is switched on certain operating symbols appear describing the operation of the air-conditioner appliance.

- When the Networker switches ON to HEAT, a flame symbol will appear on the screen
- When the Networker switches ON to COOL, a snowman symbol will appear on the screen
- In both cases the FAN symbol will also appear on the display and appears rotating when the fan is running



Heating



Cooling

- A flashing snowman symbol indicates that the compressor within the air-conditioner appliance is yet to switch ON
- A flashing FAN symbol indicates that the fan is yet to switch ON

General Operating Symbols

- The thermometer on the display registers the current room temperature with the small marker beside it indicating the temperature that the heating/cooling system is currently set to maintain
- The bar adjacent to the Key 1 button is displayed when continuous fan operation has been enabled using the Key 1 button



• The actual room temperature appears in the top right of the display screen

• "continuous" fan operation results in the fan being switched on all the time to allow continuous circulation of air

1.5 OPERATING THE FAN ONLY

To simply circulate the air in the house, the fan can be made to run continuously.

With the Networker switched OFF press the Fan button (Key 1 button). After a small delay a rotating fan symbol will appear and air should begin circulating within the ductwork of your system.

To switch the fan OFF simply press the Fan button (Key 1 button).



1.6 CODED MESSAGES

While the Networker is operating your system, it is also monitoring and controlling every aspect of the system's performance.

If anything unusual occurs, the Networker will display a message stating "Air-Conditioner Fault – R01 Code#??" for assistance call the number across the top of the screen. There are two parts to the message: the R01 number designates which appliance has the fault, and the "Code#??" relates to the type of fault. The screen will also display the spanner symbol.

Whenever such a message appears, it is a good idea to write it down before doing anything else.

This code contains information that will enable Brivis to deal quickly and easily with anything that requires their attention. With many of them you will be asked to contact Brivis Service and pass on the message, the model and type of appliance.

Message repeating

Push the Function button followed by the Key 1 button quickly after to repeat a message.

Resetting

If something has interrupted the unit's operation, the word Reset could appear beside the Key 4 button while a coded message is scrolling across the top of the display. When this is the case the Key 4 button can be used to restart the unit. If the unit does not resume normal operation or the error message re-appears, contact Brivis Service.

1.7 RESET THE ADD-ON SYSTEM

If cooling operation has been interrupted, *Reset* may appear beside Key 4 while a message scrolls across the top of the screen. The issue may be resolved by resetting the appliance. However, contact Customer Care if any of the following occur after resetting:

- the cooling system does not resume normal operation
- the error continues to persist
- other messages appear after clearing the fault.

RESET Not Displaying

a. If *RESET* is not displaying (adjacent to Key 4), press Fn then Key 1. The error message scrolls across the top of the screen and *RESET* displays.

Reset the Cooling

b. Press Key 4 to restart the cooling system. If the cooling system is still operating but the networker is showing the error message and service symbol, try resetting again. If other messages appear, contact Customer Care.

Error Persists – Initial Actions

- c. If the error persists, turn the networker off using the on/off button and wait for approximately 2 minutes.
- d. Turn the networker on. This may reset the cooling system and restore normal operation.
- **e.** If the error persists, disconnect the power supply from the unit at the power point (located near the heater unit) and wait for approximately 1 minute.
- **f.** Connect and switch on the power supply. If normal operation still does not resume, contact Customer Care.

1.8 LOCK THE NETWORKER



To prevent unwanted adjustments to the cooler/heater settings, the networker can be locked with the use of a 4-digit PIN. In the case of dual networkers, locking one also locks the other, although the PIN must be set at the master networker. The slave networker can lock and unlock the system, but cannot access the PIN.



If at any time an incorrect number is entered, press the AUTO button to clear all digits, then re-enter the PIN

Set a Personal Identification Number (PIN)

- **a.** DO NOT ENTER NUMBERS at this step. Press the Fn button followed immediately by Key 2. A message displays: *Enter Your PIN number to lock the system*. Continue to Step b.
- **b.** DO NOT ENTER NUMBERS at this step. Press the mode button (M) once. A message displays: User PIN reset Enter master PIN. Continue to Step c.
- c. Press the mode button once again. A message displays: User PIN number 1 alteration Enter current PIN.
- **d.** Enter the current PIN: The factory default PIN is 1111. If a custom PIN has been previously configured, enter the custom PIN. A message displays: *Enter the new PIN*.
- e. Enter the new 4-digit PIN using Keys 1 to 5. A message displays: Repeat the entry of the new PIN.
- f. Re-enter the new PIN. A message displays: Valid PIN PIN altered.
- g. Press the on/off button to exit at any time.

Lock the Networker

Lock the networker using the PIN, as follows:

- h. Press the Fn button followed immediately by Key 2. Enter Your PIN to lock the system displays.
- i. Enter the current 4-digit PIN. System locked out! displays and the padlock icon flashes indicating that the networker is locked.

Unlock the Networker

- j. Press the Fn button followed immediately by Key 2. Enter Your PIN to unlock the system displays.
- k. Enter the current 4-digit PIN. System unlocked! displays.



If an invalid PIN is entered, the message *Invalid PIN entered – Try again* scrolls across the screen. The user has three attempts at entering a valid PIN. On the third failed attempt, the message *Invalid PIN entered!* displays and the networker aborts the PIN entry. The unlock process will need to be repeated.

2. SERVICE & MAINTENANCE

To ensure continuing high performance and to minimise the possibility of premature equipment failure, periodic maintenance must be performed on the air conditioning equipment. It is recommended the unit be maintained by a qualified person as follows:

The minimum maintenance requirements for this equipment are as follows:

Fortnightly

- Inspect and clean Return Air Filters.
- Replace throwaway type filters when they become clogged with dust and lint or clean cleanable type filters monthly

Yearly

- Inspect indoor coil, drain pan and condensate drain. Clean when necessary
- Inspect the heater's fan motor and wheel for cleanliness and alignment. Clean and align the motor assembly where applicable
- Inspect outdoor coil. Clean when necessary.
- Inspect the outdoor unit. Ensure air flow is not disturbed by any obstacle around it.
- Inspect outdoor fans and motors. Ensure that fan blades are clean and adequately balanced
- Inspect the unit cabinet and insulation for damage and corrosion. Repair where necessary. Check for vibration and excessive noise. Correct where necessary
- Inspect refrigerant tubing for oil accumulations. If oil is detected, leak test refrigerant tubing using an electronic leak detector or liquid soap solution
- Check refrigerant charge by measurement of superheat and subcooling. Where necessary, adjust charge to achieve optimum performance
- Check the tightness of electrical connections

2.1 CUSTOMER CARE PROGRAM

Our products are renowned for providing years of trouble free performance. However, without some attention they may not perform at their peak all of that time. Like most things, to perform most efficiently they need a little care. So to ensure that every unit is always in top condition, we have established the Care Program for our valued customers.

After becoming a member of our Care Program, a courtesy call will be made regarding maintenance service to the unit. This service includes cleaning the unit and ensuring that the system is operating at maximum efficiency. Not only does this guarantee peak performance, it also allows any minor problems to be detected early. Which ensures that the system will always be ready needed.

If more than routine maintenance is required, the task can be attended to at the time of the service (additional charges may apply). This repair will be guaranteed for 3 months (for labour) and 12 months (for parts).

2.2 CONTACT CUSTOMER CARE

Refer to the contact details on the back page. Before contacting Customer Care, ensure all corrective actions have been attempted and gather the following details:

- the message
- the model, and
- the type of appliance.

Preferential Offers

The Customer Care program is designed to help our customers get the most out of their heating/cooling system. We may make contact with preferential offers for preventative maintenance services, which will keep the heating/ cooling in great condition.

2.3 PRODUCT REGISTRATION

If in Australia, to register your product warranty online please visit www.rinnai.com.au/support-resources/warranty-registration/

2.4 MAINTENANCE

Return Air Filter

Where fitted, the return air filter must be cleaned at least every two weeks during the heating season. A dirty air filter will reduce the efficiency, effectiveness and air quality of the system. The filter is usually located in the return air grille, in either a wall or the ceiling within the home.

To clean washable filters, remove the filter and clean with a vacuum cleaner. The filter may also be washed with warm soapy water. Ensure the filter is completely dry before installing it.



Never operate the system without the return air filter in place if add-on air conditioning is installed.

Outdoor Airconditioning Unit

Periodic inspection is required to ensure vegetation has not grown around the unit (plants, weeds etc.). The cabinet should be kept clean and have the recommended clearances maintained. Ensure there is no water build up (including from condensate drain) on or around the unit.



Preventative Maintenance Services are chargeable and not covered under the product warranty. The appliance needs to have reasonable and safe access and be installed in line with the installation instructions supplied with the appliance. An extra charge may apply if the company is required to allocate two service personnel to enable compliance with safety regulations.

GENERAL USER GUIDE

OPERATION AND MAINTENANCE

Welcome to high efficiency year-round comfort.

Congratulations on your excellent choice and sound investment in a Brivis Dual Comfort Home System. Please also take the time to read the contents of this Operating Manual, register your product warranty and retain this document for future reference.

Your new Brivis system represents both the latest in engineering developments and the culmination of many years of experience by one of the most reputable manufacturers of home comfort systems.

Your new unit is among the most reliable home comfort products available today. To achieve the performance and efficiency expected from your new system, please ensure the Installer is a qualified tradesperson, that the Installer has commissioned the unit and instructed you on its operation.

To assure its dependability, learn about the operation of your system and the small amount of maintenance it takes to keep it operating at its peak efficiency. With minimal care, your Brivis system will provide you and your family with satisfying home comfort - both now and for many years to come.



Improper installation, adjustment, alteration, service, maintenance, or use, can cause explosion, fire, electric shock, or other conditions which may cause personal injury or property damage. Refer to this document or and or other accompanying manuals.

For assistance or additional information consult Brivis, a qualified installer or authorised service agency. The qualified installer or agency should use only factory authorised components or accessories if and when servicing this product.

To better protect your investment and to eliminate unnecessary service calls, please familiarise yourself with the following:

- Your ducted system should never be operated without a clean filter properly installed. Plan to inspect the filter periodically. A clogged filter will increase operating costs and shorten the life of the unit. Supply-air and returnair registers (grilles) should not be blocked or obstructed. Restricted airflow lessens the unit's efficiency and life span.
- Outdoor (condenser / compressor) units must have unrestricted airflow. Do not cover the unit, lean any thing against it, or stand upon it. Do not allow grass clippings, leaves, or other debris to accumulate around or on top of the unit. Maintain a minimum of 300mm clearance between the outdoor unit and tall grass, shrubs, vines etc.
- Your Thermostat / Controller is the control centre for your system. Please familiarise yourself with its specific operation, as the information following is of a general nature.
- Attempting to control the system by other means for instance, switching the electrical supply power ON and OFF, may cause damage to the unit.
- Thermostat 'jiggling' causes rapid-cycling, which is potentially dangerous to the compressor and may blow the protective fuse or circuit breaker device at the mains power supply. Do not adjust the temperature on the thermostat for any reason for at least five (5) minutes after the compressor has shut off.
- You may find that you can maintain greater personal comfort by running the FAN continuously. 'Air pockets' can form due to the structure of the building, placement of registers etc. These air pockets may create cool or warm spots. Continuous FAN operation helps minimise any temperature differences.
- Systems equipped with electronic air cleaners or humidifiers accessories offer the added benefit of having the air continuously cleaned year round, and humidified during the winter season.
- Your system removes humidity from your home during the cooling season. The Indoor unit has a (primary) condensate connected to your drainage system; but an overflow (secondary) drain should also be installed. If water is observed in the overflow drain it may be clogged, and your installer or Brivis should be contacted for inspection.

OPERATING YOUR SYSTEM

The operation of your systems is controlled by the indoor Thermostat / Controller. Simply adjust the Controller to maintain the indoor temperature at the level you select, subject to it being within the design conditions of the system. Typical setting is 20°C for Cooling comfort.

This System will automatically modulate the outdoor unit capacity in response to the demand of the conditioned space, to help ensure rapid cool down times, as well as providing more constant temperature control. Please refer to the Operating Instructions accompanying your Thermostat / Controller.

COOLING CYCLE

When operating in the COOL mode, your system will run until the indoor temperature is lowered to the level you have selected (within design conditions). On extremely hot days, your system will run for longer periods at a time and have shorter 'off' periods than on moderate days.

The following typical conditions add extra heat and/or humidity to your home causing your system to work longer to maintain comfortable conditions:

Entrance (external) doors are frequently opened & closed.	More than the usual number of people.	
Operating laundry appliances or running showers.	Window furnishings open on sunny side of home.	
More than the usual lights or electrical appliances operating.	System operating at or outside the original system design conditions as specified by your Installer	

ZONED SYSTEMS

Some home comfort systems are designed to operate on a zoned basis only – i.e. they are not designed to heat and or cool the entire home or space at one time. Generally, a zoned system will be designed by your Installer for your specific requirements. Your particular zoning configuration and the basis of design should be specified and detailed by your Installer. With zoned systems, always observe the following:

- The Return Air grille(s) are generally in the 'Common Zone', and need to be part of the conditioned space at all times.
- Close off all doors to areas that are not being conditioned i.e. effectively isolate unconditioned spaces.
- Set your zoning configuration with your zone controls before starting your Brivis system.
- Do not attempt to shut down more zones than the minimum as specified by your installer, as this may lead to system shut down.
- Do not attempt to heat or cool more zones than the maximum specified by your installer as this will prevent the system from being able to maintain design conditions. NOTE: The type of zoned system you have will have been specified by your installer. This should include information on the total number of zones, the minimum and maximum number recommended to operate at one time to maintain design conditions, and the actual design conditions (Indoor Temperature Control settings at specified Outdoor Ambient conditions for both Heating and Cooling).

CARE & MAINTENANCE

CUSTOMER CARE PROGRAM

Please ensure you register your product warranty on line at brivis.com.au.

The Brivis Customer Care Program is designed to help you get the most out of your new system.

Service and maintenance in accordance with the Service Maintenance Schedule on page 20 is essential in ensuring the prolonged useful life of your system, and help ensure it operates at optimum efficiency. We may contact you before each winter or summer season with preferential offers for preventative maintenance services which will keep your Brivis system in great condition.



Service maintenance is not covered under warranty and is a chargeable service. All units must have safe and reasonable access and be installed in compliance with the installation instructions supplied with the unit. Some installations may require two service personnel to attend, in accordance with Health and Safety requirements.

Also note that all refrigerated air conditioning systems have air filters that require regular inspection and cleaning. Please refer to "Cleaning the Air Filter" on page 16.

PERFORMING ROUTINE MAINTENANCE



TURN OFF THE POWER BEFORE YOU PERFORM ANY MAINTENANCE; OTHERWISE IT MAY CAUSE ELECTRIC SHOCK.

ALTHOUGH SPECIAL CARE HAS BEEN TAKEN TO MINIMISE SHARP EDGES IN THE CONSTRUCTION OF YOUR UNIT, BE EXTREMELY CAREFUL WHEN HANDLING PARTS OR REACHING INTO THE UNIT.

Do not use water to clean the inside of the indoor unit. This can destroy insulation and cause electrical shock.

DO NOT use chemicals or chemically treated cloths to clean the unit.

DO NOT use benzene, paint thinners, polishing powder or other solvents to clean the unit. They can cause the plastic surface to crack or deform.

NEVER use water that is hotter than 40°C when you clean the front panel. It may cause deformation or discolouration.

With proper maintenance and care, your Brivis system will operate economically and dependably.

Maintenance can be accomplished easily by referring to the following general directions. However, before performing maintenance, consider these important safety precautions:

CLEANING THE AIR FILTER

The air filters require inspection and cleaning at least every two weeks. Consult your installer for location of filters on ducted systems.



A dirty air filter will reduce the efficiency, effectiveness and air quality of your system. Failure to clean the filters regularly can also cause condensation to form and drip from the indoor unit when operated in cooling mode during humid conditions.

For replacement filters, please contact Brivis.

CLEANING THE OUTDOOR UNIT

The outdoor (condensing) unit draws air into the unit and dissipates it away from the appliance. Periodic inspection is required to ensure vegetation has not grown around the unit (plants, weeds etc.).

The cabinet should be kept clean and have the recommended clearances maintained. Ensure the discharge air is free to dissipate and under no circumstances recirculates back into the unit.

Ensure there is no water build up (including from condensate drain) on or around the unit.



Any unit repairs, maintenance and cleaning of the outdoor unit should be performed by an authorised dealer or licensed service provider.

GENERAL MAINTENANCE

Maintenance - For Prolonged Periods of Non Use

If you plan not to use your air conditioner for an extended period of time, do the following.

- Clean all filters
- Turn ON Fan function until unit dries out completely
- Turn off the unit and disconnect the power
- Remove batteries from remote control.

MAINTENANCE - PRE-SEASON INSPECTION

After long periods of non-use, or before periods of frequent use, do the following:

- Check for damaged wires
- Clean all filters
- Check for leaks
- Replace batteries
- Make sure nothing is blocking all air inlets and outlets of both the indoor or outdoor units.

CHECKING THE AIR FILTER

- Filters are supplied and fitted by your installer and are not part of the Brivis system. A dirty air filter will cause
 excessive strain on the compressor and fan blower motor. This can cause the compressor to overheat and
 automatically shut down. In the extreme, the components will fail and will need to be replaced.
- To avoid inefficient or failed operation of your unit, CHECK THE FILTER AT LEAST EVERY 2 TO 4 WEEKS.
- Replace filters(s) when necessary, or clean them if they are the reusable type. Disposable filters should be replaced by similar, new filters of the same grade and dimensions.
- Reusable (permanent) type filters should be washed in a solution of cold to tepid water and very mild detergent, then rinsed and thoroughly dried. THE FILTER MUST BE COMPLETELY DRY BEFORE BEING REPLACED.
- To avoid prolonged shut-down of your system while a filter is being cleaned, you may wish to have an extra filter on hand. This would allow you to rotate between the two with minimal downtime for your comfort system. Extra filters are available from your Installer or a Brivis Spare Parts outlets.
- Should you have any questions about the removal and/or cleaning of you filter(s), please contact your Installer for assistance.
- If grass clippings, leaves, shrubbery and debris are kept away from the Outdoor Unit, minimal care should be sufficient to keep the system functioning properly. However, if the outdoor coil becomes dirty, use a soft brush or vacuum and soft brush attachment to clean the exterior surface. If dirt is trapped deep within the coil, contact your Installer or Brivis for service.

UNIT SUPPORT

- The Indoor Coil Unit (FCU) should be located in a position and in such a manner as specified in the Installation Instructions. The FCU should be maintained at a position that ensures condensate drainage from the unit. In an attic space, ideally the unit will be easily and safely accessible from the ceiling access panel, have a suitable catwalk and platform, and if necessary a service light.
- The Outdoor Condensing Unit (CDU) requires adequate support to ensure it is level.

NON-BRIVIS FIELD SUPPLIED ACCESSORIES

Your home comfort system may include field-supplied accessories that do not form part of this regular maintenance cycle. These may include: ductwork, fittings, filters, grilles, zone motors, auxiliary heaters, third party controls and other non-Brivis supplied items.

These items may also require attention in accordance with the Original Equipment Manufacturer's (OEM) recommendations. Your installer can provide details in this regard, and should be consulted for any warranty or

service matters for these items. Whilst they are an integral part of your home comfort system, these non-Brivis items are not covered by your Brivis Product Warranty.

Third party controls and zoning systems that interfere with the correct operation of your Brivis system, and any consequential damages to Brivis equipment as a result of such incorrect operation, will not be covered by Brivis Warranty.

SAVE A SERVICE CALL



If problems persist contact a local dealer or your nearest customer service centre.

Provide them with a detailed description of the unit malfunction as well as your model number.

SYMPTOM	CAUSE
Unit does not turn on when pressing ON/ OFF button.	The unit has a 3 minute protection feature that prevents the unit from overloading. The unit cannot be restarted within three minutes of being turned off.
The unit changes from COOL/HEAT mode to FAN mode.	The unit may change its setting to prevent frost from forming on the unit. Once the temperature increases, the unit will start operating in the previously selected mode again.
	The set temperature has been reached, at which point the unit turns off the compressor. The unit will resume operation when the temperature fluctuates again.
The indoor unit makes noises.	Water flowing noise, This is the sound of refrigerant flowing inside the indoor unit and is normal.
Both the indoor unit and outdoor unit make noises.	Low hissing sound during operation: This is normal and is caused by refrigerant gas flowing through both indoor and outdoor units.
	Low hissing sound when the system starts, has just stopped running, or is defrosting: This noise is normal and is caused by the refrigerant gas stopping or changing direction.
The outdoor unit makes noises.	The unit will make different sounds based on its current operating mode.
SYMPTOM	CAUSE
The unit emits a bad odour	The unit may absorb odours from the environment (such as furniture, cooking, cigarettes, etc.), which may be emitted during operation.
	The unit's filters have become mouldy and should be cleaned.
The fan of the outdoor unit does not operate.	During operation, the fan speed is controlled to optimise performance.
The air conditioner stops running.	Check power supply.
	If a power failure has occurred. Turn off the air conditioner when a power failure occurs. When the power is restored, wait 3 minutes, and then turn on the air conditioner.
	If a power failure has occurred. Turn off the air conditioner when a power failure occurs. When the power is restored, wait 3 minutes, and then turn on the air conditioner. Check the air conditioner has not been turned off automatically by a programmed off timer. Press the power button on the remote control.
	If a power failure has occurred. Turn off the air conditioner when a power failure occurs. When the power is restored, wait 3 minutes, and then turn on the air conditioner. Check the air conditioner has not been turned off automatically by a programmed off timer. Press the power button on the remote control. Circuit Breaker tripped or fuse blown. Reset or replace, if problem persists contact Brivis.

The air conditioner does not generate cool air.	Air is not circulating properly. Make sure that there are no curtains, blinds or furniture blocking the front of the air conditioner.
	The air filter is dirty. Clean the air filter once every 2 weeks. See "Cleaning Air Filter" for more information.
	The room temperature is too high. In summer, it may take some time to cool indoor air. In this case, select the turbo cool operation to cool indoor air quickly.
	The FAN ONLY mode of operation is selected. In this mode, air blows from the air conditioner without cooling or heating the indoor air. Switch the operation mode to the cooling, heating or auto.
	The air inlet or outlet of either unit is blocked. Turn the unit off, remove the obstruction and turn it back on.
	Doors and windows are open. Make sure that all doors and windows are closed while operating the unit.
	Excessive heat is generated by sunlight. Close windows and curtains during periods of high heat or bright sunshine.
	Too many sources of heat in the room (people, computers, and electronics etc). Where possible reduce the amount of heat sources.
	Low refrigerant due to a leak or after long-term use, contact Brivis.

WHEN TO CALL FOR SERVICE

	Ŷ	
L	:	
CAL	JT	ION

If ANY of the following conditions occurs, turn off your unit immediately!

- The power cord is damaged or abnormally warm
- There is a burning smell coming from the unit
- The unit emits loud or abnormal sounds
- When operated if a circuit breaker (safety, ground) is thrown or a fuse is blown
- Water leaks from the indoor unit even when the humidity level is low
- Parts are ejected out of the unit
- Foreign objects fall into the unit
- If the unit has been exposed to flooding.

DO NOT ATTEMPT TO FIX THESE YOURSELF!

TURN OFF THE AIR CONDITIONER & CONTACT BRIVIS.

SERVICE MAINTENANCE SCHEDULE - DUCTED AIR CONDITIONING SYSTEMS

Your Brivis Air Conditioning System should be maintained annually after the date of installation by a qualified licensed technician in accordance with the Schedule below. Failure to do so during the product warranty period may void your warranty. This periodic service and maintenance will prolong the useful life of the unit, and help keep it running safely and at optimum efficiency.

Date of Installation	/ / Installed By:					
YEAR OF SERVICE	1	2	3	4	5	6
Service Date	/ /	/ /	/ /	/ /	/ /	/ /
Service Company / Technician						
Ambient Temperature at CDU (°C)						
ELECTRICAL	1	I	I	I	I	I
Wiring, Electrical connections						
Fan Motors						
Capacitors (if Applic)						
Printed circuit boards						
MAJOR COMPONENTS						
Outdoor unit clearances						
Outdoor unit condensate tray						
Outdoor unit condensate drain						
Outdoor unit fixing						
Indoor unit clearances						
Indoor unit condensate tray						
Indoor unit condensate drain						
Refrigerant charge						
Refrigeration connections						
Fan assemblies						
CONTROLS						
Thermostat(s)						
Zone Controls (If Applic)						
SYSTEM OPERATION						
Sequence of operation						
Return Air Temp - Cooling/ Heating	°C	°C	°C	°C	°C	°C
Outlet Air Temp - Cooling / Heating	°C	°C	°C	°C	°C	°C
Outdoor unit - Liquid line pressure	kPa	kPa	kPa	kPa	kPa	kPa
Outdoor unit - Suction line pressure	kPa	kPa	kPa	kPa	kPa	kPa
Zone Operation (If Applic)						
GENERAL INSTALLATION-RELATED AND 3	rd PARTY COMPONENT	S (NOT BRIVIS PRODU	CTS) *			
Ductwork and fittings						
Return Air grille & filters						
Airflow through system						
Refrigerant pipework						
Safety tray						
Zone motors						
CONSUMABLES **						
Capacitors						
Filters						
Batteries (If applic)						
* Installation and other field-supplied components are not covered by Brivis Product Warranty. These include, but are not limited to, control wiring, ducting, return air filter(s) grille, register, diffuser, zone motors, controls/thermostats, pipework, fabricated or added components and refrigerant gas and electrical connections to the appliance. These should be inspected as they can affect the performance, reliability and safety of the system. ** Units contain consumable items that may require periodic replacement and are not covered by Brivis product warranty (e.g. filters, capacitors and batteries)						
	ACTION CODES					
Inspected - Working Correctly - No	Action Required	Adjusted Part	Cleaned Part	Replaced Part	Repaired Part	Referred to Installer

✓

с

R

RP

Α

RI

INSTALLATION	RECORD -	INSTALLER	DETAILS

Company Name:	
Company Address:	
Telephone:	
Mobile Phone:	
Email:	
Certificate of Compliance / Cer	tification No
Authorised Persons - Licence N	۱o
Installers Name:	
Installers Signature:	
Installation Date:	
INSTALLATION RECORD	SYSTEM DETAILS
Model Number :	
Serial Number Indoor Unit:	
Serial Number Outdoor Unit:	
Installation Address:	

DISPOSAL GUIDELINES

This appliance contains refrigerant and other potentially hazardous materials. When disposing of this appliance, the law requires special collection and treatment. **DO NOT** dispose of this product as household waste or unsorted municipal waste.





Special notice – Disposing of this appliance in the forest or other natural surroundings endangers your health and is bad for the environment. Hazardous substances may leak into the ground water and enter the food chain.

WARRANTY

TERMS OF WARRANTY – AUSTRALIA

Rinnai Australia Pty. Ltd. ABN 74 005 138 769, 100 Atlantic Drive, Keysborough VIC 3173.

NOTICE TO CONSUMERS UNDER AUSTRALIAN CONSUMER LAW

Our goods and services come with guarantees that cannot be excluded under the Australian Consumer Law.

For a major failure with a good, you are entitled to a replacement or refund and compensation for any other reasonable foreseeable loss or damage. If the failure does not amount to a major failure and if the goods fail to be of acceptable quality, you are also entitled to have the goods repaired or replaced.

For a major failure with the service, you are entitled to cancel your service contract with us and obtain a refund for the unused portion, or to compensation for its reduced value. You are also entitled to be compensated for any other reasonably foreseeable loss or damage. If the failure does not amount to a major failure you are entitled to have problems with the service rectified in a reasonable time and, if this is not done, to cancel your contract and obtain a refund for the unused portion of the contract.

The benefits provided by this Warranty are in addition to any other rights and remedies available to a consumer under the Australian Consumer Law and any other law which may apply to the goods and or services.

1 DEFINITIONS

The terms listed below shall have the following meanings:

- 1 "Authorised Service Representative" means an independent service contractor authorised by Rinnai or Rinnai service personnel.
- 2 "Rinnai" means Rinnai Australia Pty Ltd (ABN 74 005 138 769) and any related company.
- 3 "Certificate(s) of Compliance" means certificate(s) issued by licensed personnel (including plumbers, refrigeration mechanics, electricians or other relevant tradespeople) to certify that any prescribed works comply with applicable regulatory requirements.
- 4 "Certificate(s) of Occupancy" means certificate(s) issued by the local government authority (or similar organisation) which certifies that a home can be occupied.
- 5 "Installation Site" means the site at which the Product is originally installed.
- 6 "Normal Business Hours" means 8:30am to 5:00pm Monday to Friday, excluding public holidays.
- 7 "Operating/Installation Instructions" means the user manual or other documentation which provides detailed instructions on the proper operation and maintenance of the Product.
- 8 "Other Applications" means any Product used for purposes other than Residential & Light Commercial Applications. Other Applications may include but are not limited to factory, IT/Server room, telephone exchange, processing area (e.g. bakery, kitchen, warehouse, swimming pool, agricultural facilities such as a nursery). Any Product which has been installed, for whatever purpose, as a retrofit component to an existing system, will also be classed as being part of an "Other Application" regardless of the purpose of use of the existing system into which such product has been installed.
- **9** "**Purchaser**" means the end user of the Product, the person named as owner in the Warranty certificate, the holder of the Proof of Purchase or the holder of a property transfer document where the Product is included as part of the chattels.
- 10 "Product" means the equipment purchased by the Purchaser and described in Section 2 of this document.
- 11 "Proof of Purchase" means a Tax Invoice or Receipt in respect of the Product. In the case of new constructions, a Certificate of Occupancy or a Certificate of Compliance that details the date of installation or commissioning will suffice.
- **12** "Qualified Installer" means the qualified installation contractor who is responsible for performing the installation work in the manner prescribed by local and statutory regulations, including compliance with any relevant and to Rinnai specifications, including Australian Standards.
- **13** "**Residential & Light Commercial Applications**" means any Product for use in residential or light commercial applications where:
 - a) the Product is solely used for the purpose of human comfort; and
 - b) the ambient temperature of the space the Product is intended to heat or cool is influenced solely or primarily by natural exterior weather conditions rather than by man-made or mechanical heat sources.

Examples of Residential & Light Commercial Applications include, homes, offices, hotels, apartments, nursing homes, hospitals, health care premises, shopping centres, and retail stores.

2 TERMS OF WARRANTY

2.1 Subject to the Terms of Warranty set out in this document, effective from the date of purchase by the Purchaser, the Product is warranted to be free from defects in materials & factory workmanship for the period set out in table below:

	PRODUCT GROUPS	PARTS	LABOUR
	Evaporative Coolers & Ducted Gas Heaters (excluding Compact Classic Series)	5 Years *Extended 4 Years Option	5 Years *Extended 4 Years Option
	Ducted Gas Heaters - Compact Classic Series	3 Years	3 Years
Residential and Light Commercial	Refrigerated Airconditioning Products	5 Years	5 Years
	Ducted Gas Heaters - Heat Exchangers and Burners Evaporative Coolers - Structural components only	10 Years	N/A
	Portable Air conditioning	2 Years	N/A
	Wi-Fi Devices	1 Year	1 Year
Other Applications	All Product Groups	2 Years	1 Year
After Market	Spare Parts	1 Year	N/A
*Extended Warranty Option	Up to 4 year extended warranty (in addition to the standard warranty period listed above) applies on selected products when you opt in to the Rinnai Service Advantage program. This program has terms and conditions, including the requirement for scheduled servicin of the product by Rinnai. To participate in the program you must register your product online at: www.rinnai.com.a support-resources/ warranty-registration/ within the first 12 months of the product being installed.		

- 2.2 Rinnai will determine in its sole discretion, which classification the Product fits into and the corresponding Warranty that shall apply.
- 2.3 An Authorised Service Representative will repair or replace, at its option, the Product or any part of the Product that its examination shows to be defective. The repair or replacement shall be performed during Normal Business Hours by an Authorised Service Representative. Repair by persons other than an Authorised Service Representatives may void the Warranty.
- 2.4 Alternatively to clause 2.3 above, Rinnai can at its discretion elect to pay you an amount equivalent to the cost of repairing or replacing the Product.
- 2.5 If Rinnai provides you with either the replacement costs or replacement product, ownership of the original Product shall immediately transfer to Rinnai.
- 2.6 Rinnai is responsible for reasonable costs associated with legitimate warranty claims, including call-out of an Authorised Service Representative to inspect the Product. Rinnai is not responsible for:
 - a) costs for tradespeople engaged by you that are not Rinnai Authorised Service Representatives.
 - b) any costs, including call out costs for a Rinnai Authorised Service Representatives, associated with a Product which is determined upon inspection not to be covered by this warranty.
- 2.7 Rinnai will reimburse any reasonable costs associated with making a legitimate warranty claim against Rinnai which are not otherwise specified above.
- 2.8 The Warranty of the Product requires that, in addition to all other conditions, the Purchaser conducts regular and/or preventative maintenance as may be specified by the Operating/Installation Instructions or otherwise directed by Rinnai and required by the level of usage and the usage environment, including the use of correct and uncontaminated refrigerants and lubricants. Refrigeration, plumbing and electrical works must be undertaken by licensed personnel.
- 2.9 Where a Product or failed component is replaced under warranty, the time remaining on the original Product warranty period will continue to apply and the replacement product or part will be subject to the original warranty period only.

3 CONDITIONS OF WARRANTY

- 3.1 The Purchaser may only obtain the benefit of the Warranty if the Purchaser:
 - a) maintains and has the Product serviced in accordance with the instructions set out in the service section of the relevant Service or Owner's Manual;
 - b) complies with clause "7 Purchaser's Responsibilities" on page 25;
 - c) notifies Rinnai within 30 days of a defect occurring or, in the case of a latent defect, becoming apparent, that a claim is being made under this Warranty; and
 - d) provides, in support of the claim made under this Warranty, a Proof of Purchase.
- 3.2 This document (and any statutory consumer guarantees) represents the only Warranty given by Rinnai in respect of the Product. No other person or organisation is authorised to offer any alternative warranty on behalf of Rinnai.
- 3.3 If the date of purchase cannot be established to Rinnai's satisfaction, the date shall be deemed to be 2 months after the date of manufacture or the date of sale by Rinnai, whichever is the latter.
- 3.4 This warranty applies to Products which are manufactured on or after the date of publication of this warranty but before the next date of publication of this warranty.

4 **EXCLUSIONS**

- 4.1 This Warranty **does NOT** cover:
 - a) damage, problems or failure resulting from improper operation and/or inadequate maintenance by the Purchaser (refer Purchaser's Responsibilities section below);
 - b) damage, problems or failure resulting from improper or faulty installation. The Product must be installed by a Qualified Installer in accordance with applicable regulations. Where applicable, Certificate(s) of Compliance must be obtained by the purchaser from the Qualified Installer and presented to the Authorised Service Representative;
 - c) damage, problems or failure caused by factors external to the Product including, but not limited to, faulty or poor external electrical wiring, incorrect or faulty power supply, voltage fluctuations, over voltage transients or electromagnetic interference, inadequate or faulty gas, drainage services, or water services, including water pressure, and non-potable water;
 - d) damage, problems or failure caused by acts of God, fire, wind, lightning, flood, storm, hail storm fallout, vandalism, earthquake, war, civil insurrection, misuse, abuse, negligence, accident, pests, animals, pets, vermin, insects, spiders/bugs or entry of foreign objects or matter into the Product such as dirt, debris, soot or moisture;
 - e) damage, problems or failure caused by environmental conditions including, but not limited to, excessive moisture, salt or other corrosive substances or atmospheric conditions;
 - f) Product which has been installed in a portable or mobile building, structure or application including, but not limited to, a caravan, boat or trailer;
 - g) Product which has been re-installed at a location other than the original site;
 - h) any consumable item supplied with the Product including, but not limited to, an air filter, battery, fan belt, igniter or cooler pad;
 - installation of third-party components that may be attached to the Product. These include, but are not limited to, control wiring, ducting, return air filter(s) grille, register, diffuser, zone motors, controls/ thermostats, pipe work and fabricated or added components. These items remain solely the responsibility of the Qualified Installer;
 - j) installations where electrics/electronics may be subjected to moisture/chemicals (e.g. swimming pools or nurseries);
 - k) any repair, which is needed as a result of an accident, misuse, abuse or negligence;
 - I) Product that is utilised in an environment (indoor and outdoor) outside its specified operating range; and
 - m) fair wear and tear to the Product.
 - n) On-site labour warranty on portable (non-fixed installation) Products In respect of such Products the Purchaser must return the Product to the supplier for repair or replacement).

5 LIMITATIONS

- 5.1 Third parties are often involved in providing advice to consumers about the climate control solutions best suited to the consumer's needs. Any advice or recommendations given by such parties, including advice about Product fitness for purpose and overall system design, sizing and application are not the responsibility of Rinnai. This includes but is not limited to the heat load calculations, airflow and system balancing.
- 5.2 This Warranty does not apply to any Product installed at an Installation Site which is outside Australia.
- 5.3 Except where inconsistent with the purchaser's statutory rights and the rights given by this Warranty, all liabilities of Rinnai for any direct, special, indirect or consequential loss or damage, any damage or expense for personal injury or any loss or destruction of property, arising directly or indirectly from the use or inability to use the Product or any of its parts and/or servicing the Product, are expressly excluded.

6 TRAVEL, TRANSPORT & ACCESS COSTS

- 6.1 The Purchaser must pay freight charges, in-transit insurance expenses and travelling costs for repairs/ replacements under this Warranty, that are required to be performed 50km from the nearest Rinnai branch or Authorised Service Representative.
- 6.2 Subject to clause 6.3, Rinnai will pay freight charges, in-transit insurance expenses and travelling costs for repairs/replacements that are required to be performed less than 50km from the nearest Rinnai branch or Authorised Service Representative, subject to the following:
 - a) Rinnai will arrange for such repairs/replacements and make any payment directly to the third party to provide the freight, in-transit insurance or travel services; or
 - b) if Rinnai considers appropriate, it will authorise the Purchaser in writing to pay for the relevant freight charges, in-transit insurance expenses or travelling costs and then, upon provision by the Purchaser to Rinnai of a tax invoice showing those costs have been incurred, reimburse the Purchaser for such costs which are within the terms of the authorisation. If the Purchaser pays for the relevant freight charges, in-transit insurance expenses or travelling costs without written authorisation from Rinnai, Rinnai will not reimburse the Purchaser for such costs.
- 6.3 The Purchaser must pay all costs and expenses in respect of:
 - a) any service call out fee if the Product is not accessible for service
 - b) making the Product accessible for service, for example, restricted access or working at heights, or the labour cost for an additional person due to OHS requirements.
 - c) providing a safe working environment for installation, service, maintenance or repair of the Product;
 - d) any surcharge applicable in respect of supplying replacement parts outside Normal Business Hours; and
 - e) any other costs and expenses in relation to claiming the Warranty that is not covered by clause 6.2.

7 PURCHASER'S RESPONSIBILITIES

- 7.1 The Purchaser must operate and maintain the Product in accordance with the Operating Instructions and service maintenance schedule, including conducting an appropriate number of services to the unit during the Warranty period, based on usage and the usage environment including but not limited to;
 - a) regularly cleaning the air filter(s) and replacing them where necessary;
 - b) replacing expired batteries or other consumables as required;
 - c) ensuring that the condensate drain is kept clean and clear of obstructions.

HOW TO MAKE A WARRANTY CLAIM:

If you wish to make a warranty claim in respect of any Portable Product, please return it to the place of purchase, or if that is not possible, contact Rinnai to enquire about alternative arrangements.

If you wish to make a warranty claim in respect of any fixed Product, please contact Rinnai on the details set out below to make arrangements for an Authorised Service Representative to inspect the product.

As per clause 2.6 of the Terms and Conditions of Warranty, purchasers are responsible for the costs of any repair and/or call out fee where, on inspection, the alleged defect is found by Rinnai's Authorised Service Representative not to be covered by this warranty or any statutory consumer guarantee applicable to the Product.

The Terms and Conditions of Warranty contain important information about your rights and obligations under this warranty. Please read them fully and carefully before making a claim.

RINNAI NEW ZEALAND - LIMITED WARRANTY

HVAC and Heat Pumps

High Wall Splits, Ducted Systems and Portable Appliances

NOTICE TO CONSUMERS UNDER NEW ZEALAND CONSUMER LAW

Our goods and services come with guarantees that cannot be excluded under the New Zealand Consumer Law.

For a major failure with a good, you are entitled to a replacement or refund and compensation for any other reasonable foreseeable loss or damage. If the failure does not amount to a major failure and if the goods fail to be of acceptable quality, you are also entitled to have the goods repaired or replaced.

The benefits provided by this Warranty are in addition to any other rights and remedies available to a consumer under the New Zealand Consumer Law and any other law which may apply to the goods and or services.

Warranty summary

8 **DEFINITIONS**

The terms listed below shall have the following meanings:

- 1 "Authorised Service Agent" means an independent service contractor authorised by Rinnai or Rinnai service personnel.
- 2 "Rinnai" means Rinnai New Zealand Ltd (Company Registration Number 94694) and any related company.
- 3 "Certificate(s) of Compliance" means certificate(s) issued by licensed personnel (including plumbers, refrigeration mechanics, electricians or other relevant tradespeople) to certify that any prescribed works comply with applicable regulatory requirements.
- 4 "Certificate(s) of Occupancy" means certificate(s) issued by the local government authority (or similar organisation) which certifies that a home can be occupied.
- 5 "Installation Site" means the site at which the Product is originally installed.
- 6 "Normal Business Hours" means 8:30am to 5:00pm Monday to Friday, excluding public holidays.
- 7 "Operating/Installation Instructions" means the user manual or other documentation which provides detailed instructions on the proper operation and maintenance of the Product.
- 8 "Other Applications" means any Product used for purposes other than Residential & Light Commercial Applications. Other Applications may include but are not limited to factory, IT/Server room, telephone exchange, processing area (e.g. bakery, kitchen, warehouse, swimming pool, agricultural facilities such as a nursery). Any Product which has been installed, for whatever purpose, as a retrofit component to an existing system, will also be classed as being part of an "Other Application" regardless of the purpose of use of the existing system into which such product has been installed.
- **9** "Purchaser" means the end user of the Product, the person named as owner in the Warranty certificate, the holder of the Proof of Purchase or the holder of a property transfer document where the Product is included as part of the chattels.
- 10 "Product" means the equipment purchased by the Purchaser and described in Section 2 of this document.
- 11 "Proof of Purchase" means a Tax Invoice or Receipt in respect of the Product. In the case of new constructions, a Certificate of Occupancy or a Certificate of Compliance that details the date of installation or commissioning will suffice.
- **12** "Qualified Installer" means the qualified installation contractor who is responsible for performing the installation work in the manner prescribed by local and statutory regulations, including compliance with any relevant and to Rinnai specifications, including New Zealand Standards.
- 13 "Residential & Light Commercial Applications" means any Product for use in residential or light commercial applications where
 - a) the Product is solely used for the purpose of human comfort; and
 - b) the ambient temperature of the space the Product is intended to heat or cool is influenced solely or primarily by natural exterior weather conditions rather than by man-made or mechanical heat sources.

Examples of Residential & Light Commercial Applications include, homes, offices, hotels, apartments, nursing homes, hospitals, health care premises, shopping centres, and retail stores.

9 TERMS OF WARRANTY

9.1 Subject to the Terms of Warranty set out in this document, effective from the date of purchase by the Purchaser, the Product is warranted to be free from defects in materials & factory workmanship for the period set out in table below:

	PRODUCT GROUPS	PARTS	LABOUR	
Residential and Light	Refrigerated Air Conditioning / Heat Pump Products	5 Years*	5 Years*	
Commercial	Portable Air conditioning	2 Years (non-commercial)	N/A	
	Portable Air conditioning	1 Year (commercial)		
	Wi-Fi Devices	1 Year	1 Year	
Other Applications	All Product Groups	2 Years	1 Year	
After Market	Spare Parts	1 Year	N/A	
*Extended Warranty Option	A 1-year extended warranty (in addition to the standard warranty period listed above) applies on selected products when installed by a Rinnai appointed dealer/installer.			
	Please see the Rinnai New Zealand website for an up to date list of appointed dealers and service agents www.rinnai.co.nz			

- 9.2 Rinnai will determine in its sole discretion, which classification the Product fits into and the corresponding Warranty that shall apply.
- 9.3 An Authorised Service Agent will repair or replace, at its option, the Product or any part of the Product that its examination shows to be defective. The repair or replacement shall be performed during Normal Business Hours by an Authorised Service Agent. Repair by persons other than an Authorised Service Agents may void the Warranty.
- 9.4 Alternatively, to clause 2.3 above, Rinnai can at its discretion elect to pay you an amount equivalent to the cost of repairing or replacing the Product.
- 9.5 If Rinnai provides you with either the replacement costs or replacement product, ownership of the original Product shall immediately transfer to Rinnai.
- 9.6 Rinnai is responsible for reasonable costs associated with legitimate warranty claims, including call-out of an Authorised Service Agent to inspect the Product. Rinnai is not responsible for:
 - a) costs for tradespeople engaged by you that are not Rinnai Authorised Service Agents.
 - b) any costs, including call out costs for a Rinnai Authorised Service Agents, associated with a Product which is determined upon inspection not to be covered by this warranty.
- 9.7 The Warranty of the Product requires that, in addition to all other conditions, the Purchaser conducts regular and/or preventative maintenance as may be specified by the Operating/Installation Instructions or otherwise directed by Rinnai and required by the level of usage and the usage environment, including the use of correct and uncontaminated refrigerants and lubricants. Refrigeration, plumbing and electrical works must be undertaken by licensed personnel.
- 9.8 Where a Product or failed component is replaced under warranty, the time remaining on the original Product warranty period will continue to apply and the replacement product or part will be subject to the original warranty period only.

10 CONDITIONS OF WARRANTY

- 10.1 The Purchaser may only obtain the benefit of the Warranty if the Purchaser:
 - a) maintains and has the Product serviced in accordance with the instructions set out in the service section of the relevant Service or Owner's Manual;
 - b) complies with clause "Purchaser's Responsibilities" as per the owner's manual;
 - c) notifies Rinnai within 30 days of a defect occurring or, in the case of a latent defect, becoming apparent, that a claim is being made under this Warranty; and
 - d) provides, in support of the claim made under this Warranty, a Proof of Purchase.
- 10.2 This document (and any statutory consumer guarantees) represents the only Warranty given by Rinnai in respect of the Product. No other person or organisation is authorised to offer any alternative warranty on behalf of Rinnai.
- 10.3 If the date of purchase cannot be established to Rinnai's satisfaction, the date shall be deemed to be 2 months after the date of manufacture or the date of sale by Rinnai, whichever is the latter.

11 EXCLUSIONS

- 11.1 This Warranty does NOT cover:
 - a) damage, problems or failure resulting from improper operation and/or inadequate maintenance by the Purchaser (refer Purchaser's Responsibilities section below);
 - b) damage, problems or failure resulting from improper or faulty installation. The Product must be installed by a Qualified Installer in accordance with applicable regulations. Where applicable, Certificate(s) of Compliance must be obtained by the purchaser from the Qualified Installer and presented to the Authorised Service Agent;
 - c) damage, problems or failure caused by factors external to the Product including, but not limited to, faulty or poor external electrical wiring, incorrect or faulty power supply, voltage fluctuations, over voltage transients or electromagnetic interference, inadequate or faulty gas, drainage services, or water services, including water pressure, and non-potable water;
 - damage, problems or failure caused by acts of God, fire, wind, lightning, flood, storm, hail storm fallout, vandalism, earthquake, war, civil insurrection, misuse, abuse, negligence, accident, pests, animals, pets, vermin, insects, spiders/bugs or entry of foreign objects or matter into the Product such as dirt, debris, soot or moisture;
 - e) damage, problems or failure caused by environmental conditions including, but not limited to, excessive moisture, salt or other corrosive substances or atmospheric conditions;
 - f) Product which has been installed in a portable or mobile building, structure or application including, but not limited to, a caravan, boat or trailer;
 - g) Product which has been re-installed at a location other than the original site;
 - h) any consumable item supplied with the Product including, but not limited to, an air filter, battery, fan belt or cooler pad;
 - installation of third-party components that may be attached to the Product. These include, but are not limited to, control wiring, ducting, return air filter(s) grille, register, diffuser, zone motors, controls/ thermostats, pipe work and fabricated or added components. These items remain solely the responsibility of the Qualified Installer;
 - j) installations where electrics/electronics may be subjected to moisture/chemicals (e.g. swimming pools or nurseries);
 - k) any repair, which is needed as a result of an accident, misuse, abuse or negligence;
 - I) Product that is utilised in an environment (indoor and outdoor) outside its specified operating range; and
 - m) fair wear and tear to the Product.
 - n) On-site labour warranty on portable (non-fixed installation) Products In respect of such Products, the Purchaser must return the Product to the supplier for repair or replacement).

12 LIMITATIONS

- 12.1 Third parties are often involved in providing advice to consumers about the climate control solutions best suited to the consumer's needs. Any advice or recommendations given by such parties, including advice about Product fitness for purpose and overall system design, sizing and application are not the responsibility of Rinnai. This includes but is not limited to the heat load calculations, airflow and system balancing.
- 12.2 This Warranty does not apply to any Product installed at an Installation Site which is outside New Zealand.
- 12.3 Except where inconsistent with the purchaser's statutory rights and the rights given by this Warranty, all liabilities of Rinnai for any direct, special, indirect or consequential loss or damage, any damage or expense for personal injury or any loss or destruction of property, arising directly or indirectly from the use or inability to use the Product or any of its parts and/or servicing the Product, are expressly excluded.
- 12.4 Geographical Climate Zones Rinnai New Zealand Ltd does not exclude this product from installation in the Cool climatic zone (see below reference map) but cannot guarantee appliance heating performance as per the published literature at temperatures below zero. Appliance sizing is critical in these installations, see 5.1.



13 TRAVEL, TRANSPORT & ACCESS COSTS

- 13.1 The Purchaser must pay freight charges, in-transit insurance expenses and travelling costs for repairs/ replacements under this Warranty, that are required to be performed 40km from the nearest Rinnai branch or Authorised Service Agent.
- 13.2 Subject to clause 6.3, Rinnai will pay freight charges, in-transit insurance expenses and travelling costs for repairs/replacements that are required to be performed less than 40km from the nearest Rinnai branch or Authorised Service Agent, subject to the following:
 - a) Rinnai will arrange for such repairs/replacements and make any payment directly to the third party to provide the freight, in-transit insurance or travel services; or
 - b) if Rinnai considers appropriate, it will authorise the Purchaser in writing to pay for the relevant freight charges, in-transit insurance expenses or travelling costs and then, upon provision by the Purchaser to Rinnai of a tax invoice showing those costs have been incurred, reimburse the Purchaser for such costs which are within the terms of the authorisation. If the Purchaser pays for the relevant freight charges, in-transit insurance expenses or travelling costs without written authorisation from Rinnai, Rinnai will not reimburse the Purchaser for such costs.

13.3 The Purchaser must pay all costs and expenses in respect of:

- a) any service callout fee if the Product is not accessible for service
- b) making the Product accessible for service, for example, restricted access or working at heights, or the labour cost for an additional person due to OHS requirements.
- c) providing a safe working environment for installation, service, maintenance or repair of the Product;
- d) any surcharge applicable in respect of supplying replacement parts outside Normal Business Hours; and
- e) any other costs and expenses in relation to claiming the Warranty that is not covered by clause 6.2.

14 PURCHASER'S RESPONSIBILITIES

- 14.1 The Purchaser must operate and maintain the Product in accordance with the Operating Instructions and service maintenance schedule, including conducting an appropriate number of services to the unit during the Warranty period, based on usage and the usage environment including but not limited to;
 - a) regularly cleaning the air filter(s) and replacing them where necessary;
 - b) replacing expired batteries or other consumables as required;
 - c) ensuring that the condensate drain is kept clean and clear of obstructions.

HOW TO MAKE A WARRANTY CLAIM

If you wish to make a warranty claim in respect of any *Portable Product*, please return it to the place of purchase, or if that is not possible, contact Rinnai to enquire about alternative arrangements.

If you wish to make a warranty claim in respect of any fixed Product, please contact Rinnai on the details set out below to make arrangements for an Authorised Service Agent to inspect the product.

As per the Terms and Conditions of Warranty, purchasers are responsible for the costs of any repair and/or call out fee where, on inspection, the alleged defect is found by Rinnai's Authorised Service Agent not to be covered by this warranty or any statutory consumer guarantee applicable to the Product.

The Terms and Conditions of Warranty contain important information about your rights and obligations under this warranty. Please read them fully and carefully before making a claim.

Contact Rinnai New Zealand at: 0800 RINNAI (746 624) | info@rinnai.co.nz

INSTALLATION TABLE OF CONTENTS

1.	. Introduction	32
	1.1 Brivis ICE R410a Fixed Speed Range 1.2 Safety / Warnings	
	1.3 Codes / Regulations	
2.	2. Components	34
	2.1 Indoor Unit (Cooling Coil)	
	2.2 Starting Collars	
	2.3 P-Irap	
•		
3.	B. Typical Installation	36
4.	I. Indoor Coil Installation	37
	4.1 Location	
	4.2 Condensate Drain / Safety Tray	
	4.3 Minimum Service Access	
	4.4 System and Ductwork Design	
	4.6 Filtration	
	4.7 General Arrangement Drawings	
5.	5. Outdoor Unit Installation	40
	5.1 Location	40
	5.2 Electrical Connection	
	5.3 Thermostat Control Wiring	
	5.5 Adaptive Zoning Ontions	
	5.6 Wiring the Brivis Programmable Thermostat (Add-On & Fan Only)	
	5.7 General Arrangement Drawings & Clearance Requirements	45
6.	3. Refrigeration Charge & Pipe-Work	46
	6.1 Piping Design	46
	6.2 Recommended Interconnecting Pipe Sizing	
	6.3 Max vertical pipe run	47
	6.5 Pine-work connection	47 47
	6.6 Charging the system	
	6.7 Oil Checking and Top Up	
7.	7. Start-Up and Commissioning	49
	7.1 Sequence of Operation	50
	7.2 Cooling Capacity / Air Flow	50
8.	B. Technical Specifications	53
9.	0. Commissioning	54
	9.1 Commissioning Check List	
Сс	Contacts	56



PLEASE REFER TO ANY OPERATING MANUALS AND USER OPERATING GUIDES ACCOMPANYING ANCILLARY EQUIPMENT (WHERE FITTED)

1. INTRODUCTION



MANDATORY INSPECTION PRIOR TO INSTALLATION

Immediately report any damage or discrepancies to the Supplier of the appliance. This appliance was inspected and tested at the time of manufacture and packaging, and released for transportation without known damage. Upon receipt, inspect the exterior for evidence of rough handling in shipment. Ensure that the appliance is labelled correctly for the gas and electrical supply, and/or other services it is intended to be connected to.

For safety and warranty purposes, appliances that may be damaged or incorrect **MUST NOT** be installed or operated under any circumstances. Installation of damaged or incorrect appliances may contravene local government regulations. Rinnai disclaims any liability or responsibility whatsoever in relation to the installation or operation of damaged or incorrect appliances.



MICROCHANNEL COIL SAFETY – HANDLING THE APPLIANCE

This Brivis ICE appliance is fitted with an aluminium microchannel coil that is light in weight and structurally robust. However, the coil refrigerant tubes are thin and exposed to the outer face of the coil so extreme care must be taken when handling the appliance.

DO NOT lift or manoeuvre the appliance from the liquid or suction line tubes exiting the cabinet wall as this may lead to premature coil failure and will result in coil replacement.

Read all instructions before proceeding with the installation and start up.

- This equipment must be installed in accordance with all relevant regulatory authority and industry requirements.
- Only qualified, licensed technicians shall perform works on these units; failure to do so will result in warranty being void.

Definitions

Shall

"Shall" indicates a mandatory requirement of this manual

Should

"Should" indicates a recommended requirement of this manual

Any deviation from these instructions, may at the discretion of the manufacturer, void the warranty. As a result, the customer and/or installer may be charged a fee for non-product warranty related call outs, Also note that failure to comply with these instructions may preclude company service personnel from being able to service the appliance.

Disclaimer



This document is a guide only. Laws, regulations and industry standards can vary between States and Territories.

Accordingly, this guide must be read in conjunction with, and subject to, all laws, regulations and industry standards applicable in the State or Territory in which the products are installed. You must ensure that the installation of the products will comply with those laws, regulations and standards, and that the products recommended to customers are fit for the purpose for which they are intended.

THE USER SHOULD RETAIN THIS MANUAL FOR FUTURE REFERENCE.

1.1 BRIVIS ICE R410A FIXED SPEED RANGE

The Brivis ICE series is a refrigerated cooling split only type air conditioner designed for connection to compatible Brivis Ducted Gas Heaters. Brivis ICE utilises the heating system's ductwork and air circulation fan to distribute cool, filtered refrigerated air.

ICE Outdoor Model	ICE Indoor Model	Nominal Cooling Capacity (kW)	Rated Cooling Capacity (kW)	Recommended Brivis Gas Ducted Heater Model
DO-SC18Z91	DI-XU18Z	18	18.2	Refer to latest Brivis Gas
DO-SC22Z91	DI-XU22Z	22	22.2	Ducted Heater Specifications for Maximum Recommended Add-On Cooling Capacity

Table 2. Brivis ICE Models and Heater Compatibility

- Some heaters may require a transition to modify its starting collar (pop) size to suit the inlet pop size of the ICE indoor coil. DO NOT REDUCE POP SIZES ON INDOOR COIL or HEATER.
- Ensure minimum specified air quantity requirements passes through the ICE cooling coil at all times
- Ductwork and fittings must be sized to handle the total cooling airflow through the system on either whole home or zoned basis.

1.2 SAFETY / WARNINGS

The unit is designed to provide safe and reliable service when operating within design specifications. To avoid injury to personnel and damage to equipment or property when operating the equipment, the following safe practices should be observed as a minimum.

- Check the unit weight to be sure the lifting equipment is adequate
- Disconnect power to the unit before working on it
- Do not remove access panels or doors until fans have completely stopped
- Do not enter a fan cabinet while the fan is running
- Protect materials when welding or flame cutting. Use suitable cloth to contain sparks. Have a fire extinguisher at hand and ready for immediate use

1.3 CODES / REGULATIONS

Brivis ICE units must be installed, serviced or repaired in accordance with these instructions and related regulations, codes, standards, and authorities. These include but may not be limited to:

- AS/NZS 3000- Electrical Installations
- AS/NZS 5141– Residential Heating and Cooling Systems
- Ozone Protection and Synthetic Greenhouse Gas Management Regulations 1995
- AS/ NZS 1677.2 Australian Standard, Refrigeration systems, safety requirements for fixed applications
- AS 4211.3 Gas recovery or combined recovery and recycling equipment
- HB 276-2004 : A Guide to Good Practice for Energy Efficient Installation of Residential Heating, Cooling & Air Conditioning Plant & Equipment
- AS 4254 Ductwork for air-handling systems in buildings
- Local Electricity Authority
- Local Building Regulations
- Environment Authorities
- Building Code of Australia (BCA)
- Brivis "SuperSizeGuide"

It is recommended the Brivis "SuperSizeGuide" be followed in estimating cooling requirements and for system design that will result in efficient installation and provide a higher level of comfort and economical operation.

Brivis assumes no responsibility for equipment installed in violation of any code or regulations and these installation instructions.

2. COMPONENTS

2.1 INDOOR UNIT (COOLING COIL)

Remove packaging from unit and any protective foam packing from coils and pipes. Indoor units are shipped with a holding charge of dry nitrogen. Check to confirm the holding charge. For lifting details refer to the General Arrangement drawings.

- Brivis ICE indoor coil units shall be installed only downstream of a heater.
- Brivis ICE is not designed for installation on a marine craft, houseboat, or any similar environment.

Figure 1. Indoor Cooling Coil

2.2 STARTING COLLARS

Insert starting collar (pop) into the hole in pop plate, ensuring pop flange is placed over the inner supply air wall of the cabinet. Spread the pop flange to fit tight in the cabinet's hole with the notch side of the collar over lapping the other. Secure the pops with the rivets supplied.

Figure 2. Indoor Coil Starting Collar Assembly



Illustrated DI-XU22Z

2.3 P-TRAP

The indoor coil incorporates an evaporator drip tray and is supplied with a 20mm Female Pressure Pipe drain spigot, which is to be connected to the "P" trap (supplied).

- Always install the "P" trap as close to the unit as possible.
- Fill the "P" trap with water during installation before starting unit, to prevent air movement through the drainpipe
- Ensure trap contains water at all times
- Adjust the level of the unit to ensure that the condensate drains from the evaporator drip tray (approx 10 15mm incline from back to front)

Figure 3. "P" Trap Assembly





Figure 4. "P" Trap Assembly

2.4 OUTDOOR UNIT





TYPICAL INSTALLATION 3.

(B) Minimum A 1m Minimum 1m D (\mathbb{C}) Ē) (F) $\widehat{\mathbf{G}}$ (H)

Figure 6. Typical Indoor Installation

- A. Ensure 1m minimum, or preferably 21/2 times the duct diameter, STRAIGHT duct length before any take-offs occur.
- B. Ensure 1m minimum STRAIGHT duct between the Gas Ducted Heater and ICE coil unit.
- Safety Drain Tray (Field supplied), must be С. installed and independently drained.
- D. Working Platform (field supplied)
- E. Unit Supports (field supplied)
- F. P Trap Assembly on primary condensate drain fit as close as possible to unit
- G. Condensate drain pipe to be pitched down and to be terminated in an approved manner as specified by local codes
- H. Terminate the Safety Drain Tray in a position so as not to cause a nuisance, but where the home owner can see if water is dripping. Instruct owner to contact Installer or Brivis if Safety Drain Tray outlet drips water.

Figure 7. Typical Underfloor Installation

- Ensure 1m minimum, or preferably 21/2 times the duct diameter, Α. STRAIGHT duct length before any take-offs occur
- Β. Ensure 1m minimum STRAIGHT duct between the Gas Ducted Heater and ICE coil unit
- C. Safety Drain Tray (field supplied), must be installed and independently drained
- D. Working Platform (concrete slab)
- E. Unit Mounts (field supplied) to be fitted under unit if coil is not hung
- P Trap Assembly (supplied) on primary condensate drain fit as F. close as possible to unit
- G. Condensate drain pipe to be pitched down and to be terminated in an approved manner as specified by local codes
- H. Terminate the Safety Drain Tray in a position so as not to cause a nuisance, but where the home owner can see if water is dripping. Instruct owner to contact Installer or Brivis if Safety Drain Tray outlet drips water



1. Ensure unit is sitting on something that is 'weather/waterproof' if coil is not hung.

2. Make sure there is adequate ventilation to help prevent condensation.

3. Ensure the P-Trap and drain are working effectively where applicable.

4. Always mount the coil on (field supplied) supports to create an air gap to prevent moisture/ condensation if coil is not hung.

5. Always mount coil over safety tray as incorrect installations may contravene local regulations.





4. INDOOR COIL INSTALLATION

- Indoor coils are supplied with a nitrogen holding charge ranging from 400kPa to 700kPa
- Connect a suitable pressure gauge to the indoor coil valve to ensure the internal pressure is at least 400kPa
- If the measured pressure is less than 400kPa, check and if necessary repair any leaks found before proceeding
- Remove the nitrogen holding charge by connecting a charging line with valve depressor
- Sweat off the liquid & suction pipe blanking plates and proceed to pipe up in line with the good piping practices
- Some heaters may require a transition to modify its starting collar (pop) size to suit the inlet pop size of the ICE indoor coil. DO NOT REDUCE POP SIZES ON INDOOR COIL or HEATER
- Ensure minimum specified air quantity requirement passes through the ICE cooling coil at all times
- Ductwork and fittings must be sized to handle the total cooling airflow through the system on either whole home or zoned basis
- If the Brivis Heater requires a remote thermistor installed in the supply air ductwork, position it in the supply air starting collar (discharge pop) of the cooling coil (see Section 4.5)

4.1 LOCATION

- Choose a location that is suitable for refrigeration piping and condensate drainage
- Allow adequate provision is made for service access
- Indoor coil unit is not weatherproof and should be installed so that there is no chance of direct sunlight, water or moisture coming into contact with the outer casing
- Where the unit is installed in the roof or ceiling space ensure the building structure is capable of supporting the unit's weight do not suspend unit from support handles
- Brivis ICE indoor units shall be installed only downstream and at least 1m distance from heater's main supply air outlet and always before the first duct branch-take-off fitting
- Never put the Indoor coil in the Return Air part of the duct system, this may result in condensation forming in the Heater, causing corrosion and damage to vital components
- Ensure a minimum of 1m, or preferably 2½ times the duct diameter of straight ductwork, is installed immediately downstream of the indoor coil unit before any divergence or branch-take-offs occur. Failure to do so may compromise airflow, system performance and reliability

4.2 CONDENSATE DRAIN / SAFETY TRAY

- A non-flexible drainpipe shall be installed for the primary condensate run-off with a continuous downward grade away from the unit of not less than 1:100
- When the coil is installed under the floor, in a roof or ceiling space, an additional field-supplied Safety Drain Tray shall be installed under the indoor unit
- Safety Tray must also be separately drained, arranged to terminate in a position where the home owner can see if water is dripping from the outlet. Please instruct the end user to call their Installer or Brivis Service should they notice water dripping from the Safety Tray drain outlet

4.3 MINIMUM SERVICE ACCESS

For servicing, a minimum clearance of 600mm must be provided in front of the access panel side of the unit for its entire length. Refer to "Figure 8. Indoor Service Clearances" on page 38.

- Where installed on a platform in the roof space, the platform should also extend 600mm out in front of the access panel side of the unit for its entire length
- A 600mm wide platform is required to connect between the indoor unit and the access opening or the ducted heating unit for the purpose of access
- Adequate lighting should be installed, such as permanent artificial lighting with switch located at roof access opening or sub-floor access point
- Duct work should not be installed across the platform preventing safe access

Figure 8. Indoor Service Clearances



4.4 SYSTEM AND DUCTWORK DESIGN

Good duct design and sizing are essential to every Brivis ICE cooling system. Use the Brivis "SuperSizeGuide", Technical Data Sheets, AS/NZS 5141 or HB276. In general:

- Ductwork should be airtight and have a minimum insulation rating of R1.5
- It should also be properly sized, and curves and bends should be smooth enough to ensure that the air flows through efficiently, quietly and with minimal resistance
- The registers and diffusers should be large enough and of good design. They should minimise noise, while providing the correct distribution pattern
- The positive return air system should be fitted with a grille large enough to accept the full air capacity of the system at low noise levels
- Adequate air filtration shall be provided
- If the system uses high level outlets (e.g. ceiling diffusers), then the return air inlet should be at a low level



It is important that all ductwork and fittings be insulated. It is mandatory under some building codes to also install fire rated duct. Check with your local authority.

4.5 BRIVIS HEATER THERMISTOR POSITION (IF APPLICABLE)

- Mount heater thermistor in the discharge (outlet) pop of the cooling coil
- Drill a 3/4" (20mm) diameter hole through the top of the evaporator coil's outlet pop
- Carefully insert the thermistor assembly (probe end first) into this hole and secure using the two screws provided
- Ensure that the thermistor plug is facing upwards and is accessible for servicing
- Connect the thermistor extension lead from the heater to the thermistor assembly and ensure that the plug is connected securely
- Ensure that the thermistor extension lead is secured to timbers or duct outer casing to prevent damage

4.6 FILTRATION

A filter shall be fitted into the system, and should be easily accessible for regular cleaning. Please refer to the guidelines for return air filter grilles accompanying the Gas Ducted Heater.

4.7 GENERAL ARRANGEMENT DRAWINGS

Figure 9. Indoor Unit Dimensions DI-XU18Z





450mm Pop







Figure 10. Indoor Unit Dimensions DI-XU22Z







549

5. OUTDOOR UNIT INSTALLATION

5.1 LOCATION

- The unit must be installed in accordance with relevant authority requirements
- The unit should not be accessible to general public
- Do not install the unit where there is a possibility it will present a noise problem for either the home owner or neighbours, or exceed the noise guidelines as set down by local or state legislation or regulatory bodies
- Avoid positioning unit in direct sunlight
- The unit must be installed in an area that is well ventilated avoid positions where condenser air may be recirculated
- Allow for drainage of rainwater
- Ensure minimum clearances, as outlined in the outdoor unit dimensional drawings Figure 14 (Section 5.7), are maintained

Mounting at ground level:

- The unit shall be mounted and fastened on to a solid, level foundation
- Apply rubber "waffle pad" or similar between the unit feet and the foundation if required

Mounting on the roof:

- Ensure that the weight of the unit is not excessive for the design of the roof structure
- Unit shall be mounted onto either a suitably designed metal frame or timber blocks, ensuring that there is an insulating membrane such as rubber "waffle pad" between the roof structure and the frame for vibration elimination
- Metal frame or timber supports must be of sufficient size and length to prevent the unit tipping over in high winds

5.2 ELECTRICAL CONNECTION

All electrical work shall be carried out by a qualified and licensed electrician. The installation shall comply with current relevant standards, wiring rules and local authority requirements. Means for disconnection (i.e. isolating switch and circuit breaker) shall be incorporated according to wiring rules. Wiring sizing is the responsibility of the installer as it depends on the conditions and regulations applicable to each installation site. Refer to the electrical drawings and specifications for electrical data.

The electrical controls are housed in the outdoor unit. The electrical installation requirements are generally as follows:

- The outdoor unit shall be supplied directly from a distribution board
- An external isolating switch shall be installed adjacent to the outdoor unit
- Short circuit protection for the unit shall be supplied at the main switchboard using either a 'D-Curve' type circuit breaker (or equivalent), or HRC fuse. Wire fuses shall not be used check SAA Wiring Rules for "Protection" sizing and cable sizes. Refer to specification sheet for circuit breaker sizing
- Do not drill into the cabinet as critical internal components may be damaged during this process
- 24 volt control wiring shall be installed from the outdoor unit to the Heater and or thermostat controller as required
- Avoid running the control/communication cable near sources of electromagnetic interference such as electrical motors, transformers, high current cables etc. Use shielded cable if necessary
- Ensure that power supply is adequate, and phase rotation is correct

5.3 THERMOSTAT CONTROL WIRING

- All control wiring is 24 Volt, and is required to be installed between the outdoor unit and the Gas Ducted Heater / Controller in accordance with the wiring instructions supplied with the Brivis Gas Ducted Heater
- For any other make of heater (Non- Brivis) contact the heater's manufacturer
- Minimum control circuit wire size is 1.0mm² with a maximum of 1.5mm²



There is no time delay built into the outdoor condensing unit to prevent compressor short cycling on rapid calls from the thermostat for cooling. Time delays providing this protection are built into the recommended Brivis Controllers.

When adding Brivis ICE to a system where a non-Brivis heater is installed, it is the installer's responsibility to ensure that some form of time delay or other protection is installed to prevent the compressor from short cycling. Failure to do so may void warranty.

5.4 WIRING DIAGRAMS



Figure 11. Typical Outdoor Unit Wiring Diagram (DO-SC22Z91 shown)

Compressor start signal 24VAC. The maximum allowable starts are 6 per hour. No internal compressor start limit timer is provided. This shall be incorporated into the thermostat.

22 K 18 K	W Contactor : CA7 W Contactor : CA7	7-23- 7-16-	-01 01						
	LEGEND COLOUR CODE								
CEMP IF D/L. CCH. RV1. HP. LP. O	COMRESSOR INDOOR FAN OUTDOOR FAN THERMAL OVERLOAD CRANK CASE HEATER REVERSING VALVE HIGH PRESSURE SWITCH LOW PRESSURE SWITCH FIELD VIRING CONTROL WIRING 240/415V WIRING CONTROL PARAMETER SWITCHBOARD TERMINAL	r w bk bn P P J y gn yell v	RED WHITE BLUE BLACK BROWN ORANGE PINK PURPLE GREY GREEN YELLOW VIOLET						

SWITCHBOARD LAYOUT OF OUTDOOR UNIT



NOTES: 1. COMPRESSOR AND OUTDOOR FAN MOTOR HAVE INTERNAL OVERLOADS AND MAY RESTART AUTOMATICALLY.

2. HP SWITCH AND LP SWITCH ARE AUTO RESET.

3. INTERLOCK SHOULD BE PROVIDED FOR CONTROL CIRCUIT BETWEEN OUTDOOR AND INDOOR UNIT.

4. ENSURE THAT CAPACITORS ARE COMPLETELY DISCHARGED BEFORE WORKING ON EQUIPMENT.

5.5 ADAPTIVE ZONING OPTIONS

StarPro SP6, SP5 and SP4 heaters can be configured for zoning and/or Add-On Refrigerative Air Conditioning. There are four 24 Vac relays on the heater's control module, which can be configured to control up to four zone motors. An additional relay is available for Add-on refrigerative air-conditioning control. For more information please refer to the associated heater installer's manual.







For ZonePlus configuration, please refer to the ZonePlus Installation manual.

5.6 WIRING THE BRIVIS PROGRAMMABLE THERMOSTAT (ADD-ON & FAN ONLY)

The Classic control board does not have provision for "Add-On" cooling or "Fan Only" operation. For "Add-On" cooling or "Fan Only" operation the unit must be configured.

To facilitate Add-On Cooling or Fan Only operation an additional accessory, 'ACC LOOM ADD-ON RELAY CLASSIC' (Brivis Part No. B063283) must be fitted.

To configure a Compact Classic heater for "Add-On" cooling refer to Figure 13.

To configure a Compact Classic heater for "Fan Only" operation refer to Figure 13 and omit the "Y" connection. For more information regarding connection of the Add-On relay refer to the installation instructions supplied with 'ACC LOOM ADD-ON RELAY CLASSIC' (Brivis Part No. B063283).







For Brivis ICE Add-On connection to a Brivis Classic heater an additional relay 'ACC LOOM ADD-ON RELAY CLASSIC' (Brivis Part No. B063283) must be fitted.

- All electrical works to comply with relevant regulations.
- Requires Brivis programmable Thermostat.
- Contact Brivis Technical Support for information on superseded Brivis Heaters.

5.7 GENERAL ARRANGEMENT DRAWINGS & CLEARANCE REQUIREMENTS

Figure 14. Outdoor Unit: DO-SC18Z91 & DO-SC22Z91 (dimensions in mm)



6. REFRIGERATION CHARGE & PIPE-WORK



- Both indoor and outdoor units come delivered under positive pressure
- The outdoor unit is charged with sufficient R410a refrigerant for an interconnecting pipe run of 15m actual length
- The indoor unit is pressurised with 400kPa to 700kPa dry nitrogen
- Pipe end blanking plates must not be removed until the installer is sure the plates are not under positive pressure.
- A suction accumulator has been fitted in the outdoor units
- Read all instructions and notes below before starting installation



- Use new, clean and sealed refrigeration grade pipe suitable for R410a
- Keep pipe ends sealed, both before and during installation, to avoid entry of moisture
- Suspend pipes with hangers or straps and seal openings around pipe penetrations with flexible material.
- Consider pipe expansion and leave space between pipes and adjacent structures
- Use brazing shields where required
- When brazing in the vicinity of valves likely to be affected by heat, they shall be lagged with a wet cloth
- All brazing operations must be completed with a small steady stream of nitrogen passing through the pipe-work to limit scale build up and moisture contamination
- Never use the unit compressor as a vacuum pump

6.1 **PIPING DESIGN**

- Pipe-work shall be installed in a manner which prevents drainage of liquid into the compressor and ensures adequate oil return
- Pipe insulation should be nitrile rubber, 13mm thick for pipes up to and including 20mm diameter and 19mm thick for pipes above 20mm in diameter
- It is generally necessary to insulate the suction pipe only. However, it is recommended the liquid line pipe also be insulated where it is exposed to direct sunlight or if located in hot surroundings such as ceiling void, or buried underground
- Pipes should be run as directly as possible between indoor and outdoor units
- If the indoor coil is located above the condensing unit the suction line shall have a loop at the evaporator outlet to prevent refrigerant drainage into the compressor during off cycle
- If the evaporator is located below the condensing unit, then the suction riser shall be U-Trapped at 3m above ground level
- Avoid burying pipes below ground. If necessary, they shall be insulated and encased in a PVC pipe, sealed at both ends where the pipe exits above ground. The buried distance shall not exceed 5 metres and a liquid line solenoid valve, interlocked with the compressor, shall be located adjacent to the indoor unit
- Care should be taken if running pipe-work within wall cavities as this may lead to transmission of refrigerant noise into the occupied space. The use of mufflers or oil separator can help reduce potential pulsation in the discharge line

6.2 RECOMMENDED INTERCONNECTING PIPE SIZING

Table 3. Recommended Pipe Sizing

	Recom For E	mended F quivalen	Pipe Size t Length	e (mm) i (m)	Maximum Equivalent	Pre Charge Additional for 15m Additional	Indoor	
Model	Liq	Liquid Suction		tion	Pipe	Pipe Length	>15m Pipe	Coil Piston
	1-10	10-30	1-10	10-30	[Minimum Pipe Length is 3m]	(kg)	Length (grams/m)	Orifice Size
DO-SC18Z91	9.52	12.7	22.2	28.6	30	3.60	90	0.084"
DO-SC22Z91	12.7	12.7	28.6	28.6	30	3.71	90	0.074"



Both units' liquid line connection sizes are 12.7mm. For pipe work less than 10m equivalent length, the DO-SC18Z91 system can be run with 9.52mm liquid line.

Therefore, two 12.7 to 9.52mm copper bushes are included (one with the indoor DI-XU18Z and one with the DO-SC18Z91 outdoor unit). For pipe work more than 10m equivalent length, a 12.7mm liquid line is needed.

6.3 MAX VERTICAL PIPE RUN

The height difference between indoor and outdoor units must not exceed 8 meters.

If the indoor unit is located more than 5 metres above the outdoor unit, then a solenoid valve should be installed in the liquid line at the indoor unit, to prevent liquid refrigerant migrating back to the compressor in the off cycle. The solenoid shall be interlocked with the compressor.

6.4 CORRECTION FACTORS: VAPOUR LINE SIZING VS. COOLING CAPACITY

The total equivalent length of the interconnecting refrigeration lines will affect the cooling capacity of the system. Table 4 shows the percentage change in cooling capacity versus the equivalent pipe lengths for different suction line sizes, using the recommended liquid line sizes.

Model	Size (mm)	Equivalent Pipe Length (m)							
Woder		5	7.5	10	15	20	25	30	
	Suction line	9.52	mm Liquid	Line	12.7mm Liquid Line				
DO-SC18Z91	28.6	1.10%	0.80%	0.50%	0.0%	-0.50%	-0.96%	-1.40%	
	22.2	0.00%	0.90%	-1.70%	-3.4%	-5.10%	-6.80%	-8.60%	
	19.1	-2.50%	-4.60%	-6.50%	-10.80%	-15.10%	-19.40%	-23.90%	
	Suction line			12.7	mm Liquid	Line			
DO-SC22Z91	28.6	0.00%	-0.43%	-0.83%	-1.63%	-2.43%	-3.23%	-4.03%	
	22.2	-1.83%	-3.23%	-4.63%	-7.23%	-10.03%	-12.83%	-15.63%	

Table 4. Cooling Capacity Correction Factors

6.5 **PIPE-WORK CONNECTION**

- Locate the suction & liquid pipe service valves in the compressor compartment by removing the service access panel
- Check that the service valves are tightly closed (Service Ball valves have been provided for suction and liquid lines)
- Wrap each valve in turn with a wet cloth prior to sweating off its associated blanking plate
- Braze the interconnecting liquid and suction pipes from the indoor unit
- Pressurise the indoor unit & pipe-work again with dry nitrogen and check for any brazed joint leaks. Repair as necessary but ensure the system is not under pressure prior to brazing
- With the indoor unit pressure again released, evacuate to a vacuum pressure of 100 microns minimum
- Disconnect the vacuum pump whilst retaining the system vacuum
- Open the liquid line valve fully first, and then the suction line valve

6.6 CHARGING THE SYSTEM

Once all electrical connections are correctly made, the unit is ready to be commissioned. Start the system in cool mode and allow it to stabilise before checking liquid line sub-cooling and compressor suction superheat. Refer to Start Up and Commissioning procedures (Section 7).

- The system is pre-charged with R410a refrigerant for 15m actual pipe length
- For pipe lengths greater than 15m, additional charge (90g per metre for φ9.5mm liquid line) is required. This is done by starting the unit and using it to draw refrigerant (liquid only) through the compressor suction pipe Schrader valve, located in the compressor compartment. Refer to Section 6.2.
- For pipe lengths shorter than 5m it will be necessary to remove some refrigerant (45g per metre for φ9.5mm liquid line). This can be done through the liquid pipe valve located in the outdoor unit compressor compartment. Any excess refrigerant shall be reclaimed, by suitably qualified personnel.

The correct measurement and assessment of superheat and sub-cooling values should be the only measures used to confirm correct system charge.

- Superheat should be between 4 and 9K
- Sub-cooling should be between 2 and 8K
- Discharge gas temperature should not exceed 102°C in any circumstances
- Do not overcharge.

6.7 OIL CHECKING AND TOP UP

- The compressor is charged with Polyolester Oil POE-RL32-3MAF lubricant
- For pipe work up to 15m equivalent length and in installations with good oil return, no additional oil is required
- If pipe lines exceed 15m, then additional oil is needed. Add 15ml/kg of total refrigerant charge (in weight) to top up the oil.
- Top up while the compressor is idle. Use suitable oil pump via the access port on the compressor suction line

7. START-UP AND COMMISSIONING

- Ensure that a Return Air Filter is fitted prior to fan start up
- Measure and record the system details as noted under PRELIMINARY SYSTEM INFORMATION and check all items as noted under PRE START-UP on the Commissioning Sheet provided
- Switch the unit on in cooling mode with the thermostat set to minimum temperature set point
- Measure and record all items as noted under OPERATION CHARACTERISTICS on the Commissioning Sheet provided
- Check suction and liquid pressures
- Care must be taken to charge the system correctly. Undercharge will result in lack of capacity and the unit may lock out on its LP (Low Pressure) safety switch. Overcharge will result in high head pressures whilst unit is operating
- Measure the compressor suction pressure and convert to a compressor saturated suction temperature (CSST) using R410a refrigerant pressure/temperature table. Refer to Table 5.
- Measure the suction line temperature (SLT) approximately 100mm before the compressor
- Calculate the superheat (SH) = SLT CSST
- Measure the compressor discharge pressure and convert to a condensing temperature (CT) using R410a refrigerant pressure / temperature table. Refer to Table 5.
- Measure the liquid line temperature (LLT) between the outdoor coil and indoor unit throttling device in cooling mode
- Calculate the sub-cooling (SC) = CT LLT
- Measure the outdoor ambient air temperature
- Measure the indoor return and supply air dry bulb temperatures, both before and after the indoor coil
- · Measure the indoor air quantity ensuring it falls within the indoor coil's limits
- Adjust the fan speed to suit the static pressure and air quantity requirements
- Allow system pressure to stabilise for a minimum of 20 minutes
- Instruct the customer on system capability and correct operation
- Please ask the customer to fill in the CUSTOMER DETAILS section and to register their product warranty

Saturated Temperature °C	Gauge Pressure kPa	Saturated Temperature °C	Gauge Pressure kPa	Saturated Temperature °C	Gauge Pressure kPa
-40	79	-4	602	32	1866
-38	95	-2	648	34	1968
-36	113	0	697	36	2073
-34	132	2	749	38	2183
-32	152	4	803	40	2297
-30	174	6	859	42	2415
-28	196	8	918	44	2537
-26	221	10	980	46	2664
-24	246	12	1045	48	2796
-22	274	14	1113	50	2932
-20	303	16	1183	52	3073
-18	334	18	1257	54	3219
-16	366	20	1334	56	3371
-14	400	22	1414	58	3527
-12	436	24	1497	60	3689
-10	475	26	1584	62	3857
-8	515	28	1674	64	4031
-6	557	30	1768	66	4210

Table 5. R410a Saturated Pressure – Temperature chart

Source: (Courtesy Coolpak refrigeration).

Data points are reproduced based on available information. BRIVIS assumes no responsibility or liability for data errors

FAILURE TO COMPLETE PROPER START UP AND COMMISSIONING MAY VOID BRIVIS PRODUCT WARRANTY

7.1 SEQUENCE OF OPERATION

Check correct sequence of operation, then proceed to instruct customer on correct thermostat operation for refrigerated cooling. Refer to the thermostat operating instructions.

Ventilation

Set the thermostat to the fan only mode. The fan only will start and operate continuously.

Cooling

On a call for cooling the compressor and outdoor fan/s will start and cycle in response to the thermostat to maintain the desired room temperature. The heater's fan will operate continuously or will cycle with compressor depending on the selected fan mode.

Fault Lockout

When the high or low pressure limiting switch trips the compressor and outdoor fan/s are disabled. The compressor and outdoor fan will remain off until the system is reset via thermostat or on/off switch.

7.2 COOLING CAPACITY / AIR FLOW

Table 6. Expanded Ratings (DO-SC22Z91 / DI-XU22) Based on 1100L/s Rated Airflow

		Return Air Temperature							
Air Temperature Entering Outdoor Unit °C		Dry Bulb Wet Bulb °C °C		Dry Bulb Wet Bulb °C °C		Dry Bulb °C	Wet Bulb °C		
		21	15	27	19	32	23		
27	TC kW	20	.7	23	3.9	24	1.9		
21	SC kW	17	.1	19	9.6	24	1.5		
30	TC kW	20	.2	23.2		24	1.3		
30	SC kW	16.8		19.4		24.3			
25	TC kW	19	.2	22.2		23.2			
	SC kW	16	5.3	18.8		23.6			
40	TC kW	18	5.3	21.0		22.0			
40	SC kW	15	5.7	18.2		23.0			
42	TC kW	17	. 1	19	9.8	21	1.2		
43	SC kW	14	.8	17.2		22	2.5		
46	TC kW	15	5.5	17.8		20.4			
40	SC kW	13.2		15.5		22.1			
	TC: Total Cooli	ng Capacity		SC: Sensible Cooling Capacity					

Figure 15. DO-SC22Z91 / DI-XU22Z Capacity / Airflow Chart



Table 7. Coil Static Pressure Drop - DI-XU22Z

Airflow	L/s	900	940	980	1020	1060	1100	1140	1180	1220
Dry Coil	De	81	89	98	106	114	122	130	138	146
Wet Coil	- Pa	102	112	122	132	142	152	162	173	183

Table 8. Expanded Ratings (DO-SC18Z91 / DI-XU18Z) Based on 900 L/s Rated Airflow

		Indoor Unit Temperature							
Air Tempera Outdoo	ture Entering r Unit °C	Dry Bulb Wet Bulb °C °C		Dry Bulb Wet Bulb °C °C		Dry Bulb Wet Bull °C °C			
		21	15	27	19	32	23		
27	TC kW	17	<i>.</i> 0	19	9.6	20).4		
21	SC kW	13	8.6	15	5.6	17	.8		
20	TC kW	16.6		19.2		19.9			
30	SC kW	13.4		15.5		17.7			
25	TC kW	15.9		18.2		19.1			
35	SC kW	12.9		15.0		17.2			
40	TC kW	15	5.0	17	.2	18.1			
40	SC kW	12	2.5	14.6		16.7			
12	TC kW	14	.0	16	5.2	17	[′] .5		
43	SC kW	11	.8	13	3.7	16	6.4		
16	TC kW	12	2.7	14.6		16.7			
40	40 SC kW		10.6		12.3		16.1		
TC: Total Cooling Capacity				SC: Sensible Cooling Capacity					

Figure 16. DO-SC18Z91 / DI-XU18Z Capacity / Airflow Chart



 Table 9.
 Coil Static Pressure Drop - DI-XU18Z

Airflow	L/s	750	780	810	840	870	900	930	960	990
Dry Coil	De	90	98	107	115	123	131	139	148	156
Wet Coil	Ра	112	123	133	144	154	164	175	185	195

8. TECHNICAL SPECIFICATIONS

Table 10. Technical Specification Data

ICE Out	tdoor Unit	UNIT	DO-SC18Z91	DO-SC22Z91
	Nominal Capacity	kW	18	22
	Rated Capacity (AS 3823.3 - 2012)	kW	18.2	22.2
	Rated Input	W	5200	5840
	AEER		3.50	3.80
Power Supply		V-ph-Hz	415 -3 -50	415 -3 -50
Ingress Protection		IPxx	IP24	IP24
Full Load Current		A	20.9	20.9
Rated Load Current		A	14.1	14.9
Recommended HRC Fuse Size		A	25	25
Compressor		Туре	Scroll	Scroll
Compressor Rated Current and Loo	cked Rotor Amps	A	12.2 / 87	13 / 100
Outdoor Fan Motor		No. / RPM	2 / 785	2 / 850
Outdoor Fan Motor - Full Load Amp	os/Locked Rotor Amps/Power/Phases	A/A/W/ø	0.95 / 1.3 / 115 / 1	0.95 / 1.3 / 115 / 1
Outdoor Air Flow		L/s	1750	1750
Sound Pressure Level		dB(A) @ 1m	56	56
Sound Power Level		dB(A)	70	70
	Dimensions (L x W x H)	mm	1258 × 450 × 1390	1258 × 450 × 1390
Dimensions / Weight	Packing (L x W x H)	mm	1430 × 550 × 1570	1430 × 550 × 1570
	Net Weight	kg	141	144
	Туре		R410A	R410A
	Gas Connection Size	mm	22.2	28.6
	Liquid Connection Size	mm	12.7	12.7
	Recommended Interconnecting Pipe	1 - 10m	22.2	28.6
	Sizes - Gas	10 - 30m	28.6	28.6
Refrigerant Piping	Recommended Interconnecting Pipe	1 - 10m	9.52	12.7
	Sizes - Liquid	10 - 30m	12.7	12.7
	Charged Volume	kg	3.60	3.71
	Precharged Length	m	15	15
	Max. Pipe Length	m	30	30
	Max. Height Diff	m	8	8
H.P. Cut In / Cut Out		(kPa)	3170 / 4420	3170 / 4420
L.P. Cut In / Cut Out		(kPa)	152 / 49	152 / 49
Ambient Temperature Limits		0C	Cooling -5 ~ 46	Cooling -5 ~ 46
ICE Inc	door Unit		DI-XU18Z	DI-XU22Z
Description			A-Frame Coil	A-Frame Coil
	Rated		900	1100
Airflow	Minimum	L/s	750	900
	@ Rated Airflow (Drv / Wet)	Pa	138 / 173	101 / 127
Coil Static Pressure Drop	@ Minimum Airflow (Drv / Wet)	Pa	91 / 114	82 / 103
	Dimension (L x W x H)	mm	680 × 627 × 542	777 x 748 × 549
Dimensions / Weight	Packing (L x W x H)	mm	910 x 790 × 677	910 x 790 × 684
_	Net Weight	kg	36	41
Duct Connection (Outlet)		mm	Ф450	Φ500
Duct Connection (Inlet)		mm	Ф400	Ф450
Condensate Drain Connection		mm	20	20
Refrigerant Pine Connections	Gas	mm	22.2	28.6
	Liquid	mm	12.7	12.7
Operating Temperature Limits		٥C	17 ~ 32	17 ~ 32
All specifications are subject to cha	nge without notification. Contact Brivis i	marketing depar	tment with any queries.	

9. COMMISSIONING

9.1 COMMISSIONING CHECK LIST

Installer to please complete all sections of this form.

SYSTEM INFORMATION

ICE MODEL (Outdoor Unit)	SERIAL No. (Outdoor Unit)	
ICE MODEL (Indoor Unit)	SERIAL No. (Indoor Unit)	
HEATER MODEL	HEATER SERIAL No.	
INSTALLED BY/ DATE		

PRE START-UP

(Please tick boxes below as each item is completed).

VERIFY THAT ALL PACKAGING MATERIALS HAVE BEEN REMOVED FROM UNIT.
REMOVE ALL SHIPPING HOLDDOWN BOLTS AND BRACKETS, AS PER INSTALLATION INSTRUCTIONS.
CHECK THAT CONDENSATE CONNECTION IS INSTALLED, AS PER INSTALLATION INSTRUCTIONS.
CHECK ALL ELECTRICAL CONNECTIONS AND TERMINALS FOR TIGHTNESS.
CHECK THAT INDOOR RETURN AIR FILTER IS CLEAN AND IN PLACE.
VERIFY THAT UNIT INSTALLATION IS LEVEL.
CHECK FANS FOR ALIGNMENT AND NOISE.

OPERATION CHARACTERISTICS

(Please record the following data after at least 20 minutes running time).

Suction Pressure	kPa
Suction Line Temperature	oC
Discharge Pressure	kPa
Liquid Line Temperature	oC
Superheat	к
Sub-cooling	к
Compressor Amps (L1)	A
Compressor Amps (L2 for 3 phase)	A
Compressor Amps (L3 for 3 phase)	A
Indoor coil Air On (Return) Temperature	oC DB
Indoor coil Air Off (Supply) Temperature	oC DB
Outdoor air Temperature (Ambient)	oC DB
Length of liquid line	m
Length of suction line	m
Liquid line Diameter	mm
Suction line Diameter	mm
Extra refrigerant quantity charged (if any)	kg
Supply voltage	v
Actual voltage	v

NOTES

Rinnai Australia Pty Ltd

ABN 74 005 138 769 | AU45204

100 Atlantic Drive, Keysborough, Victoria 3173 P.O. Box 460, Braeside, Victoria 3195 Tel: (03) 9271 6625 Fax: (03) 9271 6622

National Help Line

Tel: 1300 555 545* Fax: 1300 555 655 Monday to Friday, 8.00 am to 5.00 pm EST.

*Cost of a local call higher from mobile or public phones.

For further information visit www.rinnai.com.au or email enquiry@rinnai.com.au

Rinnai New Zealand Ltd

105 Pavilion Drive, Mangere, Auckland PO Box 53177, Auckland Airport, Auckland 2150 Tel: (09) 257-3800 Toll Free: 0800 764-624

For further information visit: www.rinnai.co.nz youtube.com/rinnainz facebook.com/rinnainz or email info@rinnai.co.nz

Rinnai has a Service and Spare Parts network with personnel who are fully trained and equipped to give the best service on your Rinnai appliance. If your appliance requires service, please call our National Help Line. Rinnai recommends that this appliance be serviced every 2 years.

With our policy of continuous improvement, we reserve the right to change, or discontinue at any time, specifications or designs without notice.

Serial No.