

INSTALLATION, START-UP & MAINTENANCE INSTRUCTIONS

18 & 21 KW DRC R410a (THREE PHASES)

GENERAL

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

Note 1: This instruction applies to *R410a* charged units *ONLY*.

Note 2: This appliance is not to be used by children or persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge.

Note 3: **Children being supervised not to play with this appliance.**

SAFETY CONSIDERATIONS

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 access the unit while 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.
- Ensure there is no pressure present while working on the refrigeration circuit.
- Use R410a rated equipment and suitable size gauges. Please note that the R410a working pressure is much higher than R22.

PRE-INSTALLATION

Remove packaging from unit and any protective foam packing from coils and pipes. Check items received against packing list. Examine unit for damage, which may have occurred in transit. Indoor units are shipped with a holding charge of dry nitrogen. Check to confirm the holding charge. The outdoor units come pre-charged with R410a. Notify the manufacturer's sales representative of any damage.

For lifting details and unit weight, refer to the General Arrangement drawing.

INSTALLATION

Location

The equipment must be installed in accordance with relevant authority requirements. The units should not be accessible to general public.

Position the outdoor unit on a solid, level mounting pad ensuring adequate service and coil access as outlined on the

General Arrangement drawing (attached). Level and fasten the units, making sure that access panels close easily and are able to be removed.

Condensate Drain

An adequate condensate drain line trap must be provided, to prevent air movement through the drainpipe. The trap height is to be a minimum of 45mm.

A non-flexible drainpipe should be installed for condensate run-off. The pipe is to have a continuous downward grade away from the unit, not less than 1:50.

There is a depression in the plastic base of the fan coil unit, provided to assist with levelling the unit. Pour a small amount of water into the depression and use as a spirit level. There are two drain connections on the cabinet side and both drain connections are 20mm PVC.

Adjust the level of the fan coil unit to ensure that the condensate drains from the evaporator drip tray and the safety condensate tray. Ensure the system is fitted with a safety condensate tray to prevent potential damage to ceiling.

Outdoor units, operating on reverse cycle, will release water from the outdoor coil during defrost. Where appropriate, water should be drained to waste.

REFRIGERANT PIPING

Design

Where required, a suction accumulator has been fitted in the outdoor unit. Pipe-work must be installed in a manner, which prevents drainage of liquid into the compressor and ensures adequate oil return. Pipes should be run as directly as possible between indoor and outdoor units.

If the evaporator is located above the condensing unit (which is often the case) the suction line must have a loop at the evaporator outlet to prevent refrigerant drainage into the compressor during off cycle.

If the evaporator located below the condensing unit then the suction riser must be U-trapped.

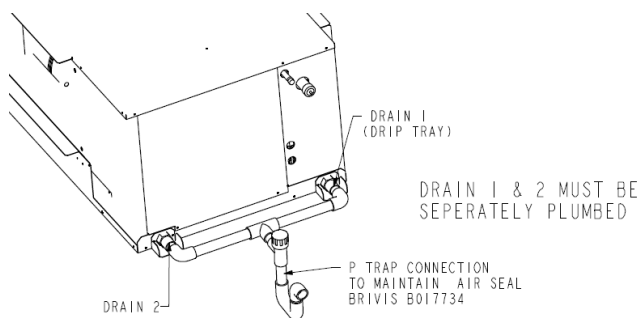
Horizontal Pipes

Where possible avoid burying pipes below ground. If pipes must be located below the ground, they should be insulated and encased in a PVC pipe, sealed at both ends where the pipe exits above ground.

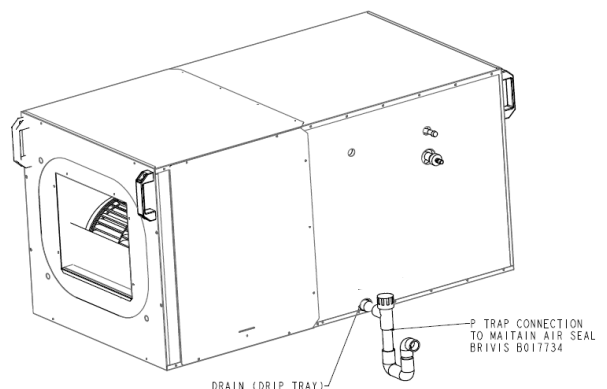
Vertical Pipes

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

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



PREFERED DRAIN ARRANGEMENT



PREFERED DRAIN ARRANGEMENT DI-XR18Z7-SE

PIPING & CHARGING –Pre-charged units R410a

Warning: Both indoor and outdoor units come delivered under positive pressure. The outdoor unit is charged with sufficient refrigerant R410a to satisfy an interconnecting pipe run of 10m equivalent length. Expansion devices have been selected to ensure correct operation with unit installed pipe runs between 7.5 & 10m. However, the correct measurement and assessment of superheat and sub-cooling values should be the only measures used to confirm correct system charge. The indoor unit is pressurised with dry nitrogen during the manufacturing process. Connecting pipe blanking plates must not be removed until the installer is sure that the holding charge has been release from the system.

Read *all* piping notes below before starting installation.

WARNING:

All brazing operations must be completed with a small steady stream of nitrogen passing through the pipe-work to be welded.

VERY IMPORTANT:

Never use the compressor as a vacuum pump. Do not overcharge with refrigerant.

Piping Good Practices

The following good piping practices should be adhered to during 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.
- Purge pipes with dry nitrogen during brazing operations, to limit scale build up and moisture contamination.
- 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 should be lagged with a wet cloth.
- It is generally necessary to insulate the suction pipe only. However, it will be necessary to insulate the liquid line pipe as well, where it is exposed to direct sunlight or if located in hot surroundings such as ceiling void, or buried underground.
- Insulation should be nitrile rubber, 13mm thick for pipes up to and including 20mm diameter and 19mm thick for pipes above 20mm in diameter.

Charge Adjustment

The outdoor unit is pre-charged with R410a refrigerant sufficient for a 10m interconnecting pipe length. For pipe lengths shorter than 10m it will be necessary to remove some refrigerant. This can be done through the liquid pipe valve located in the outdoor unit compressor compartment. Any excess refrigerant must be reclaimed, by suitably qualified personnel.

For pipe lengths greater than 10m it will be necessary to add refrigerant to the system as per item 9 in the Outdoor Unit section. If further charge is required to be added, this can be done by CAREFULLY drawing gaseous refrigerant only through the compressor suction pipe valve. This is explained further in the Start-up & Commissioning section.

Refer to the Piping data & Recommendations table for an estimate of the amount of refrigerant to be added, but be sure to check the system superheat and sub-cooling as detailed in the section on Start up & Commissioning.

- Superheat to be between 4 and 9K.
- Sub-cooling to be between 2 and 8K
- Discharge gas temperature should not exceed 130°C in any circumstances

Oil checking and top-up*

- 1- The compressor is charged with PVE (polyvinyl-ether) lubricant.
- 2- For pipe work up to 15 m equivalent length and in installations with good oil return, no additional oil is required.
- 3- If pipe lines exceed 15 m, then additional oil may be needed. Add 1 – 2 % of total refrigerant charge (in weight) to top up the oil.
- 4- Top up while the compressor is idle. Use suitable pump and the access port on the compressor suction line.

Indoor Unit

1. Indoor unit coils are delivered with a nitrogen holding charge. The holding charge pressure can range from 400kPag to 700kPag. Connect a suitable pressure gauge to the indoor coil valve to make sure the internal pressure is greater than 400kPag.
2. If the measured pressure is less than 400kPag, check and if necessary repair any leaks found before proceeding.
3. Remove the nitrogen holding charge by connecting a charging line with valve depressor.
4. Sweat off the liquid & suction pipe blanking plates & proceed to pipe up in line with the good piping practices.

PIPING DATA & RECOMMENDATIONS

MODEL	RECOMMENDED PIPE SIZE IN mm FOR EQUIVALENT LENGTH (m)			MAXIMUM EQUIVALENT PIPE LENGTH (m)	BASE CHARGE FOR 10m PIPE LENGTH (kg)	CHARGE ADJUSTMENT QUANTITY PER METRE ABOVE 10m	FOR STANDARD APPLICATIONS, EACH UNIT IS SUPPLIED WITH THE FOLLOWING CHATLEFF PISTON	
	HORIZONTAL						INDOOR	OUTDOOR
	LIQUID	SUCTION						
	1-30m	1-10m	10-30m					
21	12.7	28.6	28.6	30	5.5	90 grams	0.082"	0.116"
18	12.7	22.2	28.6	30	5.4	90 grams	0.074"	0.106"

Percentage of cooling capacity losses versus equivalent pipe lengths (Approximate only)

DO-SR21Z9 & DI-LR21Z7-E

Pipe Line Diameter mm			Equivalent Connecting Line Length (m)					
LIQUID 1-30m	SUCTION 1-10m	SUCTION 10-30m	7.5 (Rated)	10	15	20	25	30
12.7	28.6	28.6	0%	0.45%	1.45%	2.47%	3.52%	4.47%

DO-SR18Z9 & DI-XR18Z7-SE

Pipe Line Diameter mm			Equivalent Connecting Line Length (m)					
LIQUID 1-30m	SUCTION 1-10m	SUCTION 10-30m	7.5 (Rated)	10	15	20	25	30
12.7	22.2	28.6	0%	0.35%	1.15%	1.85%	2.7%	3.5%

* Danfoss, scroll compressor selection and application guidelines

Outdoor Unit

1. Locate the suction & liquid pipe service valves in the compressor compartment by removing the service access panel.
2. Check that the service valves are tightly wound all the way in (fully front seated).
3. Remove the dust caps from the connections of the liquid line service valves. Not all service valves will need, or have a valve fitted but for those that do, it will be necessary to depress the spindle to release any excess gas held in the pipe stubs exiting the unit. This must be done before attempting to remove the blanking (capping) plates from the liquid line & suction line pipe stubs.
4. Wrap each valve with a wet cloth prior to sweating off its associated blanking plate.
5. Braze in the interconnecting liquid and suction pipes from the indoor unit.
6. Connect service gauges to the liquid line service valve & suction line service valve. Ensure charging lines have depressors where valves are used. Pressurise indoor unit & pipe-work with dry nitrogen & leak check.
7. With the indoor unit pressure again released, evacuate to a vacuum pressure of 100 microns minimum.
8. Disconnect the vacuum pump whilst retaining the system vacuum.
9. If the interconnecting pipe run is more than 10 linear metres, determine extra line length & add extra charge using Piping Data & Recommendations table. Charge can be added via the liquid line service valve. See also Charge Adjustment section.
10. Open the liquid line valve fully and then the suction line valve (fully back seated).
11. Proceed to complete the electrical installation (refer to ELECTRICAL section).
12. With all electrical correctly installed, the unit is now ready to be commissioned. Refer to Start-up & Commissioning section.

ELECTRICAL

All electrical work must be carried out by a qualified and licensed electrician. The installation must comply with current relevant standards, wiring rules and local authority requirements. Means for disconnection (i.e. isolating switch and circuit breaker) must be incorporated according to wiring rules. Wire 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 Specification sheet 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 through a circuit breaker and a mains lockable isolating switch. Refer to specification sheet for circuit breaker sizing.
- Do not drill into the cabinet as critical internal components may be damaged during this process.
- Single-phase wiring shall be installed from the outdoor unit to the indoor unit.
- 24 volt control wiring shall be installed from the outdoor unit (NR-1 Controller) to the thermostat or two wire connection cable (two wire bus) to the NC-4 Networker (if used).
- The thermostat is not supplied with the unit. The electrical drawing shows wiring of the recommended NC-4 Networker.
- Minimum control circuit wire size for Thermostat or NC-4 Networker: 0.75mm² up to 100m length.
- Avoid running the control/communication cable near sources of electromagnetic interference such as electrical motors, transformers, high current cables etc.
- Apply power to the crankcase heater for minimum 24 hours before compressor start.
- Ensure that power supply phase rotation is correct.

START UP & COMMISSIONING

1. Install air filters prior to indoor fan start-up (filters are not supplied with the unit as standard).
2. Select fan only operation at the thermostat and balance the airflow through the total system.
3. The system by now has been charged and is ready for commissioning.
4. Remove the service gauges from the service valves, and replace the service valve dust caps.
5. Reconnect the service gauges to the independent valves in the compressor discharge and suction line.
6. Start the system in cool mode with the thermostat set to minimum temperature set-point.
7. At first start, monitor the refrigeration gauges, which should still be connected to the suction & liquid service ports. It is imperative to ensure the compressor is running in the correct direction of rotation. If incorrect, the compressor attempts to develop its pressure in the wrong direction, down the suction side of the system, and is also unacceptably noisy in operation. It must be corrected prior to proceeding, as compressor permanent damage is inevitable if left incorrect.
8. Allow the system to stabilise over the next 15 minutes before attempting system adjustments.
9. When stable, record the suction and discharge line pressures. At the same time, using a suitable touch probe or equivalent, record the Suction Line Temperature (SLT), and Liquid Line Temperature (LLT), at suitable locations, within the outdoor unit.
10. Referring to the R410a pressure-temperature chart, convert the high pressure reading to a Saturated Temperature (ST) and the low pressure reading to a Compressor Saturated Suction Temperature (CSST).
11. Calculate the system Super-heat (SH) = SLT – CSST
Calculate the system liquid line Sub-cooling (SC) = ST (liquid) – LLT.
If a liquid line sight glass is fitted check this as well making sure it is clear and not 'flashing'.
12. It is now necessary to 'fine tune' the system charge based on the following:
SH higher than 9K – add charge as gas *slowly* through the suction service valve.
SH lower than 4K – remove charge as liquid through the liquid line service valve.
Allow the system to stabilise again before rechecking SH.
Once the correct SH has been achieved, check that the SC also falls within 2 to 8K, and if a sight glass is fitted, that it remains clear.
13. Measure outdoor ambient temperature and indoor return air and supply air temperatures. If possible measure wet bulb and dry bulb temperatures.
14. It may be necessary to re-adjust indoor fan airflow again once the indoor coil starts removing moisture.
15. Complete the process by recording the required missing data in the Start-up Checklist & Commissioning Data Sheet attached (eg: motor current draw and voltage).
16. Switch the system to heat mode and make sure the unit operates in a stable manner. Once again record pressures, temperatures etc for the commissioning sheet.
17. The unit is now ready for continuous operation within acceptable operating limits.
18. The 21KW R410a indoor unit is supplied with a 3 speed (High/Mid/Low) EC fan/motor. The factory fan speed setting is High speed (PCB 9).

SEQUENCE OF OPERATION

Check correct sequence of operation.

Ventilation

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

Cooling

The compressor and outdoor fan/s will start and cycle in response to the thermostat to maintain desired room conditions.

The indoor fan will operate continuously, or it will cycle with the compressor depending on the mode selected.

Short cycle protection, built into the NR-1 board, prevents the compressor from restarting for at least 5 minutes after it has been switched off. The NR-1 board also provides 5 second time delay between starting the compressor and the outdoor & indoor fans.

A 2-minute time delay for the compressor is provided at initial start of the system.

Heating

The reversing valve, compressor and outdoor fans are energised. When the compressor is started in heat mode, the Low Pressure (LP) switch is monitored for the first 20 seconds of operation and then bypassed for 3 min. After this, the LP switch is monitored for the remainder of the compressor cycle. The sequence of operation is as described for cooling.

Defrost

Defrost control in heat mode is initiated when the temperature of the outdoor coil sensor falls below -7°C provided the accumulated compressor run time exceeds 30 minutes. The LP switch is bypassed during defrost and 8 minutes beyond termination of defrost.

The defrost cycle is terminated when the coil temperature sensor exceeds 10°C or when the defrost time exceeds 10 minutes. The typical defrost period is two to four minutes depending on the indoor and outdoor conditions.

When defrost is initiated, the reversing valve is de-energised and the outdoor fan motors are turned off. There is a 15 second delay in turning off the indoor fan at the initiation of defrost. There is also a 15 second delay in turning the indoor fan back on, after the termination of defrost.

Provision has been made to set the indoor fan to run continuously through defrost (NR-1 board).

Fault Handling

The controller detects and responds to a number of fault conditions depending on the application. The errors are displayed on both the NR-1 and the NC-4 (if used). Refer to the NR-1 instructions included for error codes and resetting methods.

Outdoor Fans

The outdoor fan(s) have two speeds of operation which are dependent on the following:

- The mode of operation (heat or cool).
- The outside ambient temperature.

In heat mode, if the outside ambient temperature is less than 8°C the outdoor fan will operate at high speed. If the temp is greater than 10°C , the fan will operate at low speed.

In cool mode, if the outside ambient temperature is greater than 34°C the outdoor fan will operate at high speed. If the temp is less than 32°C , the fan will operate at low speed.

In both heat and cool modes there is a 5 minute delay provided between cycling of speeds.

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. The units should be inspected at least once each year by a qualified service person.

The minimum maintenance requirements for this equipment are as follows:

Monthly

- Inspect 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 indoor fan motor and wheel for cleanliness and alignment. Clean, lubricate and align the motor assembly where applicable.
- Inspect outdoor coil. Clean when necessary.
- 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 sub-cooling. Where necessary, adjust charge to achieve optimum performance.
- Check the tightness of electrical connections.

R410a Pressure-Temperature chart

Saturated Temperature °C	Gauge Pressure KPag	Saturated Temperature °C	Gauge Pressure KPag
-40	79	16	1183
-38	95	18	1257
-36	113	20	1334
-34	132	22	1414
-32	152	24	1497
-30	174	26	1584
-28	196	28	1674
-26	221	30	1768
-24	246	32	1866
-22	274	34	1968
-20	303	36	2073
-18	334	38	2183
-16	366	40	2297
-14	400	42	2415
-12	436	44	2537
-10	475	46	2664
-8	515	48	2796
-6	557	50	2932
-4	602	52	3073
-2	648	54	3219
0	697	56	3371
2	749	58	3527
4	803	60	3689
6	859	62	3857
8	918	64	4031
10	980	66	4210
12	1045	68	4396
14	1113	70	4482

THE NR-1 SINGLE STAGE CONTROL

Introduction

The NR-1 is an intelligent electronic control for single stage, reverse cycle air-conditioning systems. It has the following features:

- Support for multiple NC-4 thermostats
- Support for standard 24VAC thermostats
- Two speed control for outdoor fan for reduced noise during low load conditions
- Ambient and defrost (outdoor coil) temperature sensors
- HP / LP fault detection with automatic retry
- Dual 7-segment display for the status and fault indication
- 3 push buttons for configuring the control
- 24Vac input for disabling the system from an external source such as a time clock or building management system.
- Voltage free fault output (contact) to notify external systems of a problem.
- 24Vac momentary input for external after-hours run-on. (Only available when used in conjunction with NC-4)
- Up to eight fault conditions can be stored in memory for later retrieval by qualified service personal
- The following additional OPTIONS are available:
 - Detection of up to four additional fault conditions which include indoor fan overload, outdoor fan overload, compressor overload and phase failure.

Connecting the NC-4 Thermostat (Networker) to the NR-1 Controller

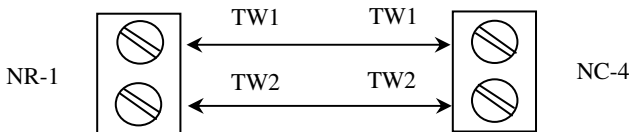
An NC-4 Thermostat may be used in conjunction with the NR-1 to provide a number of additional features which include:

- Multiple NC-4 Thermostats on one system
- Display of NR-1 fault conditions via the NC-4 display
- Easy configuration of the NR-1 via the NC-4
- After-hours run-on timer for commercial applications

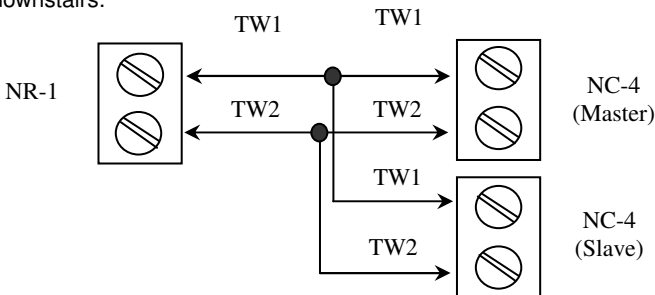
The connection between the NR-1 and NC-4 is known as a Two Wire Bus (TWB). The TWB only requires 2-core unshielded cable (0.5mm² up to 100m) to communicate and provide power to the NC-4.

WARNING: Under no circumstances should any device, other than the NC-4 be connected to the TWB.

Below is an example of how a single NC-4 connects to the NR-1

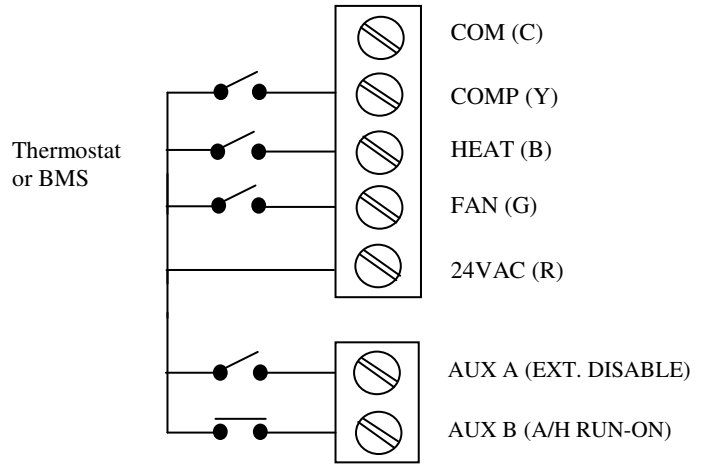


It is possible to add a second NC-4, enabling control of the system from two locations. A typical application would be a two-story building with one NC-4 upstairs and the other downstairs.



External 24VAC Thermostat

Any standard thermostat or building management system can control the NR-1. This is accomplished by connecting the 24VAC (R) stat terminal to the appropriate input. See below.

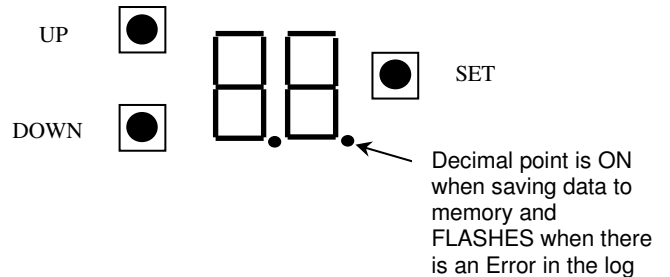


User Interface

The NR-1 user interface consists of 3 push buttons and a dual 7-segment display, which provides the following capabilities:

- Display the normal operating state
- Display of fault conditions if they exists
- Provide diagnostic information
- Enable the user to configure the control by setting various parameters
- Enable 'Speed-Up' and override 'Start Delay' mode for service personal
- Reset the control

There are three user push buttons, UP, DOWN and SET, to navigate the system.



When power is first applied or a reset has been performed, the NR-1 will perform its normal boot-up sequence. This includes initialising hardware and software, checking the integrity of the non-volatile memory and allowing the system to stabilise before performing any functions.

Note. Pressing UP+DOWN+SET will reset the NR-1

Power-Up

The following sequence is displayed during boot-up

8.8.	Power up
nr-1	Name of the control
rX	Revision of the firmware. The revision number replaces X.

Note. After the above sequence is complete, the system start delay will be shown. See below.

Start delay

When the NR-1 is first powered and it completes the start-up sequence, it is subject to a start delay. The default power up delay is 2 minutes. However, the remaining time is displayed after the 'start-up' sequence has completed. If the time is greater than 99 seconds, the display will only show the remaining minutes. Once the time is 99 seconds and below, the display will show seconds.

This time may be changed from 0 to 255 seconds. See the 'Installer Configuration'.

This may be **overridden** by pressing the UP button during the start delay.

Speed Up

To assist installation and service, the NR-1 can be put into Speed Up mode. This is enabled by holding the DOWN button during the start-up sequence. (It doesn't take effect on 5 minutes time delay to change the Indoor Fan speed)

Note. If the NR-1 is left in Speed Up mode for longer than 30 minutes, the control will perform a self-reset so it returns to normal.

Normal

When no menus are being accessed, the display remains in 'Normal' mode. In this mode the following can be displayed depending on the status of the system.

oFF	System is OFF
FAn	Indoor fan is operating
rE / rd	'rE' indicates the R-valve is energised and 'rd' means system is still in heat mode, but valve has been de-energised because the compressor has been off for more than 120 minutes.
Cool	The system is cooling
HEAt	The system is heating
LP-bi	The LP bypass is active
AuH	Auxiliary heat is operating
Hi	The outdoor fan is operating at high speed
Lo	The outdoor fan is operating at low speed
FiLt	A filter change is required
SPEEd	The system is in speed-up
Er --	'Er' followed by a number, indicates the current error
DELAy	The 5 minute compressor cycle delay is running
E-oFF	There is an external system OFF (AUX A input)
dEF	The system is in defrost
noFan	No call for indoor FAN(G) input was detected 10 seconds after the COMP(Y) call OR the FAN(G) was cleared before COMP(Y).

Installer Configuration

Note. The default settings on the NR-1 will be suitable for most installations. However, the following allows the NR-1 to be customised to suit a particular installation.

The NR-1 can be configured directly via the NR-1 user interface or the NC-4. See the NC-4 installer manual for more detail. Parameter #1 will be scrolled across the screen.

Entering Installer Parameters

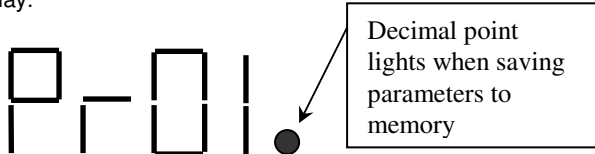
To access the installer parameters, press the SET button while the NR-1 is in the normal display mode.

Exiting Installer Parameters

To exit the installer parameters, hold the SET button until '- -' is displayed. The display will then return to normal.

Setting Installer Parameters

When you enter the parameter setting mode and no buttons are being pressed, the first parameter will scroll across the display.



Using the UP and DOWN buttons will select the parameter you wish to modify.

Holding down the SET button will display the parameter's current value. To adjust the value, while holding SET down, use either UP or DOWN buttons.

Note. If you hold the SET button down longer than 5 seconds without touching any other buttons, the system will exit the parameter mode and return to the 'Normal' display mode.

Note. When changes have been made to any parameters, they are written to non-volatile memory approximately 5 seconds after the last change.

Restoring Default Installer Parameters

To restore the default installer parameters, simply press the UP and DOWN buttons together while in the installer parameter menu.

WARNING: After making a parameter change, you must wait 10 seconds before removing the power to ensure the changes are stored. This is not applicable to a manual reset.

The following is a list of installer parameters available.

Two Wire Bus Address						
Type	ID	Default	Min.	Max.	Scaling	Units
Installer	1	1	1	15	1	Address

The above parameter is the address of the NR-1 on the Two Wire Bus Network and is how the NC-4 identifies the NR-1. It MUST be left set to 1.

The above parameter is the operating mode for the NR-1. It determines if the system is reverse-cycle, cool only or heat only.

Operating Mode						
Type	ID	Default	Min.	Max.	Scaling	Units
Installer	2	1	1	3	1	Reverse Cycle (1) Cool Only (2) Heat Only (3)

The above parameter determines the operating delay before the system commences operating after power up. This is to reduce the initial in-rush on a circuit where there are multiple systems.

System Start Delay						
Type	ID	Default	Min.	Max.	Scaling	Units
Installer	3	120	1	255	1	Seconds

When used in conjunction with the NC-4, the NR-1 provides an input for a momentary push button which forces the NC-4 to enter the 'WAKE' period for the above length of time. This is

After-hours Run-On Time						
Type	ID	Default	Min.	Max.	Scaling	Units
Installer	4	60	1	255	1	Minutes

ideal for an office situation when staff are working after-hours.

Continuous Fan During Defrost						
Type	ID	Default	Min.	Max.	Scaling	Units
Installer	5	0	0	1	1	OFF (0) ON (1)

The above parameter enables the indoor fan to operate during a defrost cycle when it is operating in 'Continuous' or 'Automatic' fan mode. This is generally enabled for commercial situations where the indoor fan must always operate.

This parameter is not used (for future development only)						
Type	ID	Default	Min.	Max.	Scaling	Units
Installer	6	0	0	1	1	

Dirty Indoor Fan Filter						
Type	ID	Default	Min.	Max.	Scaling	Units
Installer	7	0	0	1	1	OFF 0 ON 1

The above parameter enables the Indoor fan filter timer, which indicates when the filter is due for a change after a specified period.

Dirty Indoor Fan Filter Time						
Type	ID	Default	Min.	Max.	Scaling	Units
Installer	8	30	0	255	1	Days

The above parameter specifies the time the indoor fan must operate before the dirty indoor filter is triggered. This timer only operates while the indoor fan is running.

This parameter is not used (for future development only)						
Type	ID	Default	Min.	Max.	Scaling	Units
Installer	9	0	0	1	1	ON / OFF

This parameter is not used (for future development only)						
Type	ID	Default	Min.	Max.	Scaling	Units
Installer	10	0	0	1	1	ON / OFF

Dirty filter

This feature provides a timer for the filter, which runs while the indoor fan is operating. When the timer expires, the following occurs:

- FiLt is displayed on the NR-1
- The common fault terminal is activated
- FILTER icon blinks on the NC-4 (This must be enabled by parameter 18 on the NC-4)

To reset the filter timer, the following can be done:

- Manually reset the NR-1 by pressing UP+DOWN+SET
- Press RESET (softkey#5) on the NC-4 when it appears.

Note. This feature is disabled by default. Refer to section on Installer configuration.

The NR-1 can detect and respond to a number of fault conditions. These errors are displayed on both the NR-1 and NC-4 display and are stored in the NR-1 internal memory for later retrieval by qualified service personnel.

Below is a list of possible error codes.

Error Code	Description	Type
31	Ambient sensor short circuit	Limp
32	Ambient sensor open circuit	Limp
33	Defrost sensor short circuit	Limp
34	Defrost sensor open circuit	Limp
35	NR-1 Internal Error	Limp
41	LP trip	Retry
42	HP trip	Retry
43	LP bypass failure	Retry
51	LP lockout	Lockout
52	HP lockout	Lockout
53	LP bypass lockout	Lockout
54	Compressor fault or Softstarter temperature sensor trip	Lockout
55	Outdoor fan fault	Lockout
56	Indoor fan fault	Lockout
57	Low 24VAC	S/R Lockout
58	No 24VAC	S/R Lockout
59	Phase fault	S/R Lockout

S/R, Self Resetting.

Limp

The fault is isolated and the system continues to operate, but at diminished capacity. If the fault is removed, the control automatically clears the fault

Retry

The fault will cause the condenser unit (not the indoor fan or auxiliary heat) to temporarily lock out for 10 minutes. It will then attempt to restart the system if the fault has cleared. The control will perform up to 2 retries and if a 3rd 'Retry' type fault occurs within 1 hour of the last, the system will enter 'Full Lockout'. If no fault occurs within the 1 hour, the retry count is reset to zero.

If a 'Retry' type fault is still present after 10 minutes when the system attempts to restart, a full lockout will occur when the system attempts to restart

Self resetting lockout

This type of fault will cause the total system (including indoor fan and auxiliary heat) to lockout until the fault clears. When the fault clears, the control performs a full reset.

Full lockout

Depending on the fault type, either the condenser unit or the total system will be locked out. Once the lockout is initiated, it requires someone to intervene and reset the control.

Resetting Faults

HP, LP, compressor and outdoor fan lockouts can be reset by the following:

- Pressing the reset button (softkey#5) on the NC-4 while the fault is being displayed
- Cycling the COMP(Y) terminal OFF-ON.
- Resetting the control by pressing UP+DOWN+SET or cycling the power

Indoor fan lockout can be reset by the following:

- Pressing the reset button (softkey#5) on the NC-4 while the fault is being displayed
- Cycling the FAN(G) terminal OFF-ON.
- Resetting the control by pressing UP+DOWN+SET or cycling the power

Note. ALL the above methods will result in the NR-1 performing a complete reset.

Common Fault Output

An output is provided to indicate the following:

- Limp errors
- Lockout errors
- Dirty Filter

This output is a voltage free, relay contact that is closed during a fault condition.

The fault output will be activated 5 seconds after the fault has been registered by the control.

WARNING: The output is only rated for 24 Volt

Specification

SPLIT UNITS- INDOOR & OUTDOOR UNITS



INDOOR MODEL	DI-LR21Z7-E
INDOOR MOTOR	
KW (OUTPUT)	0.75
F.L.A / L.R.A/ No. PHASES	9.1/The electronic control senses "no rotation" condition and shuts down/1
INDOOR FAN	
TYPE	CENTRIFUGAL
R.P.M ADJUSTABLE	3 SPEED/ ECM
INDOOR COIL	
FACE AREA m2	0.540
NOMINAL AIR FLOW L/s	1150
REFRIGERATION	
REFRIGERANT	R410a
No. OF CIRCUITS	1
ALL UNITS HAVE	ELIMINATOR REFRIGERANT CONTROLS
ELECTRICAL	
VOLTAGE/PHASE/FREQ	240/1/50
F.L.A	9.1
GENERAL	
CABINET	GALVANIZED SHEET STEEL 0.7 mm
INSULATION	FOIL FACED SEMI RIGID ACOUSTIC INSULATION 24 Kg/m3 THERMAL CONDUCTIVITY 0.028 W/Mk, 0 BURN RATE SELF EXTINGUISHING
PAINT	N/A
WEIGHT Kg	66

OUTDOOR MODELS	DO-SR21Z9
COMPRESSOR	
TYPE	SCROLL
RATED A./L.R.A/No. PHASES	13/100/3
No. OFF	1
ALL UNITS HAVE	INTERNAL OVERLOADS
OUTDOOR MOTOR	
KW (OUTPUT)	237 W
F.L.A / L.R.A/ No. PHASES	1.55 / 4.74 / 1
OUTDOOR FAN	
TYPE	SICKLE BLADE
R.P.M ADJUSTABLE	944/855
OUTDOOR COIL	
FACE AREA m2	1.705
NOMINAL AIR FLOW L/s	2800 L/s
REFRIGERATION	
REFRIGERANT	R410a
No. OF CIRCUITS	1
H.P CUT IN / CUT OUT KPa	3170 / 4420
L.P CUT IN / CUT OUT KPa	152 / 49
ALL UNITS HAVE	ELIMINATOR REFRIGERANT CONTROLS
ELECTRICAL	
VOLTAGE/PHASE/FREQ	415 / 3 / 50
UNIT RATED LOAD AMPS	19.7
F.L.A	31.2
CIRCUIT BREAKER AMPS	32

NOTES: UNIT RATED LOAD = AMPS PER PHASE TO AS 1861.2 TABLE 3.2
F.L.A PER PHASE = COMPRESSOR O/L AMPS SETTING PLUS F.L.A FOR OTHER MOTORS (INCL INDOOR FAN MOTOR)

GENERAL	
CABINET	GALVANIZED SHEET STEEL 0.7 mm
PAINT	POLYESTER POWDERCOAT – COLOUR DUNE
WEIGHT Kg	170
OPERATING AMBIENT TEMPERATURE DB	-5°C TO 46°C

Specification

SPLIT UNITS- INDOOR & OUTDOOR UNITS



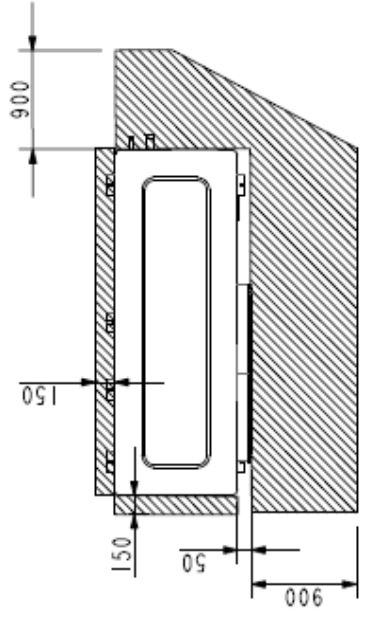
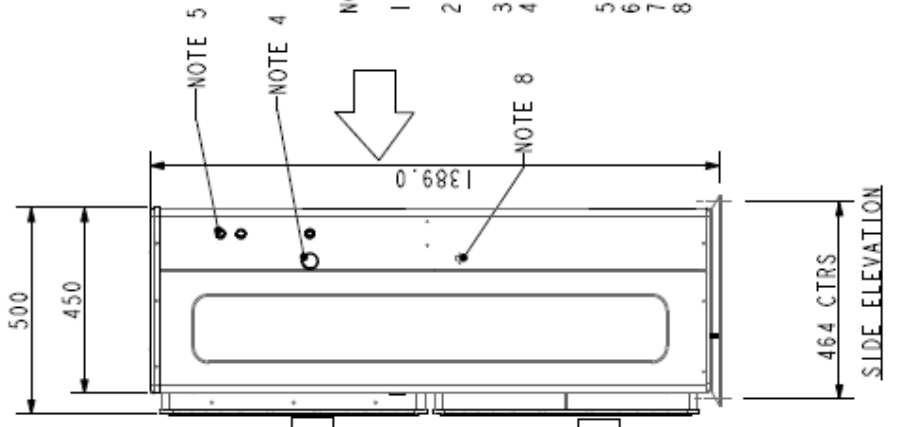
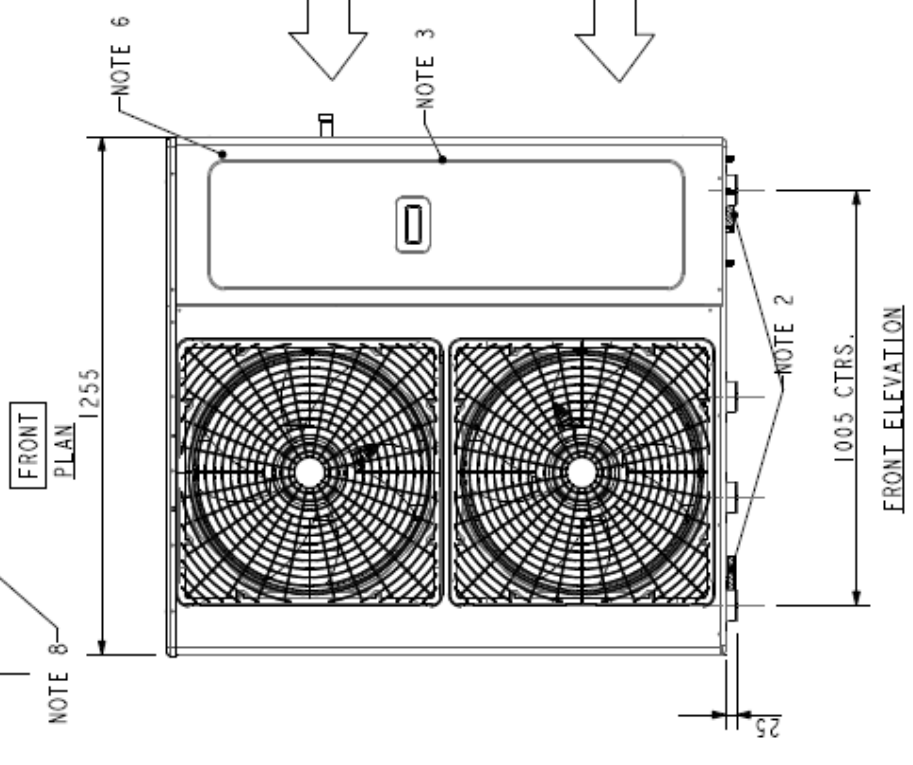
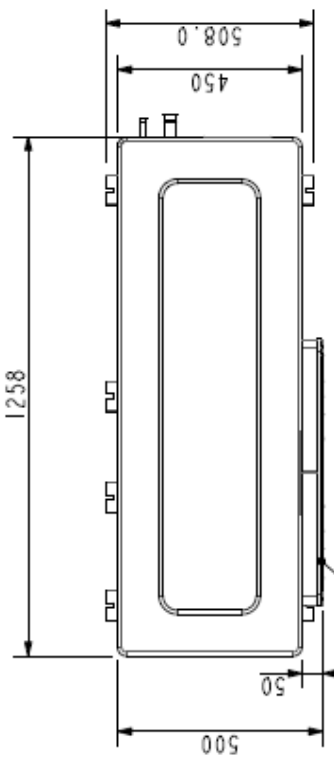
INDOOR MODEL	DI-XR18Z7-SE
INDOOR MOTOR	
KW (OUTPUT)	0.6
F.L.A / L.R.A/ No. PHASES	6.8/The electronic control senses "no rotation" condition and shuts down/1
INDOOR FAN	
TYPE	CENTRIFUGAL
R.P.M ADJUSTABLE	3 SPEED/ ECM
INDOOR COIL	
FACE AREA m2	0.537
NOMINAL AIR FLOW L/s	927
REFRIGERATION	
REFRIGERANT	R410a
No. OF CIRCUITS	1
ALL UNITS HAVE	ELIMINATOR REFRIGERANT CONTROLS
ELECTRICAL	
VOLTAGE/PHASE/FREQ	240/1/50
F.L.A	6.8
GENERAL	
CABINET	GALVANIZED SHEET STEEL 0.7 mm
INSULATION	FOIL FACED SEMI RIGID ACOUSTIC INSULATION 24 Kg/m3 THERMAL CONDUCTIVITY 0.028 W/Mk, 0 BURN RATE SELF EXTINGUISHING
PAINT	N/A
WEIGHT Kg	63

OUTDOOR MODELS	DO-SR18Z9
COMPRESSOR	
TYPE	SCROLL
RATED A./L.R.A/No. PHASES	12.2/87/3
No. OFF	1
ALL UNITS HAVE	INTERNAL OVERLOADS
OUTDOOR MOTOR	
KW (OUTPUT)	237 W
F.L.A / L.R.A/ No. PHASES	1.55 / 4.74 / 1
OUTDOOR FAN	
TYPE	SICKLE BLADE
R.P.M ADJUSTABLE	944/855
OUTDOOR COIL	
FACE AREA m2	1.705
NOMINAL AIR FLOW L/s	2800 L/s
REFRIGERATION	
REFRIGERANT	R410a
No. OF CIRCUITS	1
H.P CUT IN / CUT OUT KPa	3170 / 4420
L.P CUT IN / CUT OUT KPa	152 / 49
ALL UNITS HAVE	ELIMINATOR REFRIGERANT CONTROLS
ELECTRICAL	
VOLTAGE/PHASE/FREQ	415 / 3 / 50
UNIT RATED LOAD AMPS	19.7
F.L.A	28.9
CIRCUIT BREAKER AMPS	32

NOTES: UNIT RATED LOAD = AMPS PER PHASE TO AS 1861.2 TABLE 3.2
F.L.A PER PHASE = COMPRESSOR O/L AMPS SETTING PLUS F.L.A FOR OTHER MOTORS (INCL INDOOR FAN MOTOR)

GENERAL	
CABINET	GALVANIZED SHEET STEEL 0.7 mm
PAINT	POLYESTER POWDERCOAT – COLOUR DUNE
WEIGHT Kg	170
OPERATING AMBIENT TEMPERATURE DB	-5°C TO 46°C

GENERAL ARRANGEMENT
DO-SR21Z9
DO-SR18Z9



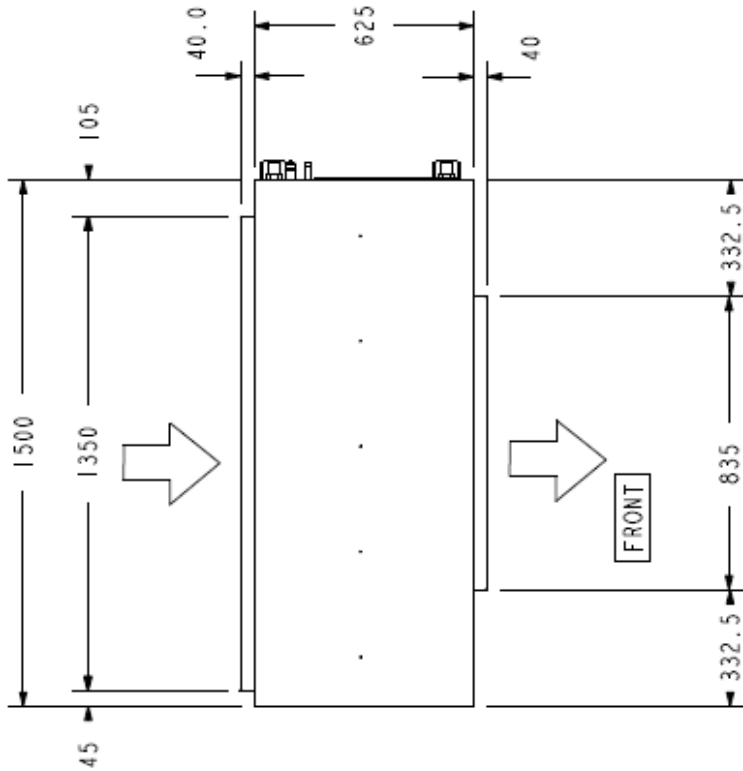
FRONT
RECOMMENDED CLEARANCE
CLEARANCE DETAIL

NOTE:

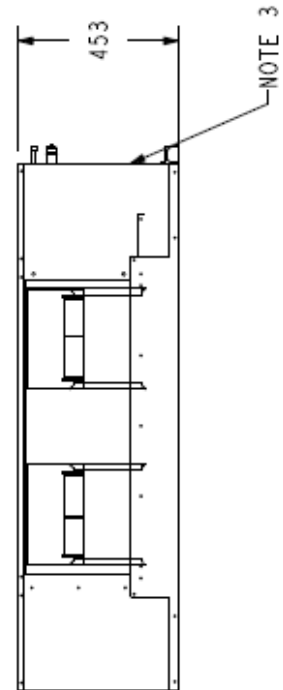
1. UNIT ILLUSTRATED IS A HORIZONTAL SINGLE STAGE OUTDOOR UNIT
2. RECOMMENDED LIFTING POINT, USE SOFT SLINGS UNDER UNIT, IN AREA INDICATED
3. ACCESS PANEL
4. REFRIGERANT PIPE
21 kw : (L100)12.7, SUCT. Ø28.6)
18 kw : (L100)12.7, SUCT. Ø22.2)
5. ELECTRICAL ENTRIES
6. ELECTRICAL SWITCHBOARD
7. UNIT WEIGHT: 170 kg
- 8- KLIXON MODULATES CRANKCASE HEATER

61 Malvern Road
Bunawake, Victoria 3195
Tel (003) 9264 9335
A Division of
GWA International Limited

brivis
Climate Systems

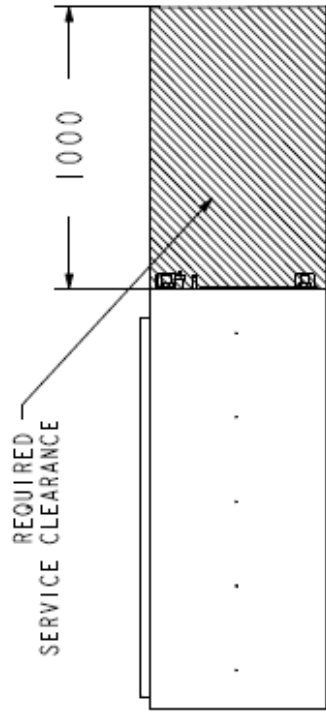


PLAN

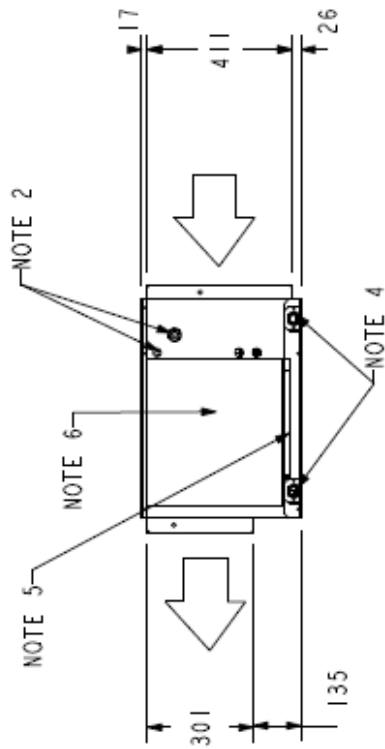


FRONT ELEVATION

- NOTE:
1. UNIT ILLUSTRATED IS A HORIZONTAL SINGLE STAGE INDOOR UNIT
 2. REFRIGERANT PIPE CONNECTION (LI \varnothing 12.7, SUCT. \varnothing 28.6)
 3. ELECTRICAL ENTRIES (\varnothing 20, .. \varnothing 25)
 4. CONDENSATE DRAIN (3/4" BSP)
 5. SAFETY DRAIN TRAY SPIGOT (PVC)
 6. ACCESS PANEL
 7. UNIT WEIGHT: 66 kg



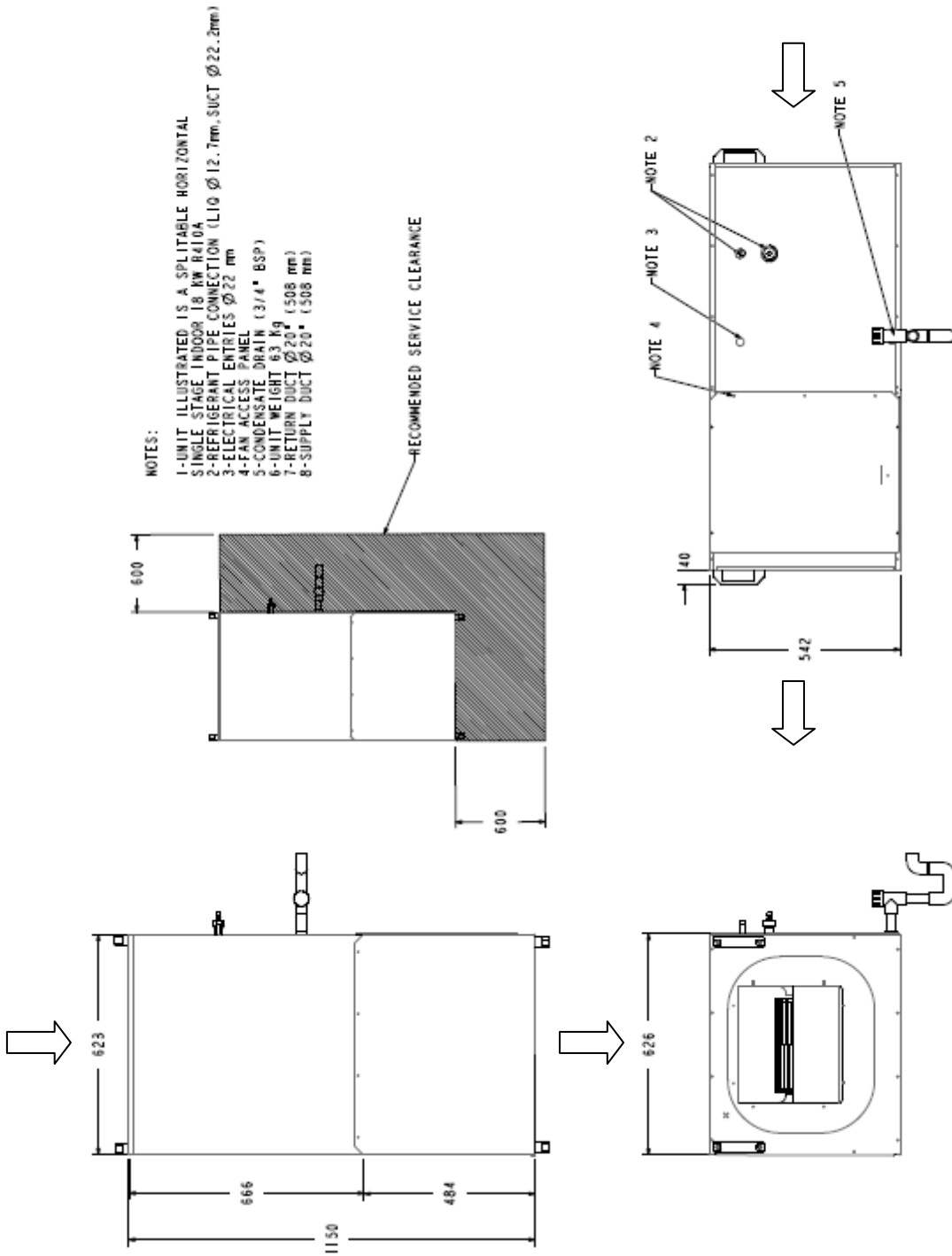
CLEARANCE DETAIL



SIDE ELEVATION

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Climate Systems

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Russett, Victoria 3195
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GWA International Limited

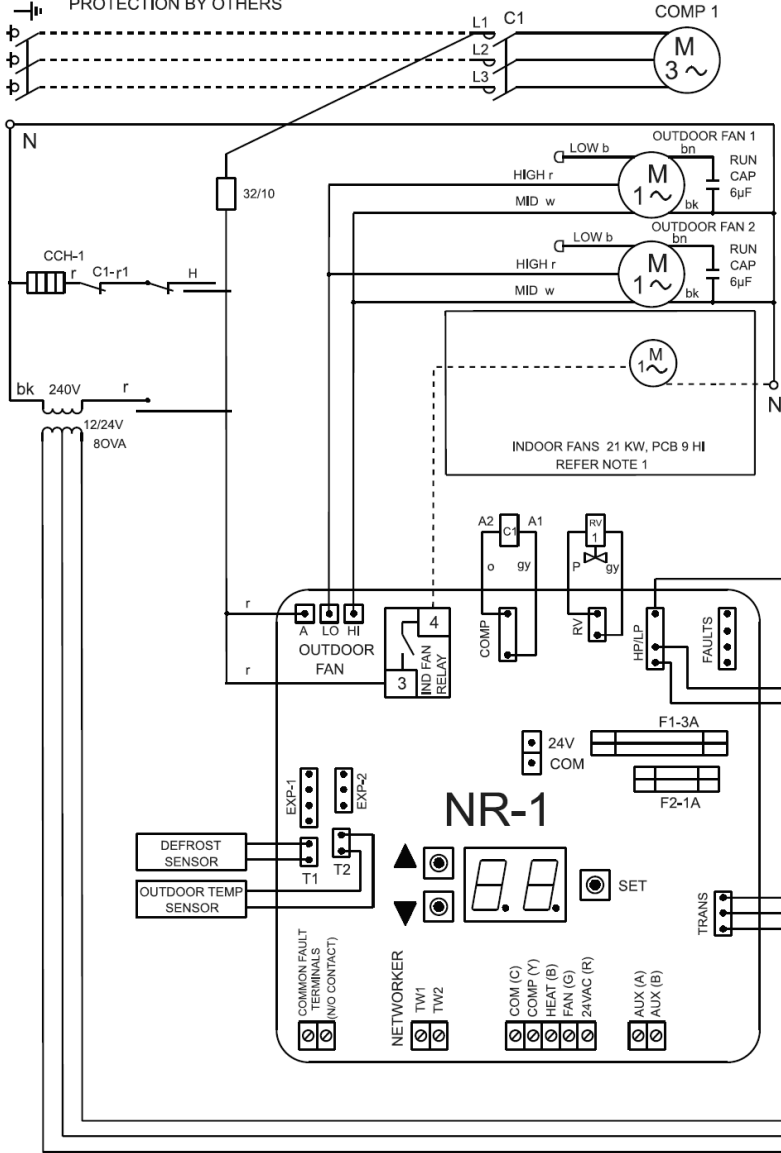


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 Braeside, Victoria 3195
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 Climate Systems

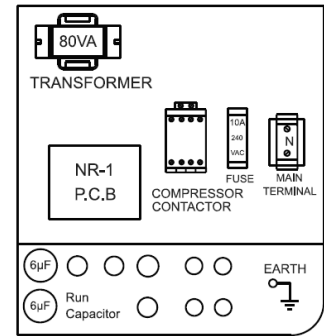
NOTE: MAINS ISOLATOR AND SHORT CIRCUIT PROTECTION BY OTHERS

IMPORTANT NOTE:
THE SCROLL COMPRESSOR IS ROTATIONALLY SENSITIVE. IF NOISY OR NOT PUMPING, CHANGE ANY OF TWO PHASES.



LEGEND		COLOUR CODE
COMP	COMPRESSOR	r RED
IF	INDOOR FAN	w WHITE
OF	OUTDOOR FAN	b BLUE
O/L.	THERMAL OVERLOAD	bk BLACK
CCH.	CRANK CASE HEATER	bn BROWN
RV1.	REVERSING VALVE	o ORANGE
HP.	HIGH PRESSURE SWITCH	P PINK
LP.	LOW PRESSURE SWITCH	pl PURPLE
- - -	FIELD WIRING	gy GREY
○	SWITCHBOARD TERMINAL	gn GREEN
		yel YELLOW
		v VIOLET

SWITCHBOARD LAYOUT OF OUTDOOR UNIT



TYPE	PARAMETERS SETTING	ID	SETTING	UPON COMPLETION OF SETTING THE PARAMETERS, SYSTEM (SAFETY SWITCHES, OVERLOADS, LOCKOUT) MUST BE TESTED TO ENSURE CORRECT OPERATION.
SERVICE	PHASE FAULT	11	0	
	INDOOR FAN FAULT	12	0	
	OUTDOOR FAN FAULT	13	0	
	COMPRESSOR FAULT	14	0	

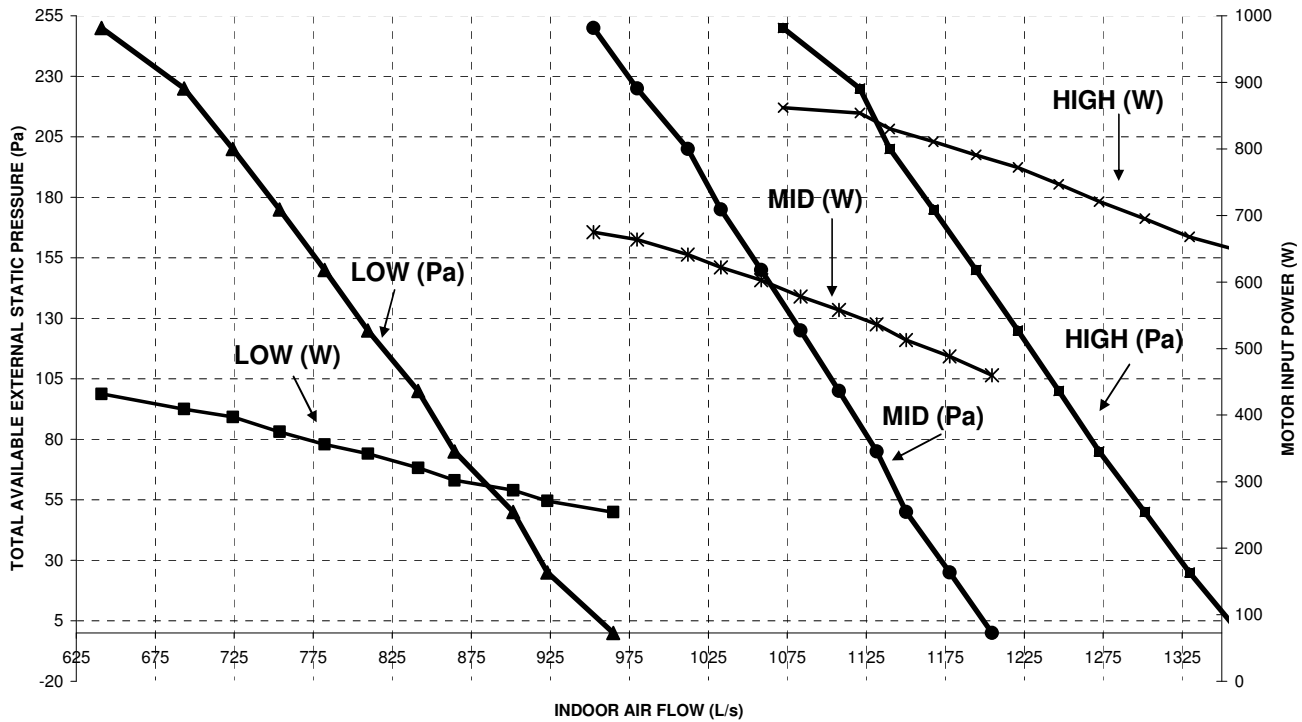
WARNING: COMPONENTS ARE AUTO-RESET AND MAY START WITHOUT WARNING. ISOLATE EQUIPMENT PRIOR TO COMMENCING WORKS.			
MODEL	DO-SR15Z9	DO-SR18Z9	DO-SR21Z9

NOTES:

1. ALL FIELD WIRING IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR AND MUST COMPLY WITH AS/NZS 3000 AND LOCAL RULES.

Part No:22919 edit 210212

DI-LR21Z7-E INDOOR FAN PERFORMANCE



Air Flow Data at dry condition (25°C DB & 19 WB), High Speed
 (Please consider 5% reduction in air flow for wet coil and humid condition)
 (Maximum allowable duct static pressure for wet coil and humid condition is 175 Pa)

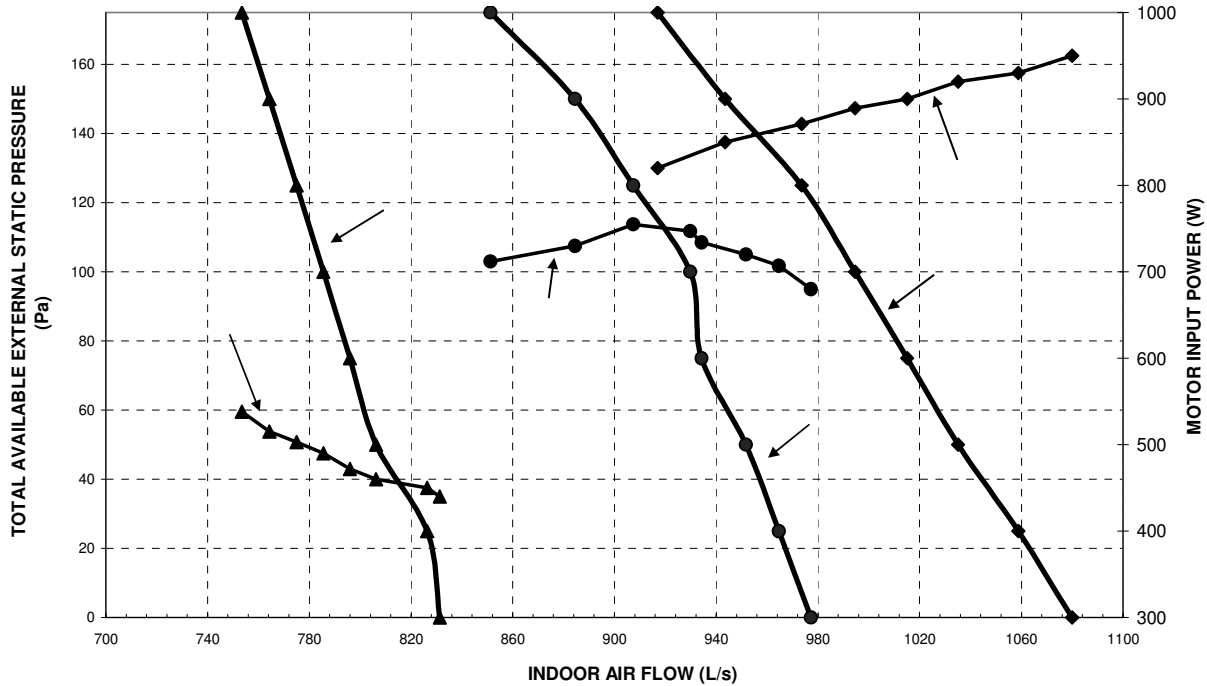
Total Cooling capacity (KW), Based on 1150 L/s Air flow (Wet Coil) – DO-SR21Z9 / DI-LR21Z7--E

Indoor Unit Temperature		Ambient Temperature Dry Bulb °C											
Dry Bulb °C	Wet Bulb °C	Total KW	Sensible KW	Total KW	Sensible KW	Total KW	Sensible KW	Total KW	Sensible KW	Total KW	Sensible KW	Total KW	Sensible KW
		27.00		30.00		35.00		40.00		43.00		46.00	
21	15	18.98	15.72	18.54	15.57	17.65	14.94	16.77	14.49	15.71	13.60	14.12	12.25
27	19	21.81	18.07	21.31	17.90	20.29	17.38	19.28	16.85	18.06	15.81	16.23	14.25
32	23	22.78	20.31	22.22	20.12	21.28	19.58	20.16	19.03	19.42	18.66	18.67	18.30

Total Heating capacity (KW) – DO-SR21Z9 / DI-LR21Z7—E

Indoor Unit Temperature	Ambient Temperature Dry Bulb °C							
Dry Bulb °C	-5	-3	-1	1	3	5	7	9
15	13.47	14.86	15.71	16.87	17.90	18.89	19.89	20.68
20	13.21	14.57	15.34	16.51	17.48	18.45	19.42	20.20
27	12.68	13.98	14.73	15.85	16.78	17.71	18.64	19.39

DI-XR18Z7-SE INDOOR FAN PERFORMANCE (PCB SETTING 5)



Air Flow Data at dry condition (14°C DB & 10 WB)
 (Please consider 5% reduction in air flow for wet coil and humid condition)
 (Maximum allowable duct static pressure for wet coil and humid condition is 150 Pa)

Total Cooling capacity (KW), Based on 930 L/s Air flow (Wet Coil, PCB 5 MID Speed) – DO-SR18Z9 / DI-XR18Z7-SE

Indoor Unit Temperature		Ambient Temperature Dry Bulb °C											
Dry Bulb °C	Wet Bulb °C	Total KW	Sensible KW	Total KW	Sensible KW	Total KW	Sensible KW	Total KW	Sensible KW	Total KW	Sensible KW	Total KW	Sensible KW
		27.00		30.00		35.00		40.00		43.00		46.00	
21	15	16.72	13.21	16.30	13.23	15.68	12.82	14.74	12.31	13.48	11.54	12.54	10.39
27	19	19.32	15.36	18.96	15.21	18.23	14.91	17.14	14.31	15.86	13.42	14.58	12.23
32	23	20.44	15.78	20.09	15.63	19.22	15.34	18.36	14.90	17.49	14.61	17.32	14.61

Total Heating capacity (KW) – DO-SR18Z9 / DI-XR18Z7-SE

Indoor Unit Temperature	Ambient Temperature Dry Bulb °C							
Dry Bulb °C	-5	-3	-1	1	3	5	7	9
15	11.97	13.01	13.78	14.83	15.72	16.79	17.90	18.48
20	11.70	12.75	13.45	14.50	15.37	16.46	17.47	18.08
27	11.26	12.29	12.99	13.98	14.85	15.80	16.90	17.36

START-UP CHECKLIST & COMMISSIONING DATA

(Remove and hand to AC unit owner).

PRELIMINARY INFORMATION

MODEL No.		SERIAL No.	
DATE		TECHNICIAN	

PRE-START-UP (Insert checkmark in box as each item is completed).

<input type="checkbox"/>	VERIFY THAT ALL PACKING MATERIALS HAVE BEEN REMOVED FROM UNIT.
<input type="checkbox"/>	REMOVE ALL SHIPPING HOLDDOWN BOLTS AND BRACKETS, AS PER INSTALLATION INSTRUCTIONS.
<input type="checkbox"/>	CHECK THAT CONDENSATE CONNECTION IS INSTALLED, AS PER INSTALLATION INSTRUCTIONS.
<input type="checkbox"/>	CHECK ALL ELECTRICAL CONNECTIONS AND TERMINALS FOR TIGHTNESS.
<input type="checkbox"/>	CHECK THAT INDOOR AIR FILTER IS CLEAN AND IN PLACE.
<input type="checkbox"/>	VERIFY THAT UNIT INSTALLATION IS LEVEL.
<input type="checkbox"/>	CHECK FANS FOR ALIGNMENT AND NOISE.

Record the following data after at least 20 minutes running time.

COMPRESSORS	No. 1	No. 2
Suction Pressure	KPa	KPa
Suction Line Temperature	°C	°C
Discharge Pressure	KPa	KPa
Liquid Line Temperature	°C	°C
Superheat	K	K
Subcooling	K	K
Compressor Amps (L1)	A	A
Compressor Amps (L2 for 3 phase)	A	A
Compressor Amps (L3 for 3 phase)	A	A
Indoor fan Amps (L1)	A	
Indoor fan Amps (L2 for 3 phase)	A	
Indoor fan Amps (L3 for 3 phase)	A	
FANS	No. 1	No. 2
Outdoor fan Amps (Fan 1)	A	A
Outdoor fan Amps (Fan 2)	A	A
Outdoor fan Amps (Fan 3)	A	A
Indoor coil Return Temperature	°C DB	°C WB
Indoor coil Supply Temperature	°C DB	°C WB
Outdoor air Temperature	°C DB	°C WB
Length of liquid line	m	m
Length of suction line	m	m
Oil level	l	l
Refrigerant, quantity charged	kg	kg
Supply voltage	V	V
Actual voltage	V	V

NOTES.

Terms of Warranty – Australia and New Zealand

Brivis Climate Systems Pty. Ltd. ABN 64 096 079 088, AU24752 61 Malcolm Rd, Braeside, VIC 3195.



1. Definitions

The terms listed below shall have the following meanings:

1. **“Authorised Service Representative”** means an independent service contractor authorised by Brivis or Brivis service personnel.
2. **“Brivis”** means Brivis Climate Systems Pty Ltd ABN 64 096 079 088 and any related company.
3. **“Certificate(s) of Compliance”** means certificate(s) issued by licensed personnel including plumbers, refrigeration mechanics, electricians or other relevant trades people to certify that any prescribed works comply with applicable regulatory requirements.
4. **“Certificate(s) of Occupancy”** means certificate(s) issued by the local council 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 week days excluding public holidays.
7. **“Operating 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 non-Residential and 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) and any Product which has been installed, for whatever purpose as a retrofit component to an existing system.
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 Australian Standards, and to Brivis specifications.
13. **“Residential & Light Commercial Applications”** means any Product for use in both residential and light commercial applications. For example, homes, offices, hotels, apartments, nursing homes, hospitals, health care premises, shopping centres, and retail stores, where the Product is solely used for purpose of human comfort under standard operating conditions.

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 and factory workmanship for the period set out in the table below:

	PRODUCT GROUP	PARTS	LABOUR
Residential & Light Commercial	Evaporative Coolers & Ducted Gas Heaters (excluding Compact Classic Series)	5 YEARS	5 YEARS
	Ducted Gas Heaters - Compact Classic Series	3 YEARS	3 YEARS
	Refrigerated Airconditioning Products	5 YEARS	5 YEARS
	Ducted Gas Heaters - Heat Exchangers & Burners Evaporative Coolers - Structural components only	10 YEARS	N/A
Other Applications	All Product Groups	1 YEAR	1 YEAR
Aftermarket	Spare Parts	1 YEAR	N/A

2.2 Brivis 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 Representative may void the Warranty.

2.4 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 Brivis (e.g. Operating Instructions) and required by the level of usage and the usage environment, including the use of correct and uncontaminated refrigerants and lubricants.

3. Conditions of Warranty

3.1 The Purchaser may only obtain the benefit of the Warranty if the Purchaser:

- maintains and services the Product in accordance with the instructions set out in the service section of the relevant Operating Instructions, Service or Owner's Manual;
- complies with clause 0 below (titled "Purchaser's Responsibilities");
- notifies Brivis within 30 days of a defect developing, that a claim is being made under this Warranty; and
- provides, in support of the claim made under this Warranty, a Proof of Purchase.

3.2 This document represents the only Warranty given by Brivis and no other person or organisation is authorised by Brivis to offer any alternative.

4. Exclusions

4.1 This Warranty does NOT cover:

- damage, problems or failure resulting from improper operation and/or inadequate maintenance by the Purchaser (refer Purchaser's Responsibilities section below);
- 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 Qualified Installer and present it to the Authorised Service Representative;
- 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, vandalism, earthquake, war, civil insurrection, misuse, abuse, negligence, accident, pests, animals, pets, vermin, insects, spiders or entry of foreign objects or matter into the Product such as dirt, debris, soot or moisture;
- e) damage, problems or failure caused by weather including, but not limited to, hail, salt or other corrosive substances;
- f) Product which has been installed in a portable or mobile building, structure or application including, but not limited to, a caravan or boat;
- g) Product which is being 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;
- i) 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;
- l) Product that is utilised in an environment (indoor and outdoor) outside its specified operating range; and
- m) fair wear and tear to the Product.

5. Limitations

- 5.1 Product fitness for purpose and overall system design, sizing and application are not the responsibility of Brivis. 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 or New Zealand.
- 5.3 Except where inconsistent with the purchaser's statutory rights and the rights given by this Warranty, all of the warranties and all liabilities of Brivis 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 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 100km or more from the nearest Brivis branch or Authorised Service Representative.
- 6.2 Subject to clause 6.3, Brivis will pay freight charges, in-transit insurance expenses and travelling costs for repairs/replacements that are required to be performed less than 100km from the nearest Brivis branch or Authorised Service Representative. In this circumstance:
 - a) Brivis 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 Brivis 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 Brivis 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 Brivis, Brivis will not reimburse the Purchaser for such costs.
- 6.3 The Purchaser must pay all costs and expenses in respect of:
 - a) 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;
 - b) providing a safe working environment for installation, service, maintenance or repair of the product;
 - c) any surcharge applicable in respect of supplying replacement parts outside Normal Business Hours; and
 - d) any other costs and expenses in relation to claiming the Warranty that is not covered by clause 6.2.

Purchaser's Responsibilities

- 6.4 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;
 - d) ensuring that outdoor units have unrestricted airflow and adequate clearances;
 - e) ensuring that additional corrosion protection is applied to the Product if it is installed in a corrosive environment, for example, close to the sea.

7. Statutory Rights

- 7.1 The benefits given by this Warranty are in addition to other rights and remedies of the consumer under a law in relation to the goods or services to which the Warranty relates.
- 7.2 Australian purchasers have their benefit of statutory rights and nothing in these terms of Warranty has the effect of excluding, restricting or modifying those rights. Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.
- 7.3 For New Zealand purchasers nothing in these terms of Warranty is intended to limit the rights you may have under the Consumer Guarantees Act 1993. The Consumer Guarantees Act 1993 does not apply if the Product is acquired for the purpose of a "business" (as defined in the Act).

**For Australian Warranty Claims call 1300 Brivis (1300 274 847)
or send to Brivis Warranty Claims 61 Malcolm Road, Braeside VIC 3195.
For New Zealand Warranty Service call 0800 WARMAIR (0800 9276 247) - Brivis only.
The PURCHASER WILL BE CHARGED for work done or a service call(s) if:-**

the problem is not covered by these Terms of Warranty;
there is nothing wrong with the product (e.g. instructing Purchaser on the operation of the Product and/or controls); or if the Purchaser is unable to provide Proof of Purchase validating that the Product is within the Warranty period. We recommend that you read the operating instructions, and in particular the troubleshooting section of the Operating Instructions, before you make a Warranty service call. Proof of Purchase must be presented.

Effective October 2013

Warranty Certificate

Please complete the following details and return with the original purchase docket
-the form attached on the bottom is to be filled out and returned

Owner's Name:
Address:
Suburb: State: Postcode:
Model No(s): Serial No:
Date of Purchase:/...../..... Invoice No:
Store from which product was purchased:
Installer's Name: Installer's Telephone Number:

National Service & Warranty

For Australia call 1300 BRIVIS (1300 274 847)

For New Zealand call 0800 WARMAIR (0800 9276 247) – BRIVIS only.

Prior to calling for Service or Warranty, please ensure you refer to your Operating Instruction Manual, and in particular the Troubleshooting section.

Note: Installation faults are not covered by Warranty.
www.brivis.com.au



Bonus offer
when you
register your
product online
brivis.com.au

Effective 1st September 2010

Warranty Registration

Or alternatively go to www.brivis.com.au/warranty registration
Please fill out the following details, detach and return to Brivis Warranty PO Box 280 Braeside 3195

Owner's Name:
Address:
Suburb: State: Postcode:
Model No(s): Serial No:
Date of Purchase:/...../..... Invoice No:
Store from which product was purchased:
Installer's Name: Installer's Telephone Number:



For all your Sales and Service enquiries call us on **1300 BRIVIS** (1300 274 847).

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Wellington 5043 New Zealand

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email: sales@warmair.co.nz

Brivis South Africa

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