

Hercules

Package Unit

Installation and Commissioning Guide



HERCULES SERIES

PKV1400T

PKV2000T

IMPORTANT NOTE:

Please read this manual carefully before installing or operating your air conditioning unit.



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01. Introduction

CONGRATULATIONS on your purchase of an ActronAir air conditioning system! This unit has been designed and engineered to provide optimum air conditioning and to achieve maximum energy efficiency.

Your air conditioning system has been manufactured from the highest quality materials. Numerous “in house” and “external” inspection and test procedures were conducted to your air conditioning to ensure satisfactory operation.

Information About This Manual

This manual provides installation/commissioning, maintenance, diagnostic and troubleshooting instructions. Read this manual thoroughly and take into consideration any specific requirements to insure correct installation and safe operation of your air conditioning system.

KEEP THIS DOCUMENT NEAR THE UNIT FOR FUTURE REFERENCE. ENSURE THAT ALL SERVICE PERSONNEL THAT WORK ON THE UNIT CAN REFER TO THIS MANUAL AT ANY TIME.

Installation, commissioning and other technical service procedures discussed in this manual must only be carried out by qualified HVAC technicians.

Product Inspections

Check your air conditioning unit and all items against the invoice upon receiving your shipment. Inspect the unit, components and accessories for any sign of damage. If there is any damage to the unit, contact ActronAir Customer Care Department immediately on: **1300 522 722** to obtain a Goods Return Number.

Check the unit nameplate to verify the model, serial number, electrical rated specifications are correct.

Codes, Regulations And Standards

The installer and/or contractor assumes responsibility to ensure that unit installation complies with the relevant council, state / federal codes, regulations and building code standards. All electrical wiring must be in accordance with current electrical authority regulations and all wiring connections to be as per electrical diagram provided with the unit.

Important Safety Symbols And Labels

Safety Symbols and labels appear at appropriate sections throughout this manual to indicate immediate or potential hazards. Pay full attention and comply to the safety information and instructions. Failure to follow safety instructions increases the risks of personal injury and/or death and product and/or property damage. Damages to the product as a result of such failure may void warranty.

ActronAir has endeavoured to provide sufficient safety warnings and recommendations, however current and prevailing WH&S regulations must be observed and will take precedent whenever performing the installation instructions discussed in this manual.

Safety Symbols And Labels Explanations



Indicates an immediate hazards which will result in major product / property damage, severe personal injury and even death.



Indicates potential hazards which can result in major product / property damage, personal injury and even death.

**CAUTION**

Indicates a potential hazards or unsafe practices which may result in product / property damage and / or personal injury.

Maintenance

Although ActronAir endeavour to deliver an air conditioning system of the highest quality, periodic maintenance is a requirement to ensure that your system performs with trouble-free operations. In the unlikely event of your air conditioning unit failure, contact your installer and/or contractor. Should you need further service and information, contact ActronAir Service department on 1800 119 229.

Waste Electrical and Electronic Disposal

Equipment containing electrical and electronic components must not be disposed with council waste. It must be separated and disposed through designated hazardous waste collection centre. The equipment may contain hazardous substances, the improper or incorrect disposal may have negative effect on human health and on the environment.

Disclaimer

ActronAir is constantly seeking ways to improve the design of its products, therefore specifications are subject to change without prior notice.

The customer, both end user/specifier and installer, assume all liability and risks relating to the configuration of the product in order to reach the expected results in relation to the specific design and system installation. ActronAir, based on specific agreements, may be consulted for the positive commissioning, installation and application of the unit, however in no case does it accept liability for the correct operation of the final equipment.

02. Safety Precautions

- Only licensed HVAC technicians* should install and service this air conditioning equipment. Improper service or alteration by an unqualified technician could result in significant and major damage to the product or property which may render your warranty null and void. Such unqualified service could also lead to severe physical injury or death. Follow all safety instructions in this literature and all warning labels that are attached to the equipment.
- Prevailing WH&S regulations must be observed and will take precedence to the safety instructions contained on this manual. Safe work practices and environment must be the paramount importance in the performance of all the service procedures.
- Ensure that unit installation complies with relevant council regulations and building code standards.
- All electrical wiring must be in accordance with current electrical authority regulations and all wiring connections to be as per electrical diagram provided.
- Secure the fans against accidental contact. Beware of pinch point and sharp edges which can cause cutting injury.
- Always wear appropriate PPE, remove any dangling jewelery and protect long hair by wearing a cap.
- Make sure that safety guards and panel covers are always firmly secured and not damaged before and during operation of unit.
- This appliance is not intended for use by young children or infirm persons unless they have been adequately supervised by a responsible person to ensure that they can use the appliance safely. Young children should be supervised to ensure that they do not play with the appliance.
- Installer must incorporate a means of electrical disconnection (isolator) in the sub mains fixed wiring in accordance with the latest edition of the AS/NZS 3000 (also known as Australian Wiring Rules).
- Secure the power cords and control cables that goes in/out the unit. Use the cable ties provided in the control box.
- This unit is designed for use with R-410A refrigerant only.
 - *Qualifications required will be appropriate Electrical, Refrigeration and Refrigerant Handling License and Training dependent on local State/Territory regulations.

**DANGER****Hazardous Voltage - Risk of Electrocutation.**

TURN-OFF the power from main isolator before proceeding with any service work of the unit. Observe proper LOCK-OUT/TAG-OUT (LOTO) procedures for electrical appliances in order to prevent accidental switching-on of the power supply. Extreme care and caution must be observed should there be a need to work on live circuit.

**WARNING**

EC Motors and compressor variable drives are fitted with high power capacitors and can have dangerous residual voltages at motor terminals after power has been isolated.

Wait at least 5 minutes after power isolation and test for any voltage before beginning service work.

**CAUTION****Beware of Rotating Fans!**

Ensure that indoor and outdoor fans are isolated and have come to a complete stand still before servicing the equipment. Beware of pinch point and sharp edges which can cause cutting injury. Secure the fans against accidental contact.

Always wear appropriate PPE and remove any dangling jewellery and protect long hair by wearing a cap. Ensure that no loose clothing can be caught / entangled in moving parts.

**CAUTION****Potential Confined Space !**

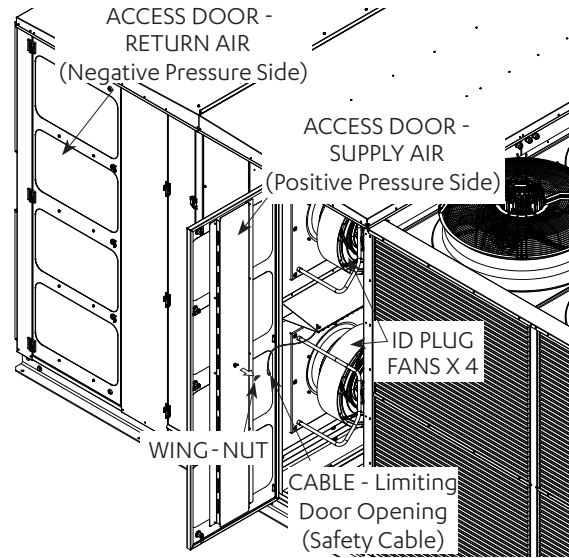
Be aware of potential confined space condition in the internal sections of the unit. WH&S Confined Space regulations and safety procedures should always take precedence when working in these environment.

VISUAL INSPECTION AND WORK ASSESSMENT

Work areas and conditions must first be assessed and evaluated for any potential hazardous conditions. It is also important to be familiar with the unit parts and components before proceeding with any service task.

**CAUTION****Beware of the Pressurised Doors on the SA side!**

Doors can swing open and can cause personal injury. Ensure that the indoor fans have stopped operation and there is no pressure in the evaporator section before opening the doors.



EVAPORATOR SECTION

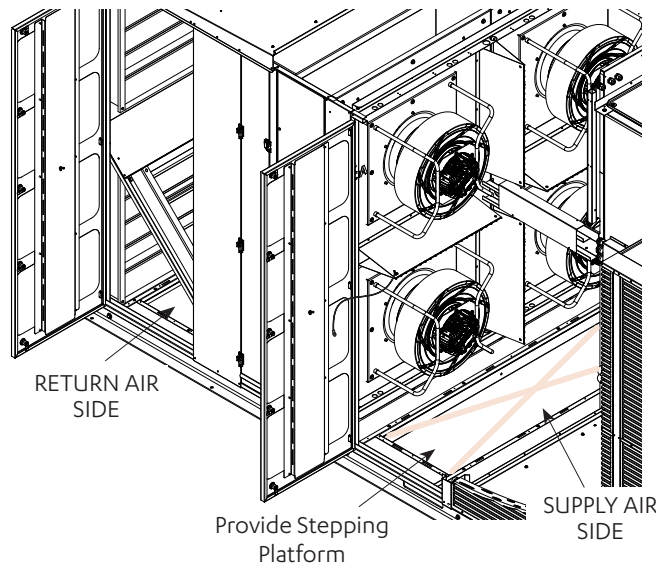
NOTES

As an added safety feature, a door opening limiting cable (safety cable) is provided which is locked to the Supply Air Baffles and bolted with a Wing Nut into the inside of the supply air door. When the operator opens the door, the cable prevents the door from pushing further out. Once the door is ajar, the operator needs to loosen the wing nut, undo the cable and safely open the door fully.

Re-connect the safety cable on the completion of service procedures.

CAUTION

Bases of the Evaporator Section may not support heavy load. Stable and sound platforms must be provided when performing any service work to the evaporator sections.



EVAPORATOR SECTION

03. General Information

The Hercules Series Package air conditioning models are designed for applications where superior performance, high efficiency, reliability, supply air quality and quiet operation are the prime priorities. The system has a dual variable speed driven compressors, EC indoor and outdoor fans and an intelligent electronic control that delivers just the right amount of cooling and heating performance for optimum efficiency. The cabinet is made of heavy gauge steel and finished with baked polyester powder coat that provides protection against extreme weather conditions. Optional supply air and return air configurations are also on offer to satisfy any duct design applications.

Energy Efficient Refrigeration Circuits

The ActronAir Hercules refrigeration system was designed with the application of two separate variable capacity circuits that deliver only the required amount of cooling or heating to maintain your desired space comfort at optimum efficiency.

Each refrigeration circuit consists of:

- High efficiency variable capacity scroll compressor with individual compressor drive
- Hydrophilic Blue Fin Coil Coat Protected condenser designed for optimum performance and efficiency with corrugated fins and ruffled tubing
- Hydrophilic Blue Fin Coil Coat Protected evaporator designed for optimum performance and efficiency with lanced fins and ruffled tubing
- Electronic expansion valve (EEV), to maintain efficiency at different operating conditions

Evaporator Section

The evaporator section has four high efficiency plug fans which deliver, just the right amount of airflow, depending on requirements. The fans provide superior performance for your comfort at optimum efficiency:

- High efficient variable speed EC motor that uses less energy than traditional belt and pulley system
- Backward curve impeller, non-overloading for maximum durability
- Capable of high external static pressure application (up to 500 Pa)
- Easy indoor fan commissioning via control interface

Condenser Section

Uses four (4) efficient Hy-blade axial fans, with the following features:

- High efficient variable speed EC motor that uses less energy than traditional AC motor
- Quieter operation versus traditional axial fans
- Provide higher range of airflow against traditional axial fans

Electrical Section

The electrical section has 3 separate panels for controls, motor switch gear and variable speed drives. All motors have individual motor start circuit breakers and the mains have an in built lockable isolator as standard.

Standard Accessories

Return Air, Outside Air and Spill-Air Dampers with motors are optional accessories for your air conditioning systems. These are factory supplied and fitted for ease of installation. Check with ActronAir for air handing configuration compatibility.

Durable Design and Construction

ActronAir is an Australian manufacturer with proven high quality air conditioning products. Known for their durability and reliable performance, these products are designed and built to withstand the extreme weather conditions.

The heavy galvanized steel cabinet, with powder coated epoxy enamel finish, resists the toughest conditions. The louvered outdoor coil guard protects the condenser coil from any potential damage brought by hail, stones and other solid objects that may be projected to the unit.

The VSD Controlled Compressor Automatic Run Time Management feature distributes the compressor load evenly, ensuring prolonged compressor life.

The hydrophilic blue coils and fins provide protection to your heat exchangers and enhance heat transfer with increased performance efficiency.

System Flexibility

The Hercules air conditioning range is the ideal choice for office facilities, shopping centres, manufacturing and warehousing facilities, schools and other large scale air conditioning applications, both for new construction or retrofitting project.

04. Installation Information

Refrigerant Handling and Accountability

ActronAir strongly urges that all service technicians make every effort to eliminate and/or vigorously reduce the emission of refrigerants to the atmosphere. Everyone must act in a responsible manner to conserve refrigerants.

All service technicians handling refrigerant must be licensed to handle refrigerant gases.

Recover and Recycle Refrigerants

Never release refrigerant to the atmosphere! It is an offence in Australia to do so. Always recover, recycle and reuse refrigerants. When removing from the system, properly contain and identify refrigerants in its dedicated container for proper disposal and/or storage. Always consider the recycle or reclaim requirements of the refrigerant before beginning the recovery procedures. Obtain a chemical analysis of the refrigerant if necessary. For the recovered refrigerant and acceptable refrigerant quality refer to the existing standards and regulations.

Refrigerant Handling and Safety

Consult the refrigerant manufacturer's safety data sheet (SDS) for information on proper handling and to fully understand health, safety, storage and disposal requirements. Use the approved containment vessels and refer to appropriate safety standards. Comply with all applicable transportation standards when shipping refrigerant containers.

Service Equipment and Recovery Procedures

Always use refrigerant reclaiming equipment in order to minimise refrigerant emissions. Use equipment and methods which will pull the lowest possible system vacuum while recovering and condensing refrigerant. Equipment capable of pulling a vacuum of less than 500 microns is required.

Do not open the system to the atmosphere for service work until refrigerant is fully removed and/or recovered. Perform refrigeration system evacuation, prior to charging, in accordance with AIRAH / IRHACE Refrigerant handling code of practice.

Let the unit stand for 1 hour and with the vacuum not rising above 500 microns. A rise above 500 microns indicates a leak from the system and a leak test is required to locate and repair any leak.

 **CAUTION**

A leak test is always required on any repaired section of the refrigeration system.

Charge refrigerant into the system only after the equipment does not leak or contain moisture. Ensure that R-410A is only charged in liquid form. Take into consideration the correct amount of refrigerant charge specified for the system to ensure efficient unit operations. When charging is complete, reclaim refrigerant from charging lines into an approved refrigerant container. Seal all used refrigerant containers with approved closure devices to prevent unused refrigerant from escaping to the atmosphere. Take extra care to maintain all service equipment directly supporting refrigerant service work such as gauges, hoses, vacuum pumps and recycling equipment.

INSTALLATION PREPARATION (Pre-Installation considerations)

The following items must be considered before beginning the unit installation:

- Verify the unit capacities and ratings with the unit nameplate.
- The unit must be installed in accordance with relevant authority regulations.
- Make certain the floor or foundation is level, solid and have sufficient structural strength to support the unit and accessories weight.
- Allow minimum recommended clearances for periodic maintenance and service access.
- Allow sufficient space above the unit for the outdoor air discharge. Condenser air inlet, located on both sides of the unit, requires sufficient airflow clearance for the optimum unit performance.
- Note the conditioned supply air and return air location. Ensure sufficient spaces are allocated for these purposes.
- For the connection and location of condensate drain in the unit, refer to the drawings and dimensions section of this manual.
- Wiring connections must be in accordance with the wiring diagram provided with the unit.
- Make sure all wirings are in accordance with local electricity authority regulations and standards.
- Do not install the unit close to an area where there is a danger of fire due to volatile, explosive, flammable and/or hazardous materials.
- Ensure that spaces around the unit are free from any obstructions for optimum unit performance.
- Ensure WH&S regulations are followed to allow safe access to and from the unit, i.e. anchor, guard rails, etc.
- Installer to ensure correct size/type of main circuit breaker and cable are installed in unit sub-mains to protect the sub-mains and unit wiring.
- Installer to ensure correctly rated residual current device (RCD) is installed as per with the latest edition of the AS/NZS 3000 (also known as Australian Wiring Rules).
- Secure the power cords and control cables that goes in/out the unit. Use the cable ties provided in the control box.

Nomenclatures

UNIT OPTIONS and ACCESSORIES

P K V 2 0 0 0 T - D E L T - V V - E K L W - 0 4

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

V 3 2 1

STANDARD MODEL NOMENCLATURE

AIR HANDLING
OPTIONS

EC FANS

VARIATION TYPE
and NUMBER

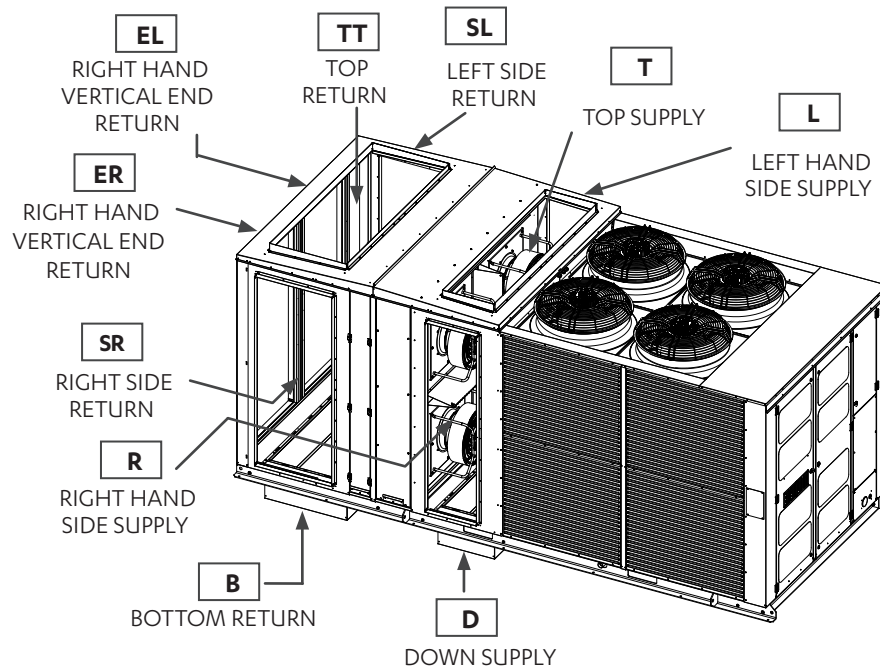
REVISION
NUMBER

- 1** - **2** PRODUCT CODE (DESCRIPTION)
PK = Package Unit
- 3** TYPE
V = Variable Speed / Variable Capacity Technology
- 4** - **7** Nett kW CAPACITY ÷ 10 (Approximate)
1400 = 140kW 2000 = 200kW
- 8** ELECTRICAL
T = 400V (415V) / 3Ph+N / 50Hz
- 9** "-" (Separator)
- 10** SUPPLY AIR DIRECTION - INDOOR SECTION
D = Down
L = Left Side (Viewed from Return Air End)
R = Right Side (Viewed from Return Air End)
T = Top
- 11** RETURN AIR DIRECTION - INDOOR SECTION
B = Bottom
E = End
S = Side
T = Top
- 12** RETURN AIR POSITION - INDOOR SECTION
A = Customer Specific (See "M" or "V" number)
B = Bottom
L = Left Side (Viewed from Return Air End)
R = Right Side (Viewed from Return Air End)
T = Top
- 13** OD FAN AIR HANDLING - OUTDOOR SECTION
T = Top Discharge
- 14** "-" (Separator) or Blank
- 15** FAN STATIC - INDOOR SECTION
V = Electronically Commutated
- 16** FAN STATIC - OUTDOOR SECTION
V = Electronically Commutated
- 17** "-" (Separator) or Blank
- 18** - **21** OPTIONS AND ACCESSORIES (Set in Alphabetical Order)
B = Supply Air Mesh Guard
C = Return Air Mesh Guard
E = Economy Cycle without Spill Air
F = Economy Control Access 3rd Party Components
G = Outside Air - Auto
H = Outside Air - Manual
K = Additional Coil Coat Protection (Outdoor Section)
L = Additional Coil Coat Protection (Indoor Section)
M = Economy Cycle with Spill Air
P = Space for 3rd Party ReHeat Coil
W = ReHeat - For Relative Humidity Control *
X = IP 55 Rated
- OR
- 18** VARIATION TYPE
V = Customer Special Build: BOM Maintained
M = Customer Special Requirements: BOM Not Maintained
X = Reserved for Future Purposes
- 19** - **21** VARIATION NUMBER
- 22** "-" (Separator) or Blank
- 23** - **24** REVISION NUMBER

NOTES

1. PKV2000T model shown as example only.
2. Unit options may not be readily available. Please consult Actron Air Customer Care Department for more information.
4. * **W** = ReHeat - For Relative Humidity Control. Relative Humidity Sensors are not supplied with this option, these need to be purchased separately.

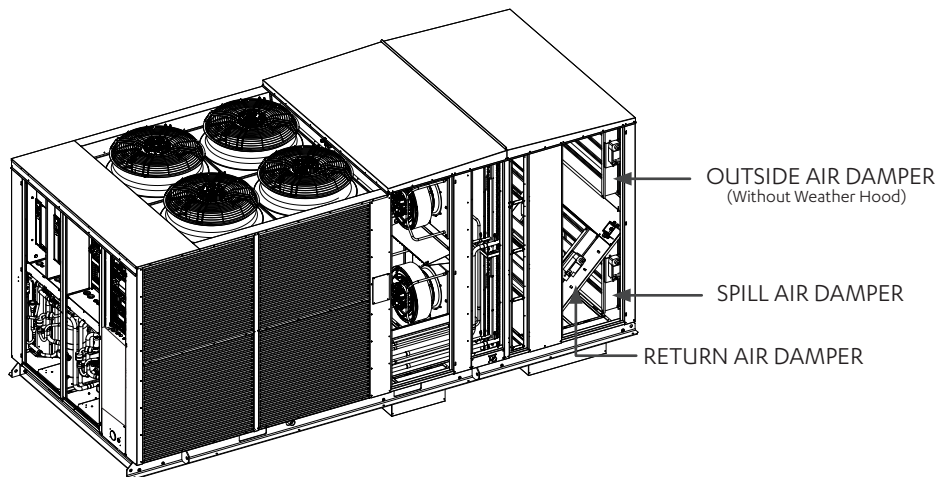
Hercules Airflow Low Options

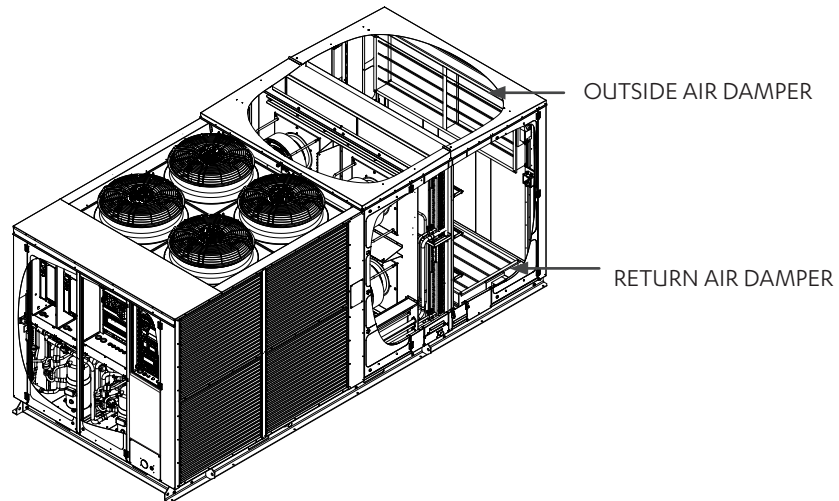


NOTES

1. OPTIONAL ECONOMY CYCLE DAMPERS are only available with BOTTOM RETURN AIR OPTION.
2. Optional Dampers are not available for the Left and Right Hand Vertical End return air connection options .

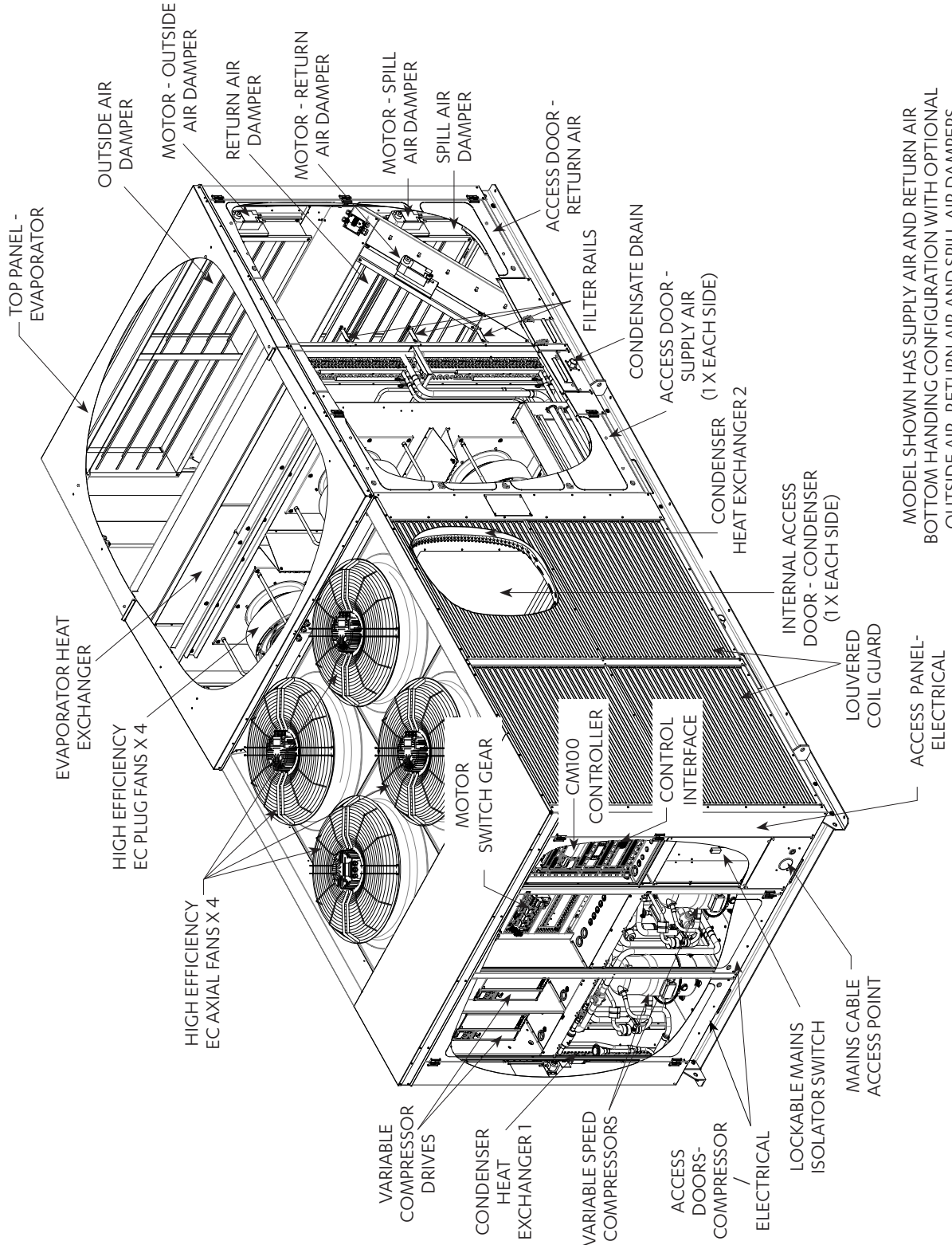
“M” Economy Cycle With Spill Air



“E” Economy Cycle Without Spill Air**NOTES**

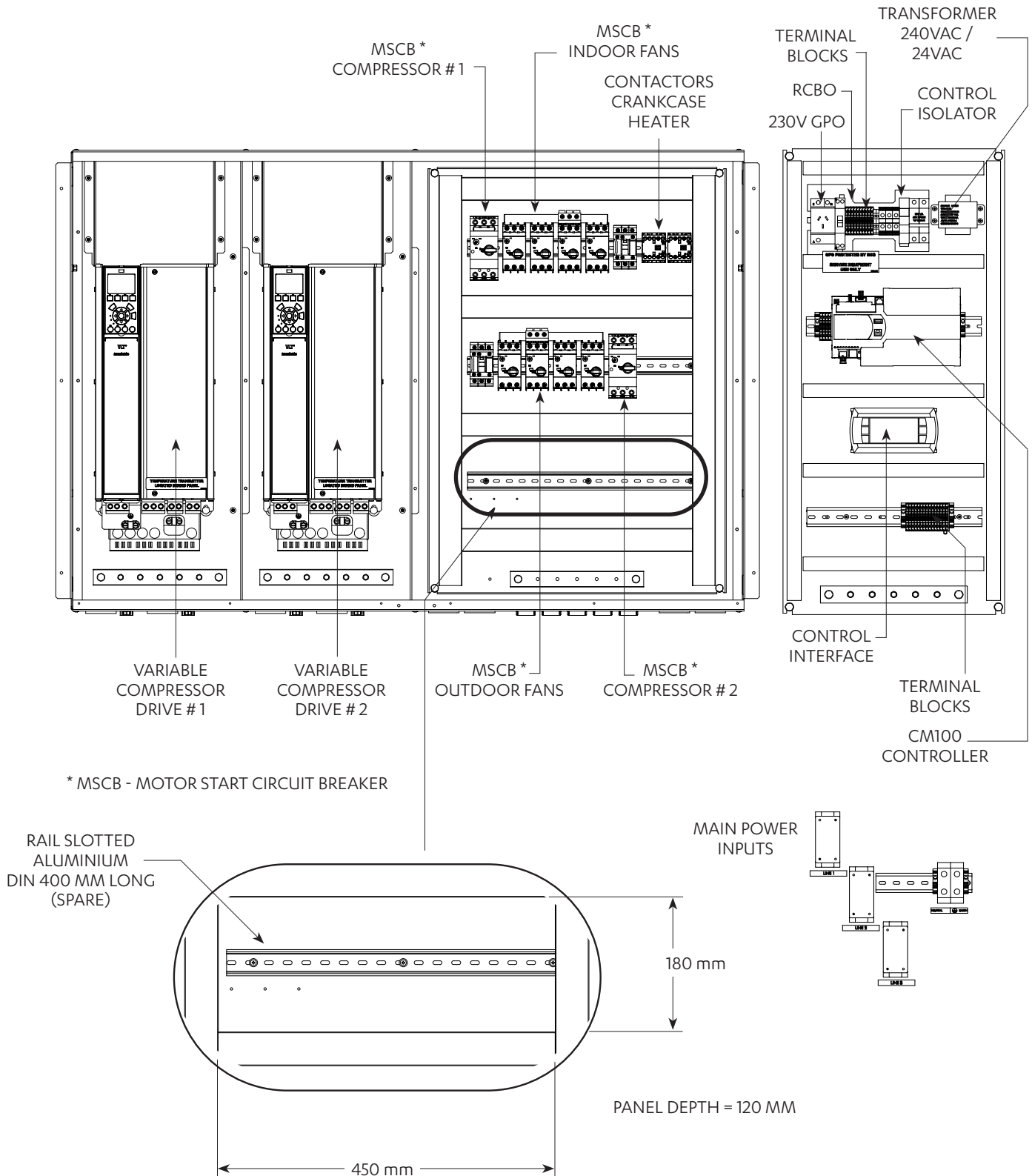
1. For units with Optional Economy Cycle, Return Air Sensor needs to be fitted by the installer specific to site requirements.
2. Units fitted with optional economy cycle dampers are only available on units with bottom return air configuration.

05. Components Overview



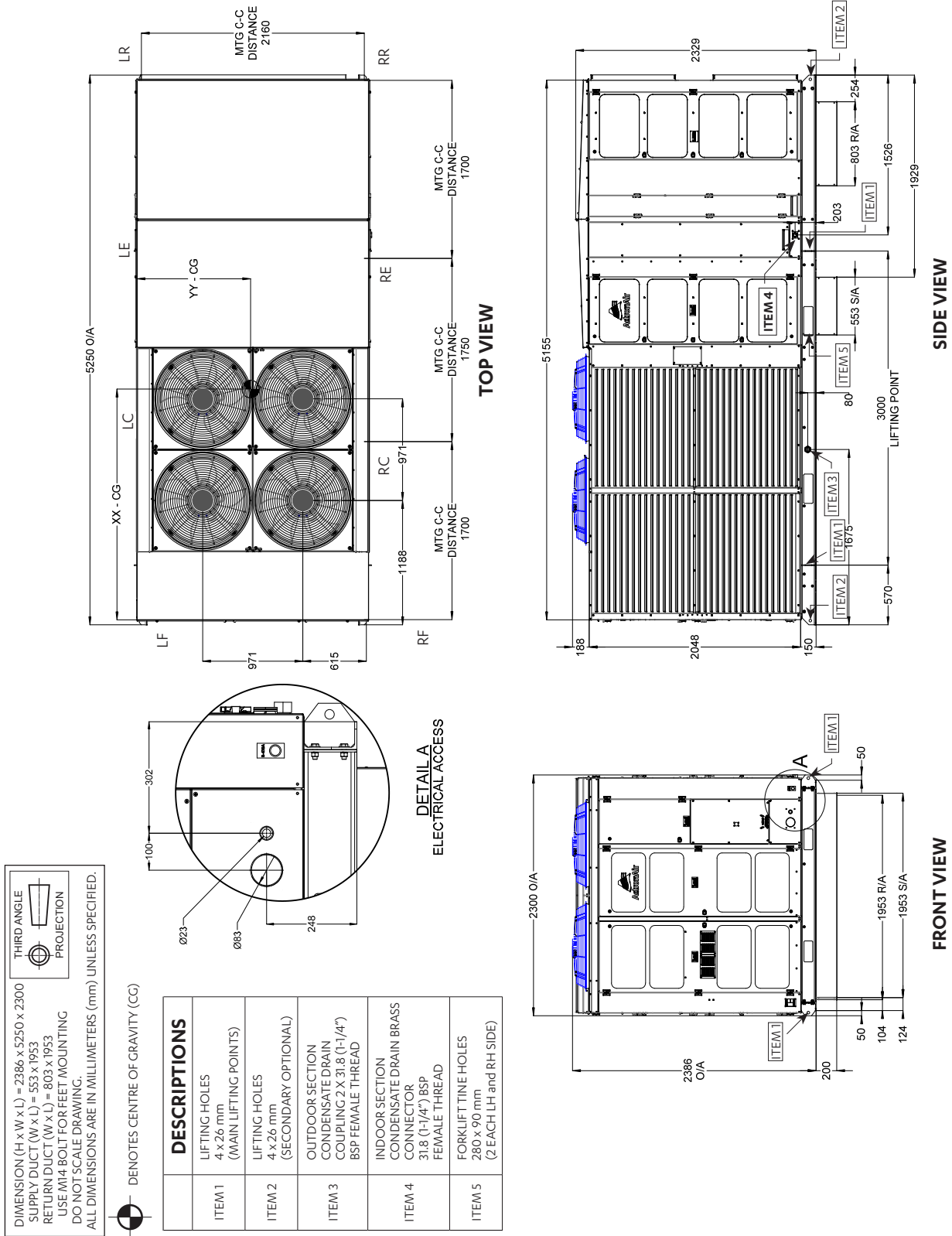
MODEL SHOWN HAS SUPPLY AIR AND RETURN AIR BOTTOM HANDING CONFIGURATION WITH OPTIONAL OUTSIDE AIR, RETURN AIR AND SPILL AIR DAMPERS.

06. Electrical Panel Overview

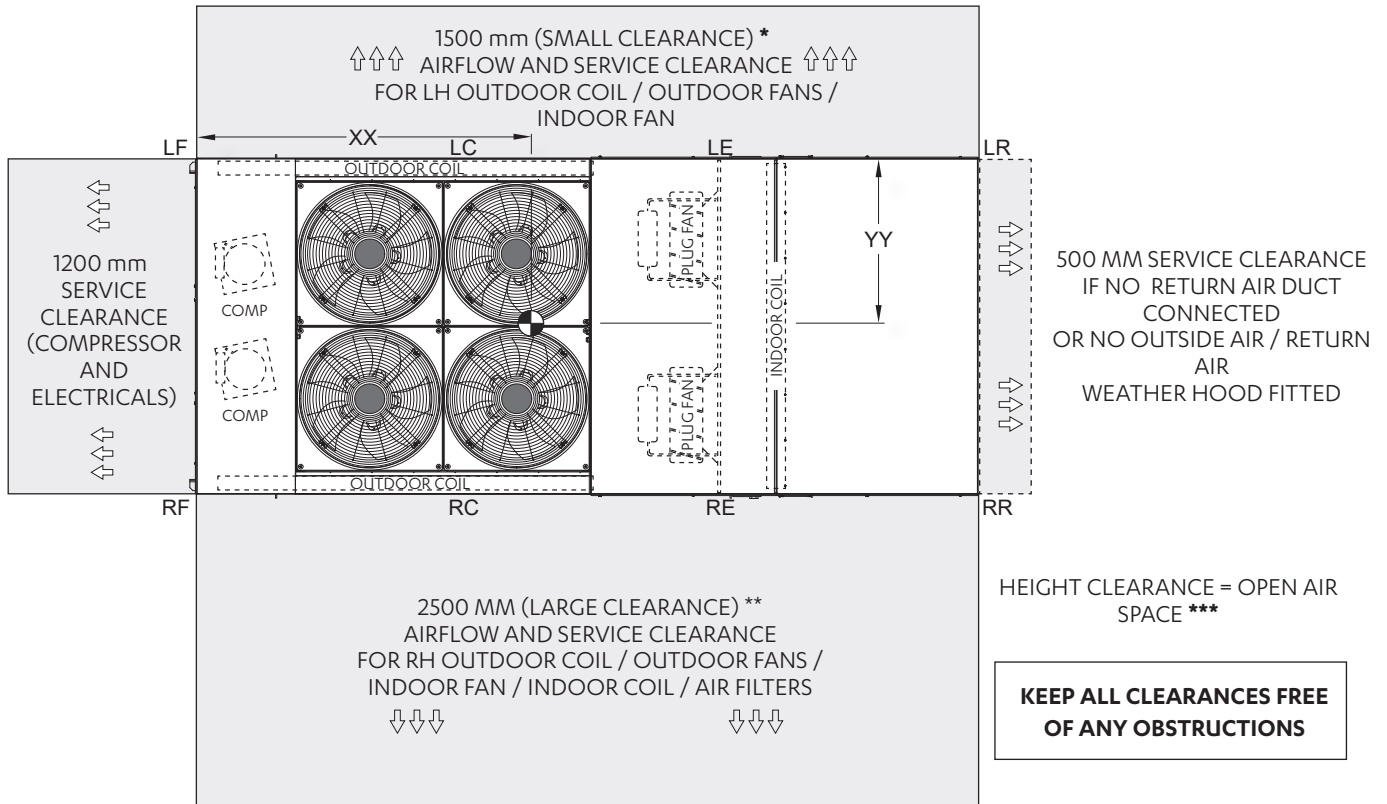


DIMENSIONS OF PROVISION FOR THIRD PARTY CONTROL MOUNTING

07. Unit Dimensions



Service Access Areas and Airflow Clearances



* Airflow clearance of 1500 mm is for open air space installation, a minimum of 2500 mm airflow clearance must be provided for close space areas with walls higher than the unit. **Please note that under all circumstances, condenser air must not recirculate back onto condenser coil.**

** Preferred service access for indoor coil should service access be required on the opposite side, the two side clearances will swap with the same condition applied for small clearance side.

*** Minimum height clearances for installation with limited service clearance are as follows:

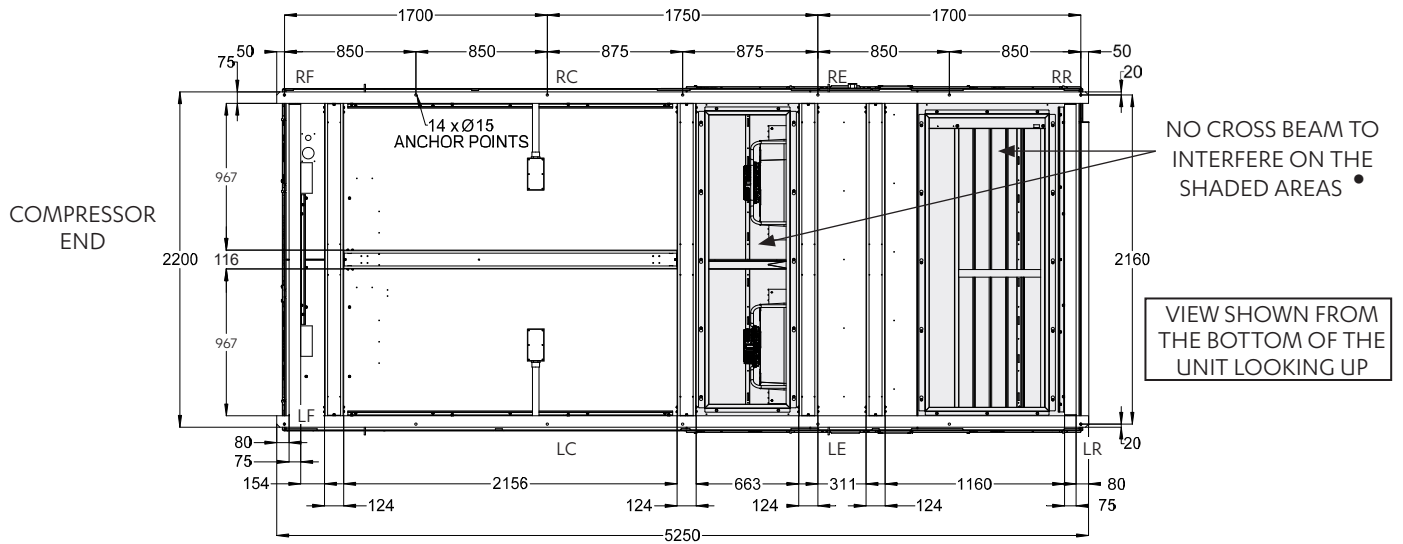
- 1500 mm, if 2500 mm service clearance for indoor coil is available on both sides of the unit.
- 2500 mm, if 2500 mm service clearance for indoor coil is not available on either side of the unit.

Unit Air Handling Configuration - Down Discharge

Model	No. Of Points	Unit Weight (Kg)	Package Weight (Kg)	Recommended Anchor Points Weight Distribution (Kg)								Centre Of Gravity (mm)	
				LF	LC	LE	LR	RF	RC	RE	RR	XX	YY
PKV1400T	8	2790	2864	415	387	339	260	413	383	335	258	2236	1102
PKV2000T	8	3012	3086	487	440	324	264	483	434	319	261	2132	1096

Unit Base Dimensions

- Applicable to units with Down Supply and Bottom Return Air Handling configuration only.



NOTES

1. All dimensions are in mm unless specified. Do not scale drawing.
2. Refer to corresponding unit dimensional drawing for mounting hole details.
3. Drawings are available on ActronAir website, please contact ActronAir Technical Support for further information on 1800 119 229.

08. Unit Lifting Procedures

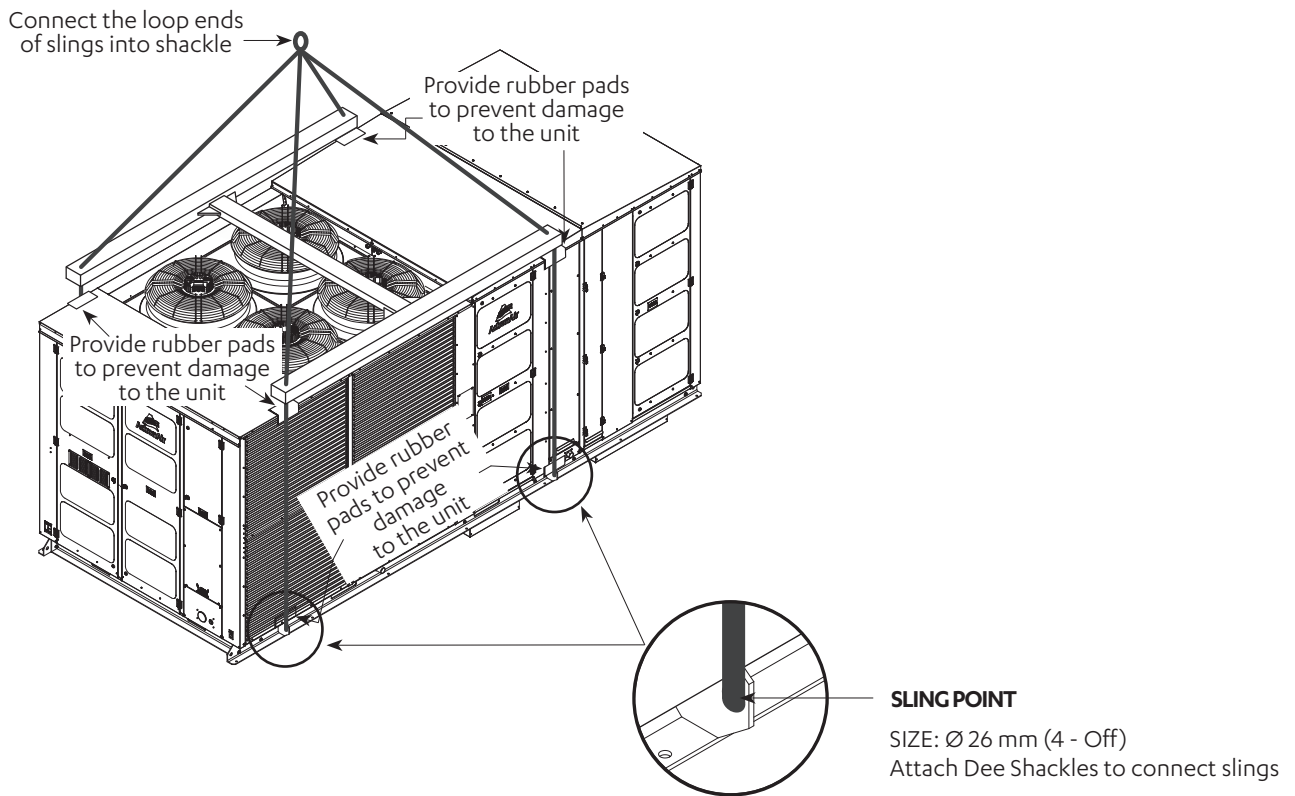
08.01. Crane Lifting Method

WARNING

WH&S regulations must be observed and will take precedence during lifting process.

NOTE

Crane lifting is recommended over forklift method.



Equipment Required For Crane Lifting:

- 4 x Shackles (must be load rated shackles)
- 2 x Nylon Slings
- Spreader bar

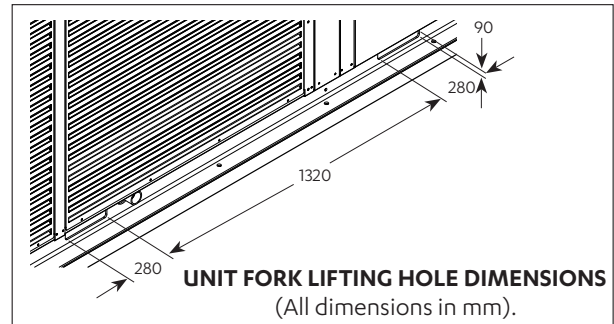
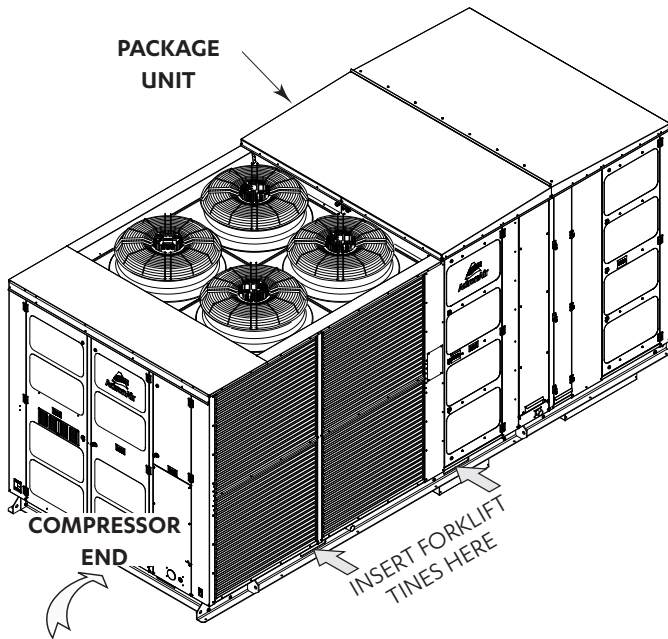
NOTE

Refer to catalogue for unit weight before selecting shackles.

Procedure:

1. Use 4 x Bow or Dee shackles to connect the lifting holes.
2. Slip nylon slings through all shackles.
3. Ensure slings are protected by rubber pads or similar if slings are draped across unit edges, corners, or air grilles. This will prevent the unit from being damaged during lifting.
4. SPREADER BAR must be used when lifting the unit.
5. Test lift the unit to determine exact unit balance and stability before hoisting it to the installation location.

08.02. Forklift Method



CAUTION
DO NOT LIFT UNIT at this end.

Procedure:

1. To move the unit around with a forklift, insert the fork tines through the pallet, as shown.
2. Only fork the unit through side of the unit. (See illustration for location of compressor end)

CAUTION

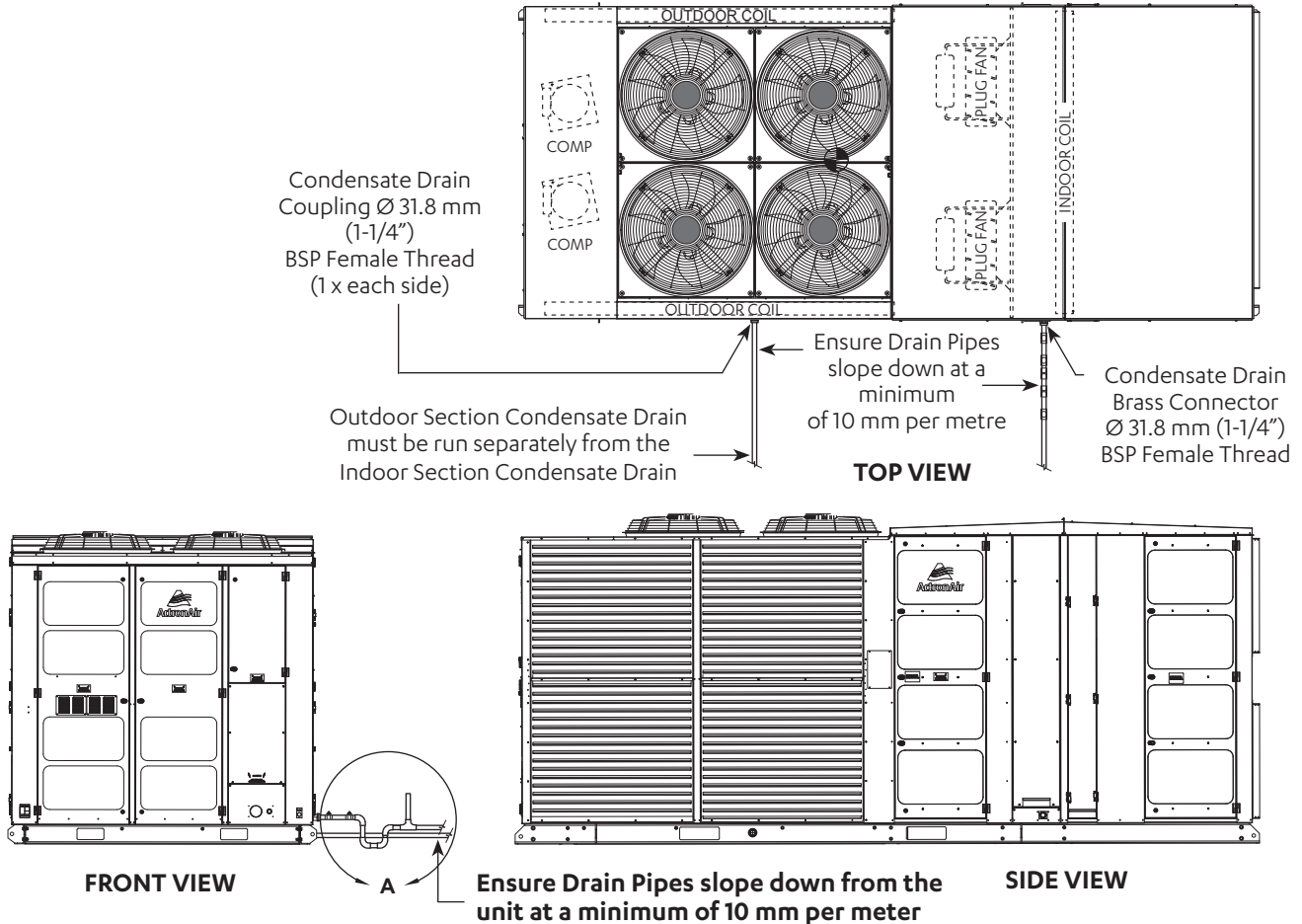
Length of forklift tines must pass the total width of the unit, in order to safely carry the unit. Make sure that the forklift tines do not cause any damage to the unit.

DANGER

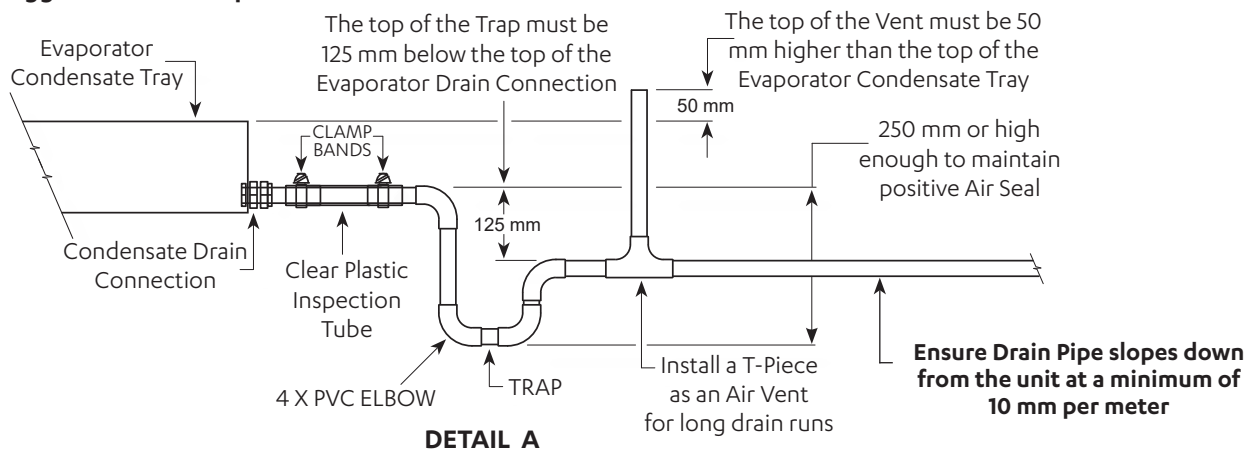
Make sure rigging equipment, accessories and plant are sufficiently and safely capable to lift the unit in order to prevent potential damage to property, severe personal injury or death. Please check unit weight and weight distribution points as shown in the unit drawing dimensions section.

09. Condensate and Safety Tray Drainage Instructions

Suggested Minimum Slope To Ensure Correct Drainage



Suggested Drain Trap Details



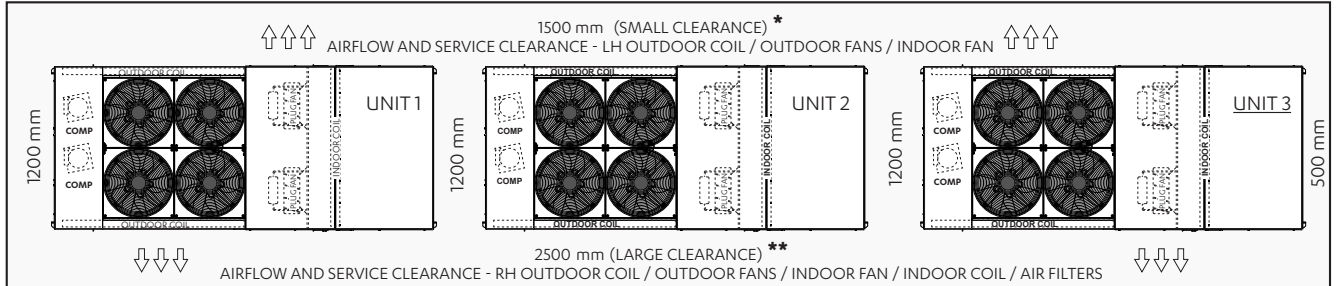
IMPORTANT NOTES

1. Parts for the Condensate Trap are not supplied with the unit.
2. Refer to Unit Dimensions page of the Technical Selection Catalogue for specifications of drain connectors.

10. Banking of Units

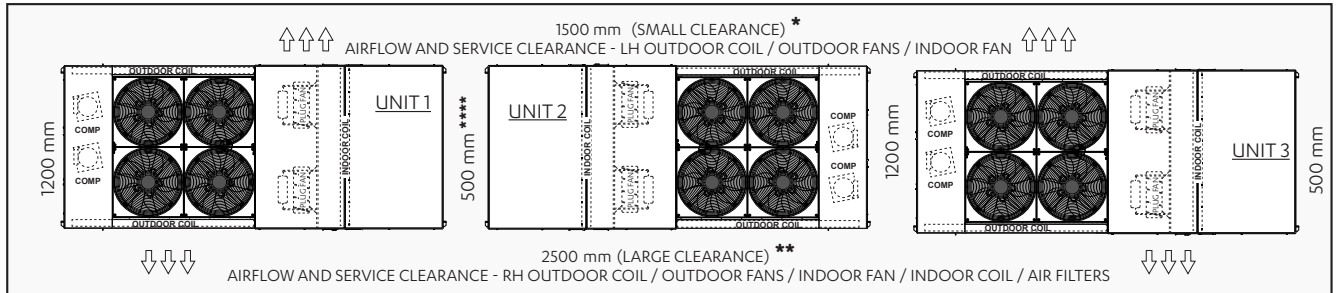
Standard Units Without The Optional Outside Air and Spill Air ****

CONFIGURATION 1



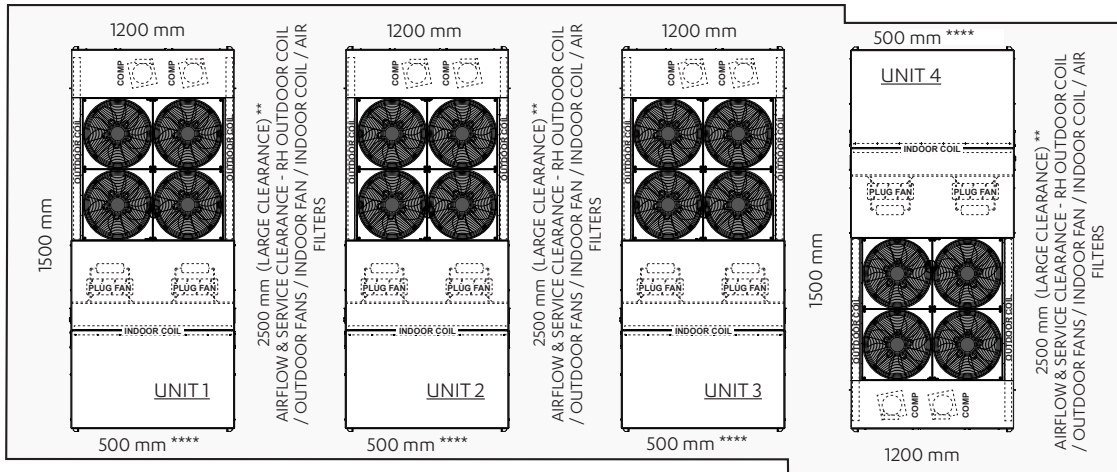
HEIGHT CLEARANCE FOR ALL UNITS = OPEN AIR SPACE ***

CONFIGURATION 2



HEIGHT CLEARANCE FOR ALL UNITS = OPEN AIR SPACE ***

CONFIGURATION 3



KEEP ALL CLEARANCES FREE OF ANY OBSTRUCTIONS

NOTES

1. All dimensions are in millimeter (mm) unless specified.
2. Do not scale drawing.
3. Refer to corresponding unit dimensional drawing for mounting hole details.

* Airflow clearance of 1200 mm is for open air space installation, a minimum of 2500 mm airflow clearance must be provided for close space areas with walls higher than the unit. **Please note that under all circumstances, condenser air must not recirculate back onto condenser coil.**

** Preferred service access for indoor coil should service access be required on the opposite side, the two side clearances will swap with the same condition applied for small clearance side.

*** Minimum height clearances for installation with limited service clearance are as follows:
 -1500 mm, if 2500 mm service clearance for indoor coil is available on both sides of the unit.
 -2500 mm, if 2500 mm service clearance for indoor coil is not available on either side of the unit.

**** For units with optional economy air and spill air, provide 300 mm clearance between the hood and the other unit or wall.

11. Unit Preparation

SAFETY INSTRUCTIONS

Only licenced service personnels are allowed to perform the procedures described in this guide. WH&S regulations must be observed and will take precedent during the assembly and installation procedure.

Materials:

- 2 Pcs - Angle (Supply/Return) Down Long-LH
- 2 Pcs - Angle (Supply/Return) Down Long-RH
- 2 Pcs - Angle Supply Down Short
- 2 Pcs - Angle Return Down Short
- 30 Pcs - Rivets \varnothing 4 x 8 mm
- 34 Pcs - Set Screws M8 x 30 mm Hex
- 1 Roll - Insulation Tape 3.2 x 6 mm Black

IMPORTANT NOTE

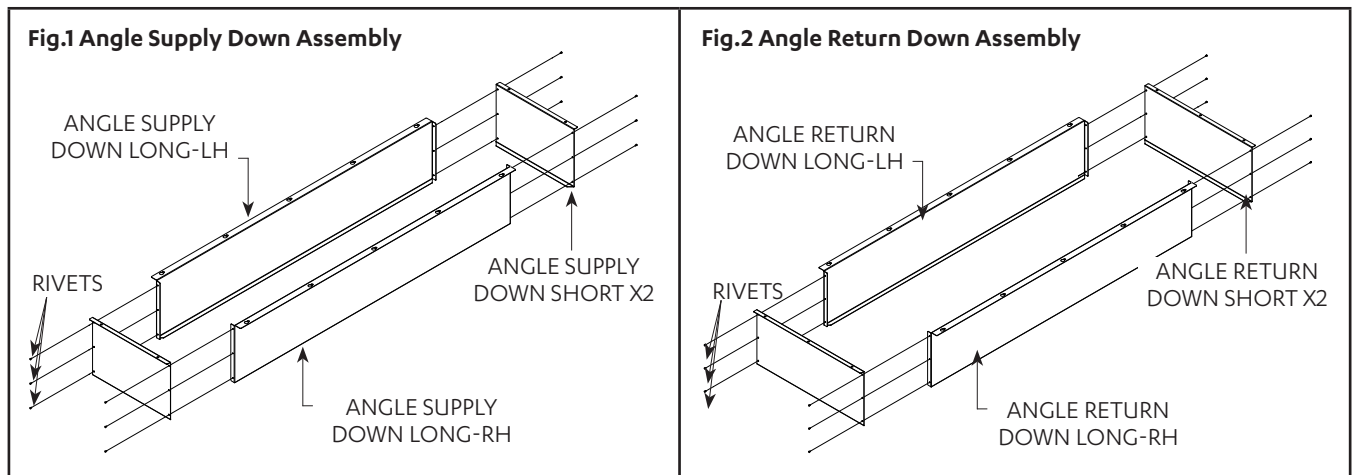
For proper sealing, Insulation Tape must be applied to adjoining contact before fastening rivets and screws.

Tools Required (Not Supplied):

- Rivet Gun and Socket Wrench

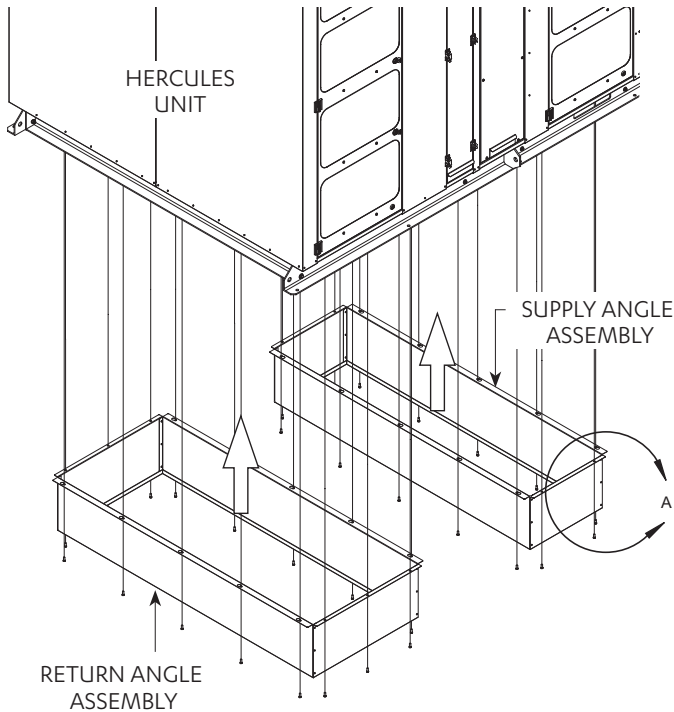
Down Supply Air Angle And Bottom Return Air Angle Assembly Procedures:

1. Assemble Supply Air and Return Air angles using the provided rivets as shown in Fig. 1 and 2 below:



2. Attach the Supply Air and Return Air Angles to their respective opening by following Detail A procedure below:

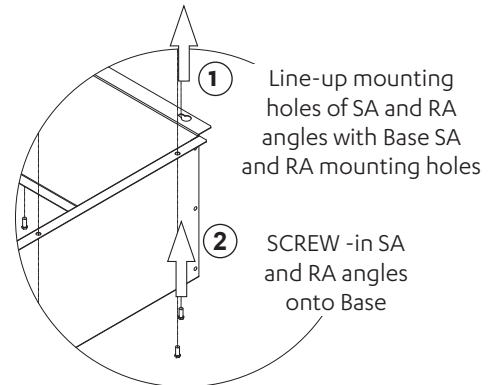
Fig.3 Supply Air and Return Air Angles Installation



⚠ IMPORTANT NOTES

Down Supply / Bottom Return angles are not factory fitted. These are to be field assembled and fitted by the installer.

All items are flat packed and located inside the Return Air and Supply Air chambers and resting on brackets. Remove the brackets where the flat pack of angles are located. These brackets are labelled **“REMOVE SHIPPING BRACKETS”**

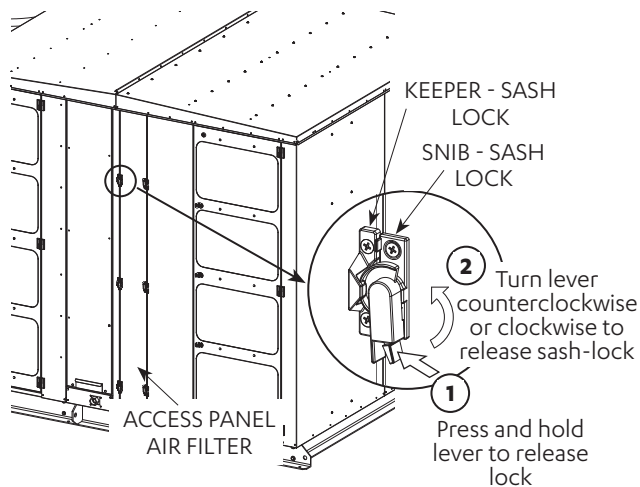


DETAIL A
SUPPLY AIR / RETURN AIR ANGLES
INSTALLATION DETAILS.

Air Filter Installation Procedure

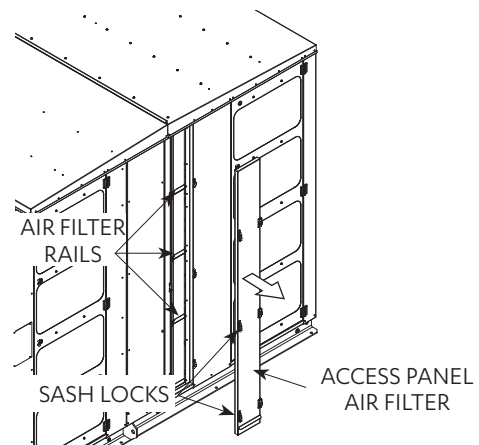
1. Undo the Sash Locks

- Undo Sash Locks (6 pcs) to remove Access Panel - Air Filter as shown in the illustration below:



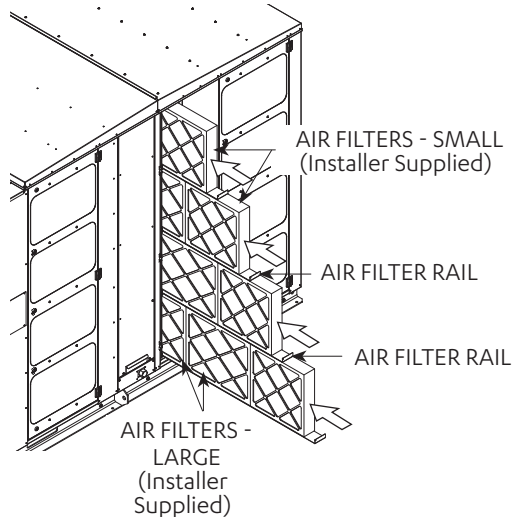
2. Remove Access Panel - Air Filter

- Remove Access Panel - Air Filter as shown in the illustration below:



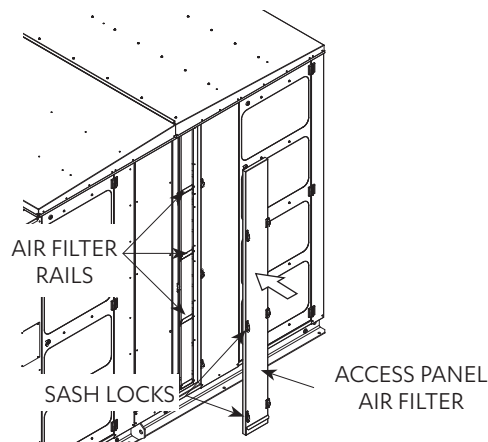
3. Install Air Filters

- Install Air Filters (16 pcs. required) by sliding the filters one at a time in the provided Filter Rails.
- Place large air filters at the middle of the rail and the small air filters at the ends.



4. Replace Access Panel - Air Filter

- Follow Steps 1-2 above in order to replace Access Panel - Air Filter. Clean and tidy up the air conditioning unit and the surrounding areas.



Air Filter Materials, Dimensions and Qty.

AIR FILTER DISPOSABLE - (2 SMALL + 2 LARGE per row)

SMALL (8 pcs)

- Material: 30/30 Pleated Cotton Synthetic Blend - G4
- H x W x T (mm): 495 x 495 x 95 (actual air filter dimensions)

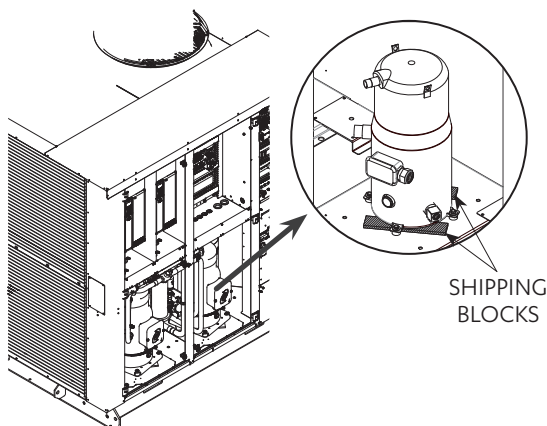
LARGE 8 pcs

- Material: 30/30 Pleated Cotton Synthetic Blend - G4
- H x W x T (mm): 495 x 594 x 95 (actual air filter dimensions)

⚠ IMPORTANT NOTES

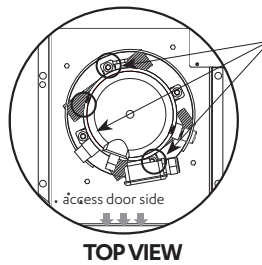
- Air Filters are NOT SUPPLIED with the unit.
- Adequate Air Filters must be supplied and fitted by the Installing Contractor.
- Air Filters are to be located in the return air filter retainer in the unit or in accessible location between the return air grille and the unit.

Compressor Shipping Block Removal



⚠ IMPORTANT NOTES

Both compressors come with wooden blocks to minimise compressor vibrations while shipping the unit. It is important to REMOVE these blocks prior to compressor operation.



1. Loosen the three bolts as shown.
2. Pull out the shipping blocks.
3. Re-tighten the three bolts.
4. Repeat on second compressor.

Model Number	Torque
PKV1400T	15 Nm
PKV2000T	21 Nm

12. Electrical Power Supply Connection

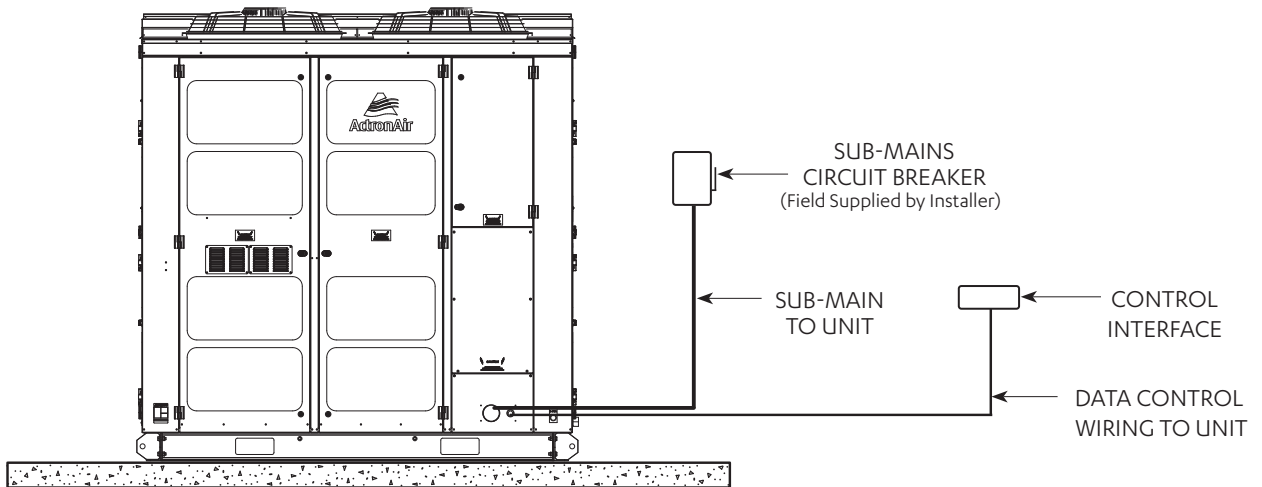


Hazardous Voltage !

- During installation of your air conditioning unit, it may be necessary to work in close proximity to live electricity. Always make sure that all power supply, including remote controls, are disconnected before performing installation and commissioning tasks. Observe proper LOCK-OUT/TAG-OUT (LOTO) procedures to ensure that power cannot be inadvertently energised. Failure to disconnect power before maintenance procedures can result in serious injury or death.
- Follow all electrical safety precautions when exposed to live electrical components.
- Only qualified technicians are allowed to work on electrical circuits.
- All electrical wiring must be in accordance with the relevant electrical authority rules and regulations.

LEGEND:

- THREE PHASE MAINS WIRING (400 VAC 50Hz 3Phase + Neutral)
- EXTRA LOW VOLTAGE DATA CONTROL WIRING



Electrical Wiring Requirement

Wiring Diagram

The wiring diagrams specific for your air conditioning system are located on the inside panel of the control and power access doors. Always refer all wiring installation, servicing and troubleshooting of this equipment to this diagram to ensure correct electrical connections are satisfied.

Supply Power Requirements and Procedures

It is the installer's responsibility to provide power supply wiring to the sub-mains isolator. Wiring should conform to the current electrical authority regulations and all wiring connections to be as per electrical diagram provided with the unit.

- Confirm that the power supply available is compatible with the unit nameplate ratings. The supply power must be within 10% of the rated voltage.
- Protect electrical service from over current and short circuit conditions in accordance with AS/NZS 3000 "Australian / New Zealand Wiring Rules". Size protection devices according to the electrical data of the unit.
- Complete the unit power supply wiring onto the sub-main isolator.
- Provide proper unit earthing in accordance with local and national codes.

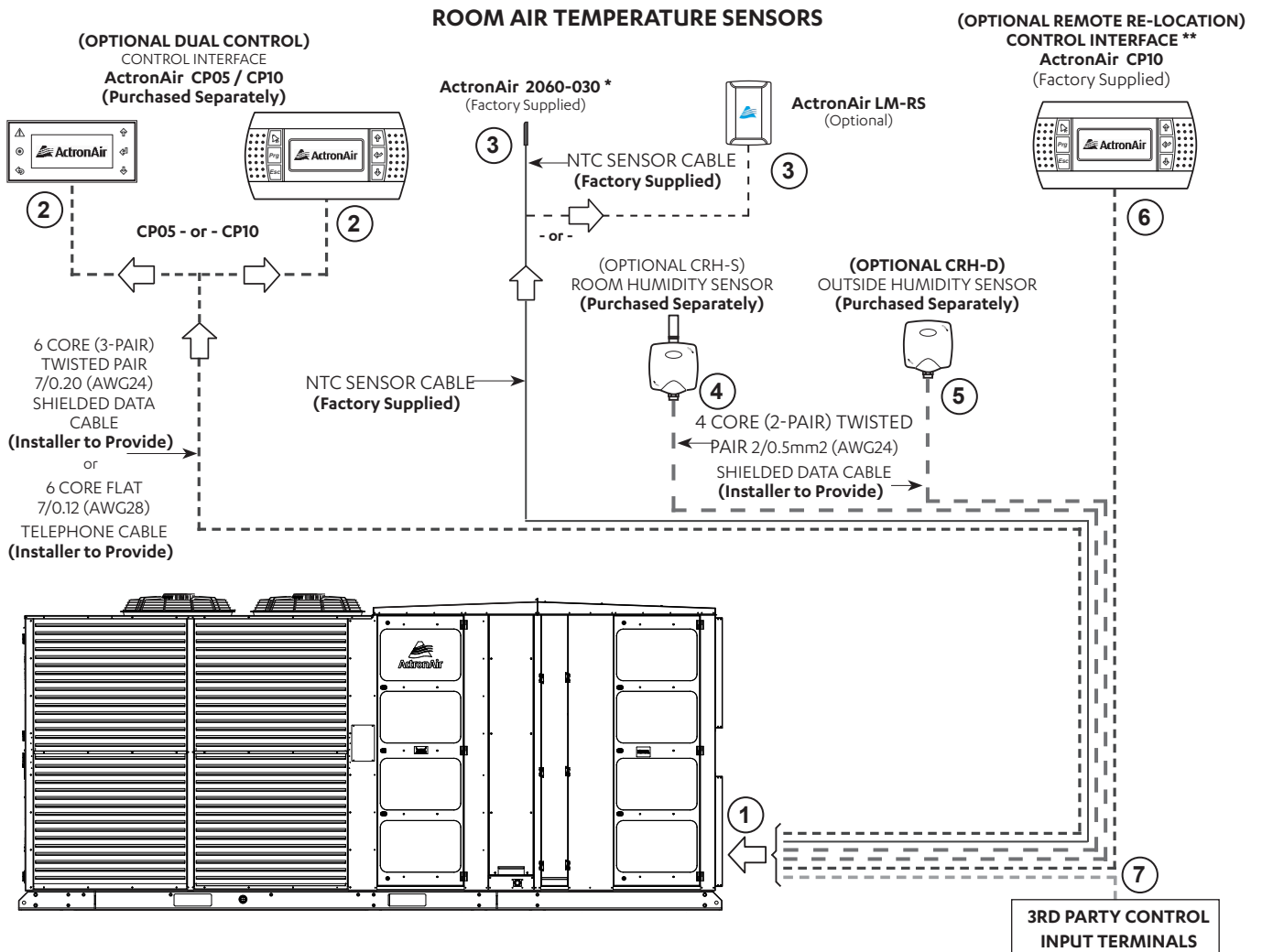
Circuit Breaker Requirement

Circuit Breaker Size	
Model	Circuit Breaker Size (Amps)
PKV1400T	100
PKV2000T	125

Compressor Voltage Balance Requirement

Check the voltage at the compressor terminals to determine if it is balanced. Voltage imbalance on three phase systems can cause motor overheating and premature failure. The maximum allowable imbalance is + 2.0%, check unit wiring connections to locate and rectify faults, should voltage imbalance exceed this value.

13. Maximum Cable Lengths



Item	Description	Maximum Cable Length
1 to 2	Outdoor CM100 to Optional ActronAir CP05 / CP10 Control Interface (Dual Control)	50m / 200m - See Note D
1 to 3	Outdoor CM100 to Room Air Temp Sensor (NTC Sensor Input Cable Size 0.5mm ² / 1.0mm ²)	50m / 100m
1 to 4	Outdoor CM100 to Room CRH-S Sensor	200m - See Note E
1 to 5	Outdoor CM100 to Duct CRH-D Sensor	200m - See Note E
1 to 6	Outdoor CM100 to ActronAir CP10 (Remotely re-located Factory Supplied Control Interface)	50m / 200m - See Note D
1 to 7	Outdoor CM100 to Third Party Control	Refer to Third Party Control Supplier

* Room Air Sensor is factory supplied with 6m cable as standard. Sensor may need adjustment for longer cable lengths.

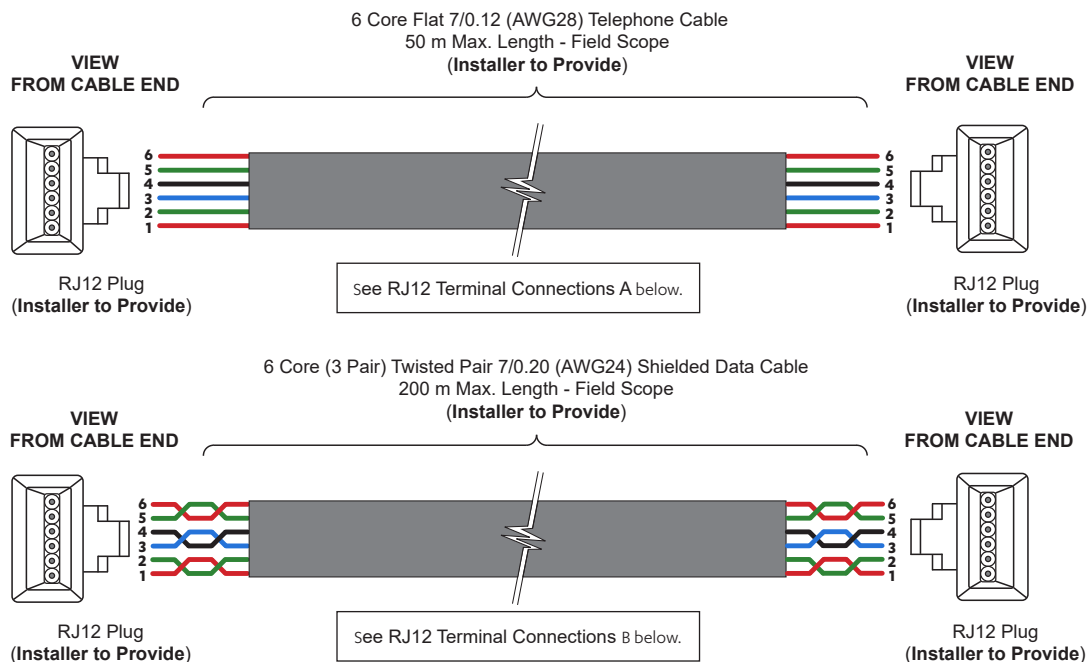
** Do not extend the factory supplied data cable when re-locating the Control Interface. Replace the cable with a single length of either of the data cables specified above.

NOTES

- A. Diagram shown above is a general presentation only. Refer to individual unit wiring diagram for complete wiring connection details.
- B. Long cable runs beside supply mains or TV antenna cables should be avoided where possible.
- C. Return Air Sensor needs to be installed by the installer specific to site requirements.
- D. Suggested Maximum Cable Length: 50 m when using Flat Telephone Cable / 200 m when using 6 Core (3Pair)Twisted Pair Shielded Data Cable.
- E. **For compliance with EMC requirements, connect screen wire to Terminal 14 on the Control Panel. For compliance with EMC requirements, connect screen wire to the GND Terminal and to an earth if G0-Earth connection is required.**

14. Data Cable and RJ12 Plug Preparations:

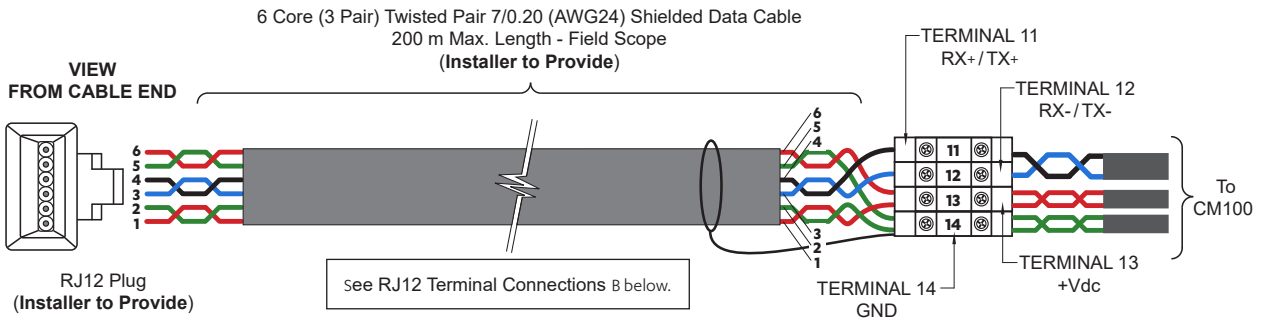
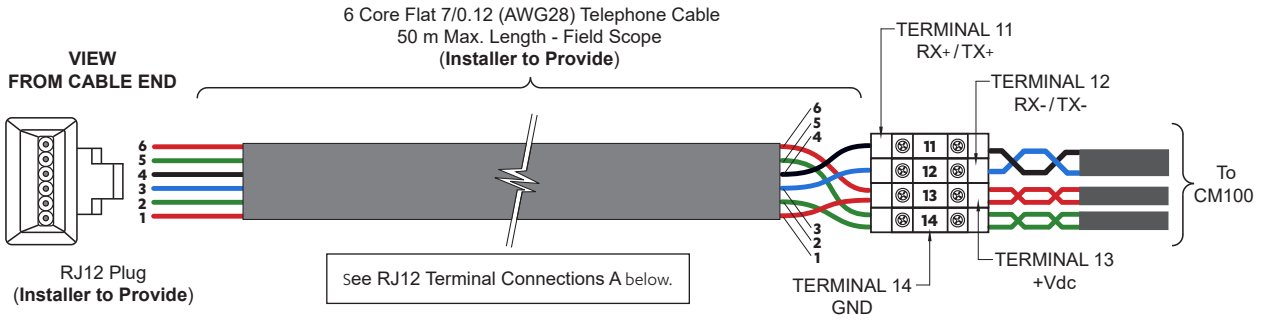
Option 1 - Data Cable with RJ12 plug at both end:



RJ12 Terminal Connections A:

- Terminal 3:- Connect to RX-/TX- on the connector block.
- Terminal 4:- Connect to RX+/TX+ on the connector block.

Option 2 - Data Cable with RJ12 plug at one end (For Secondary Control Interface):



RJ12 Terminal Connections A:

- Terminal 1:- Connect to +Vdc on the connector block.
- Terminal 2:- Connect to GND on the connector block.
- Terminal 3:- Connect to RX-/TX- on the connector block.
- Terminal 4:- Connect to RX+/TX+ on the connector block.
- Terminal 5:- Connect to GND on the connector block.
- Terminal 6:- Connect to +Vdc on the connector block.

RJ12 Terminal Connections B:

- Terminal 1:- Connect to +Vdc on the connector block. } Twisted Pair
- Terminal 2:- Connect to GND on the connector block. }
- Terminal 3:- Connect to RX-/TX- on the connector block. } Twisted Pair
- Terminal 4:- Connect to RX+/TX+ on the connector block. }
- Terminal 5:- Connect to GND on the connector block. }
- Terminal 6:- Connect to +Vdc on the connector block. } Twisted Pair

15. Wiring Installation

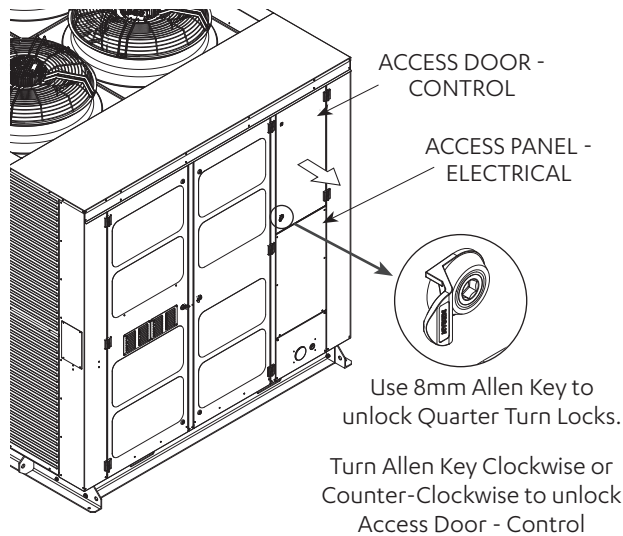
15.01. Main Supply Cable Installation Procedure

IMPORTANT NOTE

Turn off main power supply before commencing electrical works.

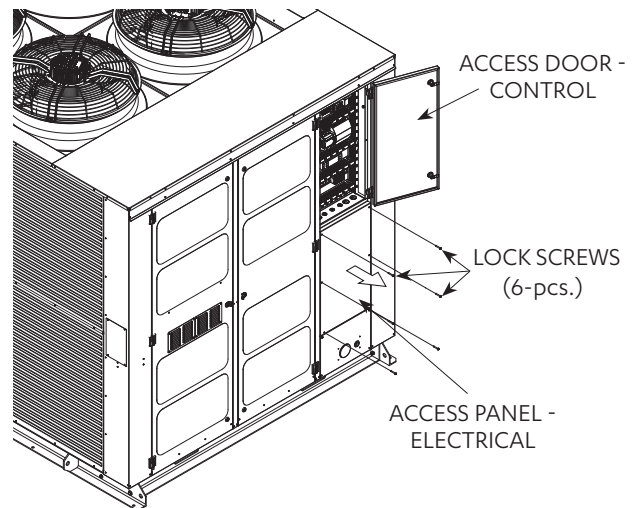
1. Open Access-Door Control Section

- Undo the Quarter turn Locks using 6 mm Allen Key and open Access Door-Control.



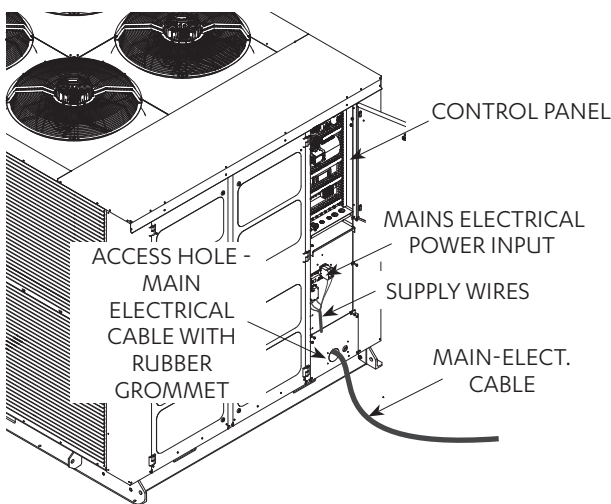
2. Remove Access Panel-Electrical Isolator Section

- Remove mounting screws.
- Remove Access Panel - Electrical



3. Thread and Route Main Cable into the Unit

- Pierce hole in rubber grommet to allow cable access.
- Thread main cable through the electrical access hole.
- Strip main cable to expose the supply wires.

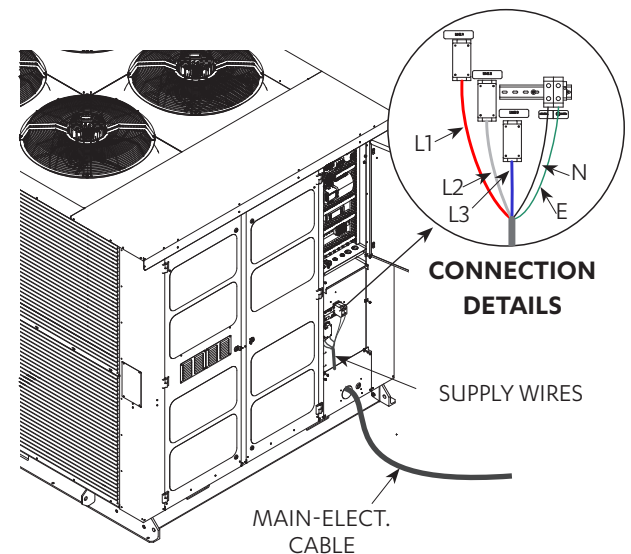


NOTES

Bottom cable access is also provided to suit bottom cable routing requirement. When using bottom cable access, remove cover plate at the bottom and fasten to the Front Cover Bracket.

4. Connect Supply Wires

- Referring to the Wiring Diagram, connect supply wires L1, L2 and L3 into active link. Connect Neutral and Ground to the terminal blocks. Make sure that connections are tight.
- Conduct continuity test to ensure correct connections.
- Re-install access panel (mains) cover.



15.02. Control Interface (CP10) Remote Mounting Procedure



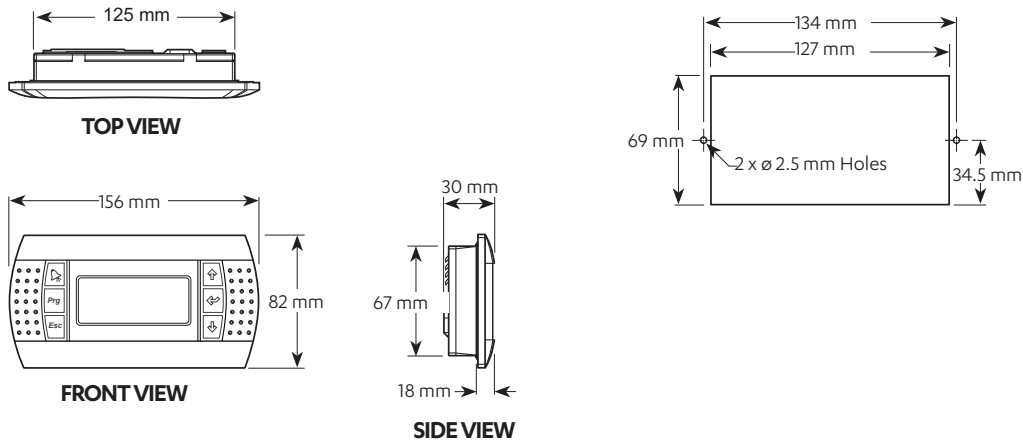
Static Sensitive Electronic Devices !

DO NOT handle electronic devices unless you are wearing an Anti-Static Wrist Strap that is connected to a GOOD EARTH. Failure to protect the electronic devices from static electricity may cause unreparable damage. Static damaged electronic devices are NOT COVERED for replacement under warranty.

The typical connection between the control interface and the control board is made using 6 Core Flat 7/012 (AWG28) Telephone Cable. To make the connection, simply plug the cable unto the 6-pin receptacle of the controller until it clicks into place. To remove the connector, lightly press the plastic tab and pull out the connector. The telephone cable provides both the data link and the power supply to the control interface as the simplest connection method. For complex connection, where more than one terminal is connected to the CM100 Controller or to cover lengths in excess of 50 meters, a 6 Core (3 Pair) Twisted Pair 7/0.20 (AWG24) Shielded Data Cable is required (to be provided by the installer).

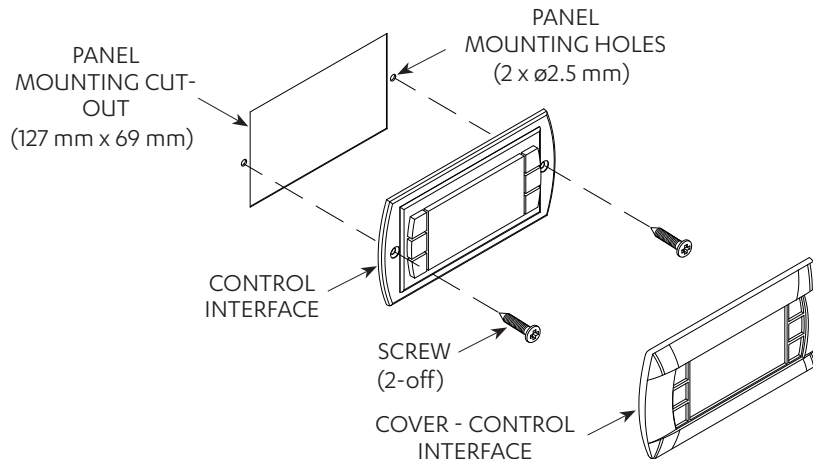
Shielded cable must also be used if the controller is installed in domestic or similar environments, and consequently subject to ACMA EMC requirements.

15.02.01. Control Interface (CP10) Dimensions and Mounting Details (ActronAir Supplied)



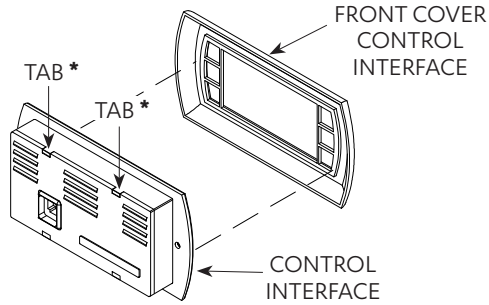
15.02.02. Control Interface (CP10) Remote Mounting Procedure:

A. Panel Mount



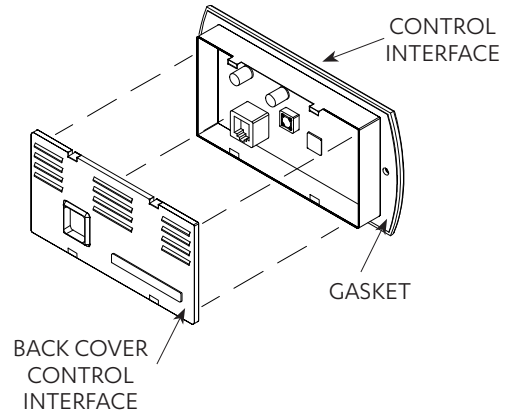
B. Wall Mount

Step 1. Remove the Front Cover from the Control Interface assembly.

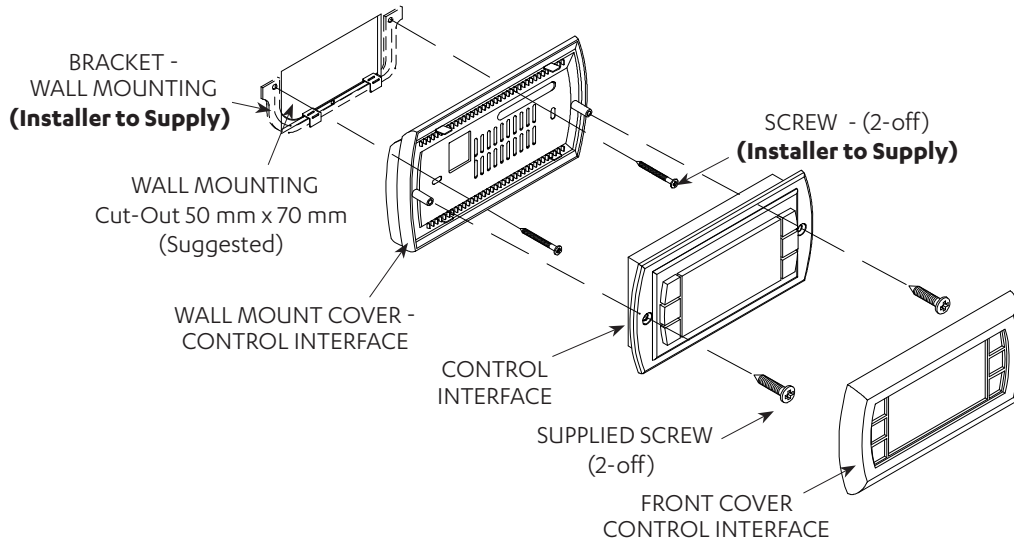


* Use a small screwdriver to lift Tabs for the removal of the Back Cover-Control Interface

Step 2. Remove the Back Cover and the Gasket from the Control Interface assembly.



Step 3. Install the Control Interface onto the wall using mounting bracket and wall mount cover, as shown below:

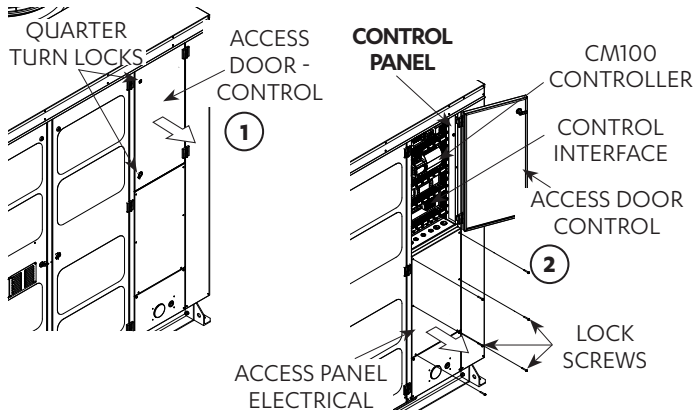


15.02.03. Relocating Control Interface Into Remote Mounting Procedure

1. Open Access-Door Control Section

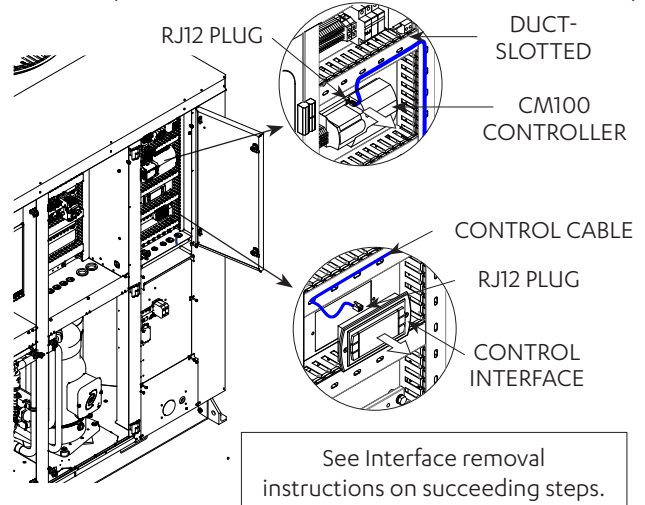
2. Remove Access Panel-Electrical Isolator Section

- Perform steps 1 - 2 of Main Supply Cable Installation section to gain access to control panel.



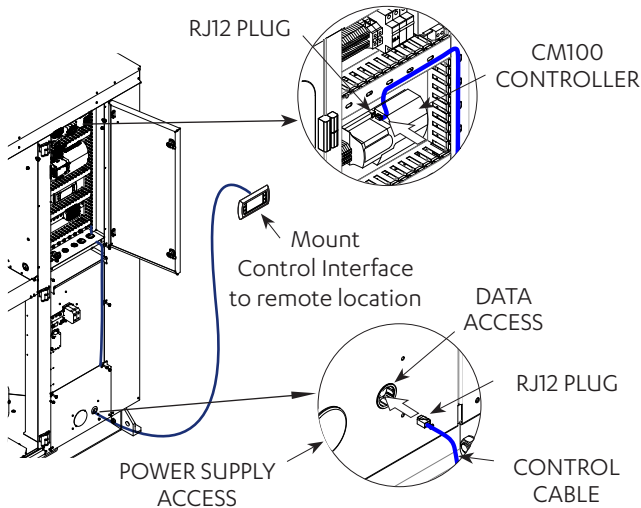
3. Remove and Disconnect Control Interface

- Unscrew and Pull-out Control Interface from mounting.
- Disconnect RJ12 plug from Control Interface and Control Board. (Remove or tuck-in control cable into Duct-Slotted).



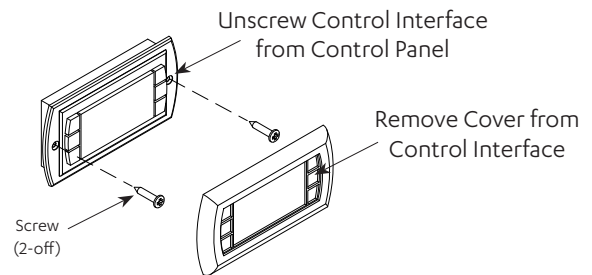
4. Thread and Route new control cable into the Unit

- Pierce hole in rubber grommet to allow cable access.
- Thread the new control cable through the access hole.
- Route the new cable, as shown above.
- Secure the new cable with wire ties and clamps.
- Connect cable to Control Interface and Control Board.



5. Control Interface Removal Instructions

- Remove Cover from Control Interface main body.
- Unscrew Control Interface main body from control panel.
- Pull-out Control Interface from panel mounting and unplug the RJ12 connector.

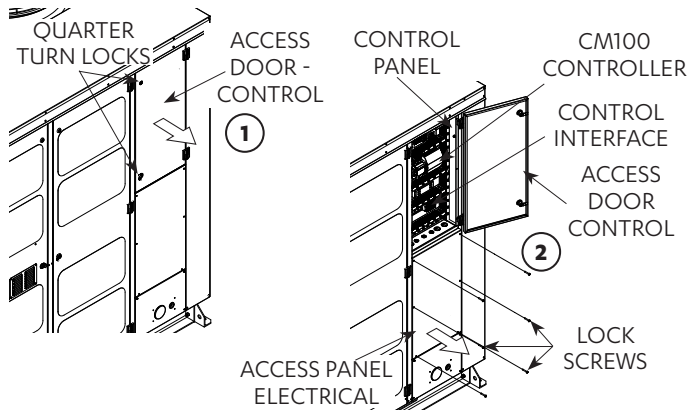


NOTES

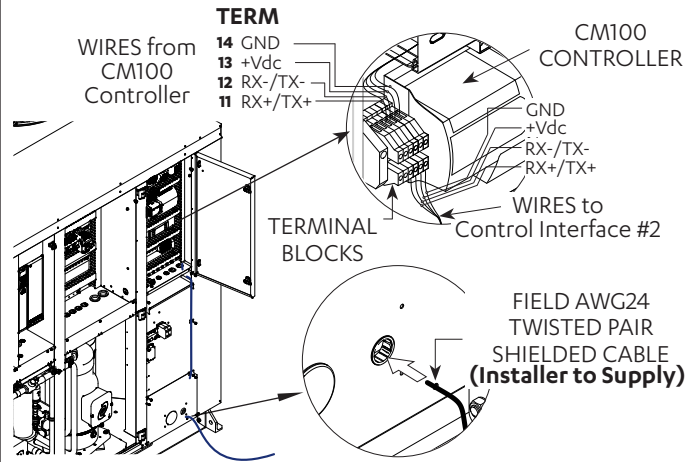
- See Control Interface insert for panel cut-out dimensions and details.
- For control cable length in excess of 50 METERS, a 6 Core (3 Pair) Twisted Pair 7.0/0.20 (AWG24) Shielded Data Cable is required. This cable must also be used if the control interface is installed in an environment subject to ACMA EMC requirements.

15.02.04. Dual Control Interface Connection Procedure

- 1. Open Access-Door Control Section**
- 2. Remove Access Panel-Electrical Isolator Section**
 - Perform steps 1-2 of Main Supply Cable Installation section to gain access to control panel.



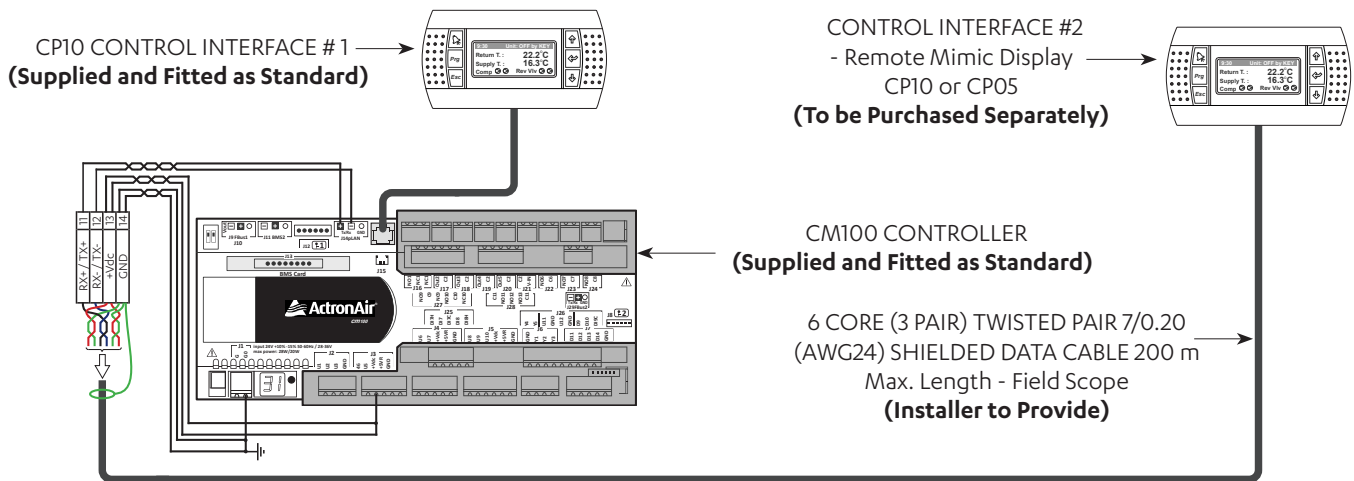
- 3. Connect Field AWG24 Cable to 4-Way Connector-A**
 - Thread the Field AWG24 Cable through the unit and connect to the Terminal Block as shown above.



Refer cable routing procedures on previous subsection.

4. Connect Control Interface #2

- Connect the Control Interface #2 (secondary control interface), as shown in the schematic diagram below:



Refer to Dual Control Interface Connection Procedure for configuration and addressing of Secondary Control Interface

16. Return Air Temperature Sensor Installation

Introduction

Return Air Temperature Sensor location will vary based on individual site installation requirements, hence the sensor is not fitted to your air conditioning unit. It is supplied and packed together with this installation guide inside the Installation Guide / Warranty Pack envelope. The return air sensor comes standard with 6m lead cable. It will need installation and calibration by the installer prior to commissioning of your air conditioning unit.

Installation Instructions:

1. Install the return air temperature sensor inside the return air duct or inside the room, just below the return air grille.
2. Ensure that the sensor is located where the return air is not affected by other heat source.
3. Return air temperature sensor must be properly secured in the chosen location.
4. Sensor cable should be routed securely and not to be exposed to sunlight, rain, dust and other contaminants.
5. Keep sensor cable away from high voltage cables.

NOTE

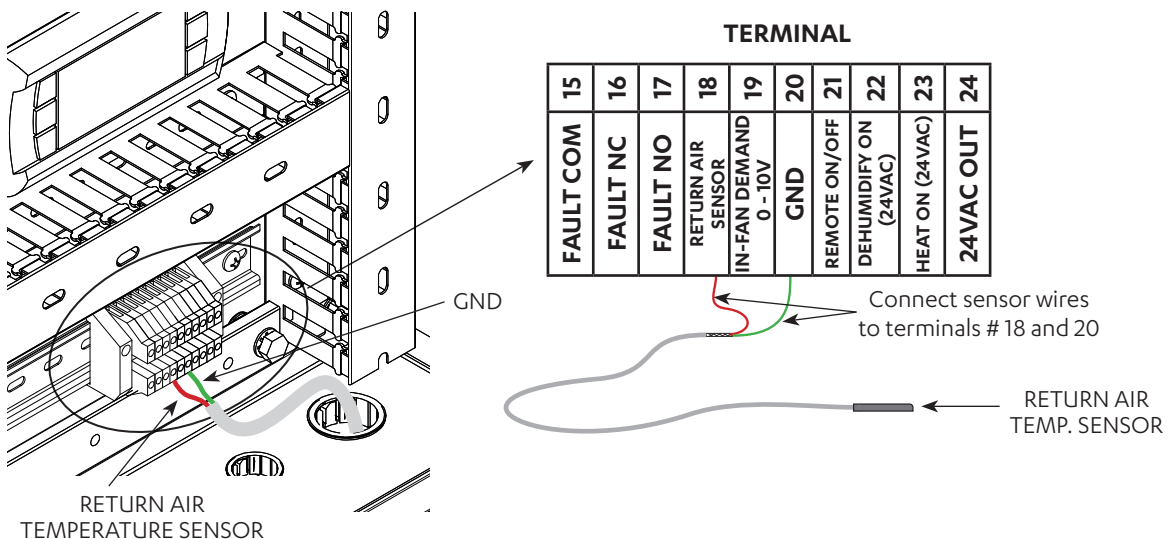
- The provided Return Air Temperature sensor is an ActronAir duct bead type sensor. A wall type sensor is also available as an option (ActronAir Part Number LM-RS).
- For longer installation requirements, it is possible to extend the provided 6m sensor lead cable with an extension cable. The extension cable **MUST** comply to the specification below and installer **MUST** offset the sensor reading.

Specifications - Sensor Lead Cable		
Item	Distance	
	Up to 50m	Up to 100m
NTC (Sensor Cable) *	0.5mm ²	1.0mm ²

* Extension cable must be screened cable with the screen connected to ground terminal G0 (J1) of the 24VAC controller supply.

Use only the provided ActronAir duct bead sensor or the optional wall sensor (LM-RS).

Use of 3rd party sensors are not allowed as they are not tested with ActronAir air conditioning unit.



IMPORTANT NOTE

For units with Optional Economy Cycle, Return Air Temperature Sensor needs to be installed and located by the installer specific to site requirements.

Offset Instructions:

1. Read the return air temperature from the control interface (the installed return air temp sensor is measuring the return air temp).
2. Using a different temperature measuring device, measure the actual air temperature next to installed return air sensor.
3. Get the difference to calibrate the installed return air temperature sensor via service menu:

Main Menu → G. Service → Gf. Service settings → Gfb. Probe Adjustment → Gfb3

(Password Protected)

Example 1:

If the actual measured room temperature is 2.0°C higher than control interface reading, then adjust the offset to +2.0°C.

Probe adjust.		Gfb3
Room NTC cal:		+2.0°C
Supply NTC cal:		0.0°C
Cond. 1 NTC cal:		0.0°C
Cond. 2 NTC cal:		0.0°C
Outside NTC cal:		0.0°C

← Enter return air temp offset here

CP10

Probe Adjustment Display

Example 2:

If the actual measured room temperature is 2.0°C lower than control interface reading, then adjust the offset to -2.0°C

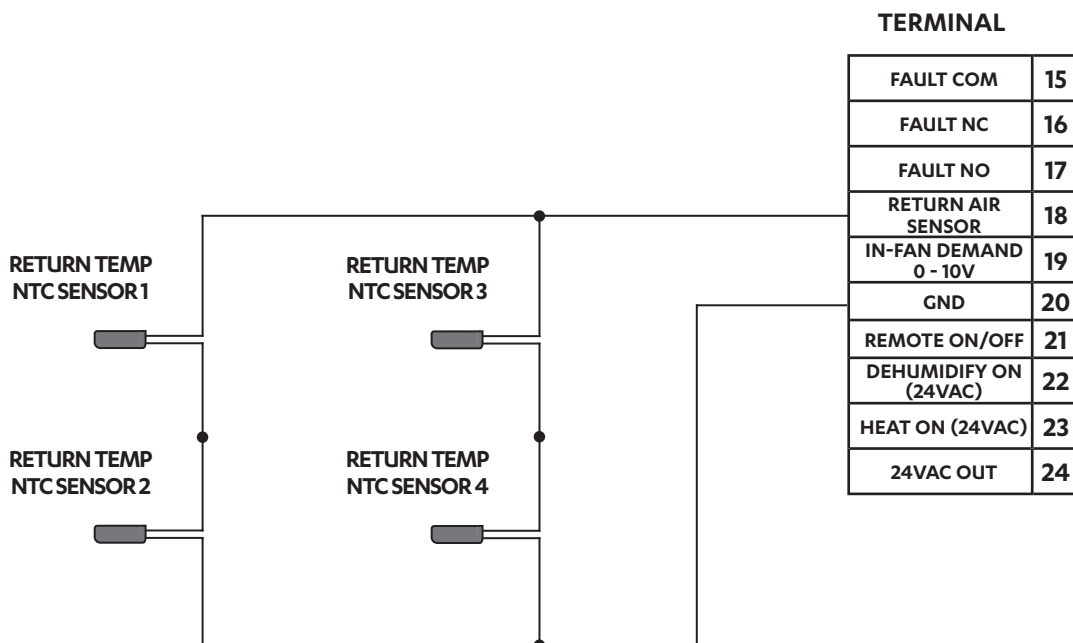
Probe adjust.		Gfb3
Room NTC cal:		-2.0°C
Supply NTC cal:		0.0°C
Cond. 1 NTC cal:		0.0°C
Cond. 2 NTC cal:		0.0°C
Outside NTC cal:		0.0°C

← Enter return air temp offset here

CP10

Probe Adjustment Display

16.01. Averaging Return Air Temperature Sensors

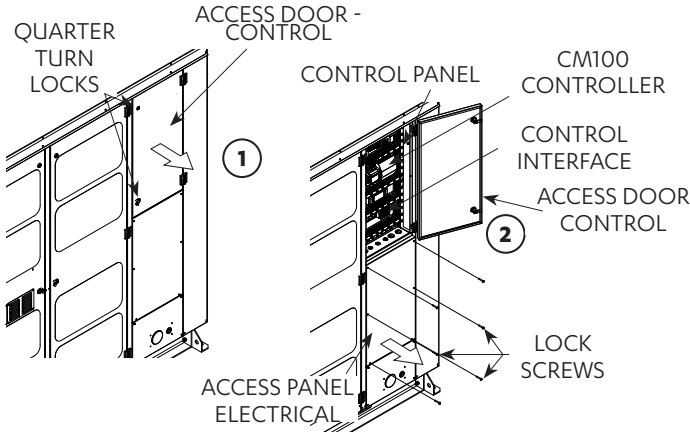


16.02. Internal Sensors Control Wiring Procedure

1. Open Access-Door Control Section

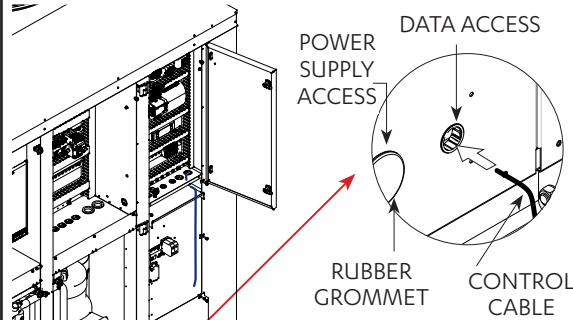
2. Remove Access Panel-Electrical Isolator Section

- Perform steps 1 and 2 of Main Supply Cable Installation section to gain access to control panel.



3. Thread the Return Temp Sensor cable into the Unit

- Pierce hole in rubber grommet to allow cable access.
- Thread the cable through the access hole.

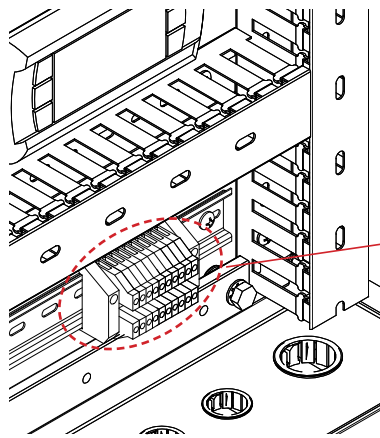


NOTES

1. Bottom cable access is also provided to suit bottom cable routing requirement.
2. Wire also the Humidity Sensors (to be purchased separately) if used for Economy Cycle or ReHeat options.

4. Route and connect control cable into the Unit

- Route the control cable, as shown below:
- Secure cable with wire ties and clamps.
- Connect cable as per wiring diagram provided with the unit.



	TERMINAL
(1) FAULT RELAY COMMON	FAULT COM 15
(1) FAULT RELAY NC COMMON	FAULT NC 16
(1) FAULT RELAY NO COMMON	FAULT NO 17
(2) RETURN TEMP SENSOR	RETURN AIR SENSOR 18
(3) OPTIONAL	IN-FAN DEMAND 0 - 10V 19
REMOTE ON/OFF RELAY INPUT	GND 20
OR AFTER HOURS P/B INPUT	REMOTE ON/OFF 21
DO NOT USE	DEHUMIDIFY ON (24VAC) 22
(3RD PARTY CONTROLS ONLY)	HEAT ON (24VAC) 23
	24VAC OUT 24
	24VAC OUT 25
	0VAC OUT 26
	GND (SHIELD) 27
HUMIDITY SENSOR DATA OUTPUT (REMOVE 120 Ω RESISTOR)	RX+ / TX+ 28
	RX- / TX- 29

NOTES

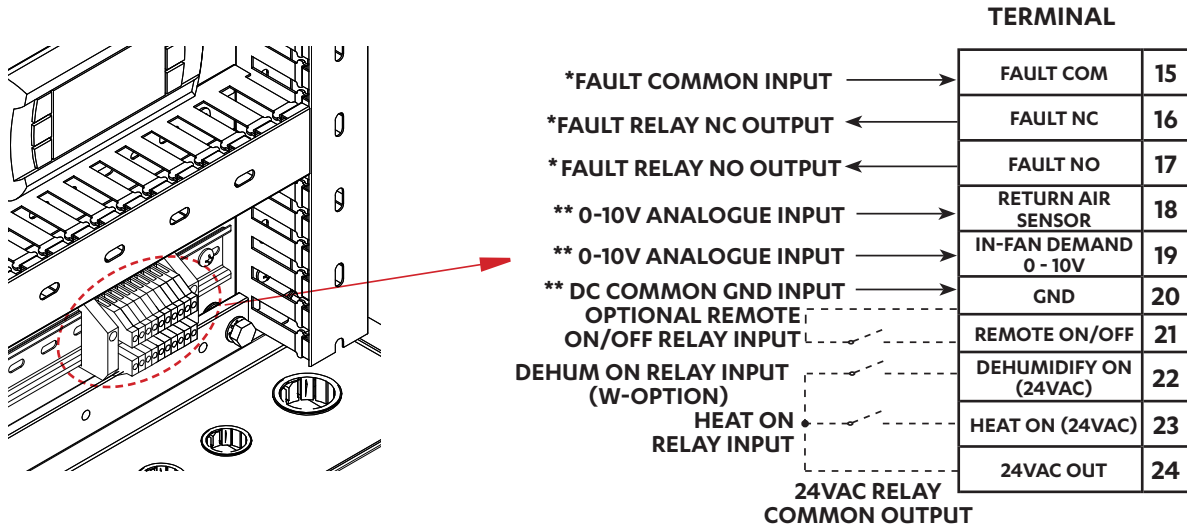
1. Fault Relay Output Max. Rated: 250VAC 5A Resistive.
2. Return Temperature Sensor with 6m cable supplied with the unit. Installer to fit and connect.
3. Term 20 and 21 are used for Remote ON/OFF or After Hours input. Only one function is allowed at one time.
 - If required, wire an After Hours N/C or N/O impulse push button into Term 20 and 21 when using the 7-Day Scheduler.
 - The Remote On/Off function is not available when operating the 7-Day Scheduler.
 - Refer to Unit Control Mode (Internal Sensors) for control configuration information.

16.03. External Inputs Control Wiring Procedure

Step 1. To wire the External Inputs Control, Follow steps 1-3 of the Internal Sensors Control wiring as shown above.

Step 2. Route and Connect 3rd Party Control cable into the Unit

- Route the 3rd Party control cable, as shown below:
- Secure cable with wire ties and clamps.
- Connect cable as per wiring diagram provided with the unit.



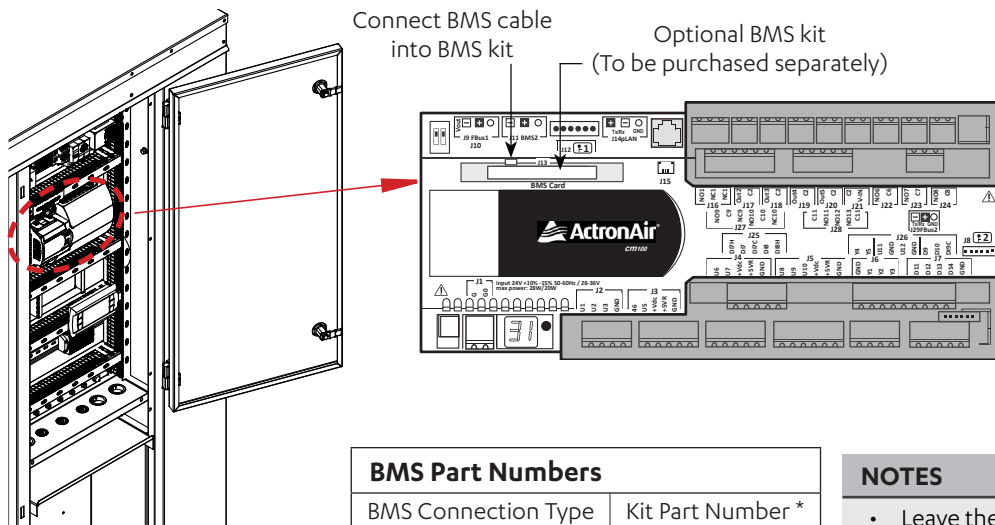
NOTES

- * Fault Relay Output Max. Rated: 250VAC 5A Resistive.
- ** Refer to Unit Control Mode for External Inputs on Page 48 for control configuration information.

For External Inputs Damper operation,

- Remove OCB - J26 Y4 connection from Terminal 5 (See wiring diagram supplied with the unit).
- Connect the 3rd Party Controller 0-10V damper signal to Terminal 5.
- Ensure one GND wire is connected between the 3rd Party Controller and Terminal 20 (GND).

16.04. Fire Trip Installation Procedure



BMS Part Numbers	
BMS Connection Type	Kit Part Number *
MODBUS 485	ICMOD-485
BACNET 485	ICBAC-485
BACNET TCP/IP	ICBAC-TCP-IP

NOTES

- Leave the ActronAir Control Interface connected to configure BMS control.
- Refer to Unit Control Mode BMS Demand (Advance BMS)

* To be purchased separately.

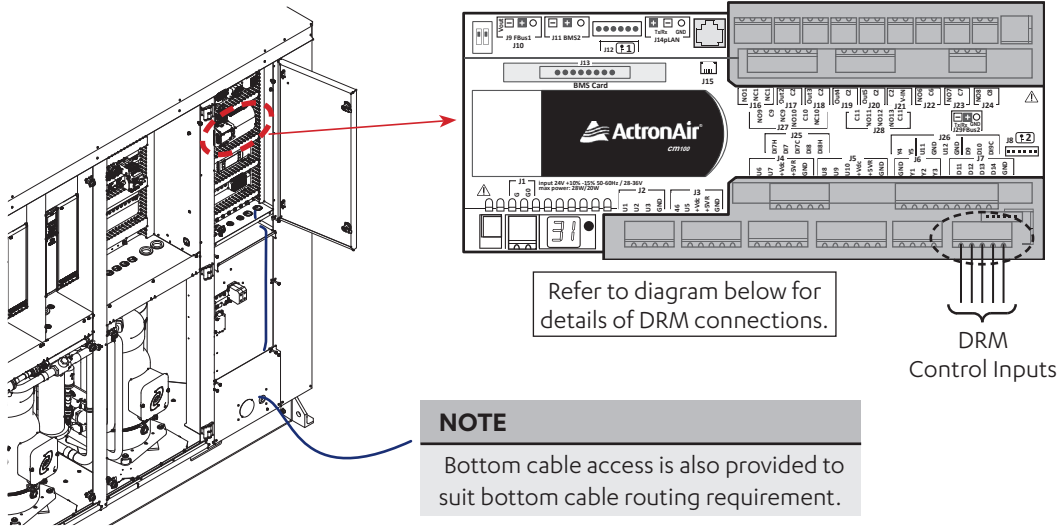
16.05. Demand Response Management

Step 1. Thread and Route the DRM input cables into the Unit

- Thread and Route cables as per previous wiring installation procedure.

Step 2. Connect cables into the terminals

- Connect cables as shown above and as per wiring diagram provided with the unit.



Demand Management Mode	Description Of Mode (As Per AS/NZS 4755.3.1:2012)	Operating Mode
DRM1	COMPRESSOR OFF	Both Compressors Turn OFF (Supply Fans Remain ON)
DRM2	MAXIMUM 50% RATED INPUT POWER USE	Both Compressors will run at <45% as required
DRM3	MAXIMUM 75% RATED INPUT POWER USE	Both Compressors will run at <70% as required

NOTES

1. DRM Modes operate continuously while Input is active.
2. All Compressor Oil Return Management will be unaffected by DRM2 and DRM3 Modes and will operate as required.

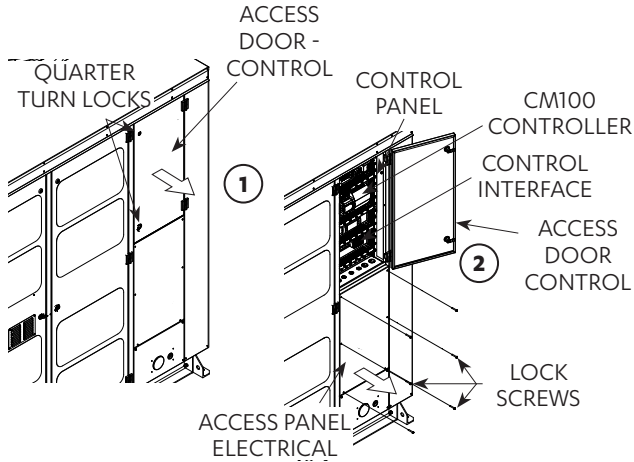


DRM CONNECTION DIAGRAM
(See the Electrical Wiring Diagram Provided with the unit for details)

16.06. Fire Trip Installation Procedure

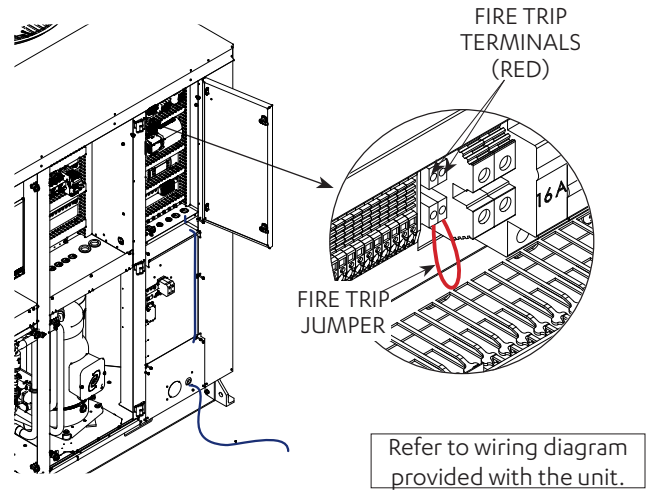
1. Open Access-Door Control Section
2. Remove Access Panel-Electrical Isolator Section

- Perform steps 1 and 2 of Main Supply Cable Installation section to gain access to control panel.

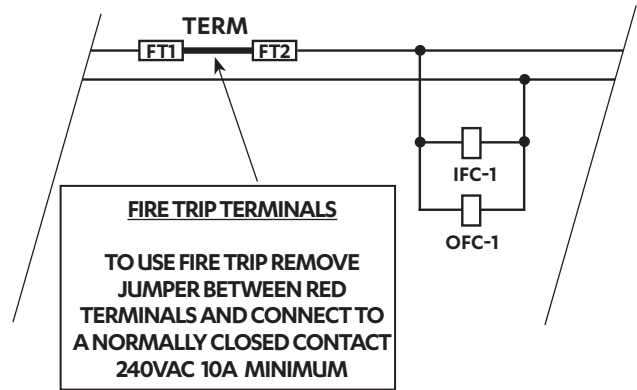
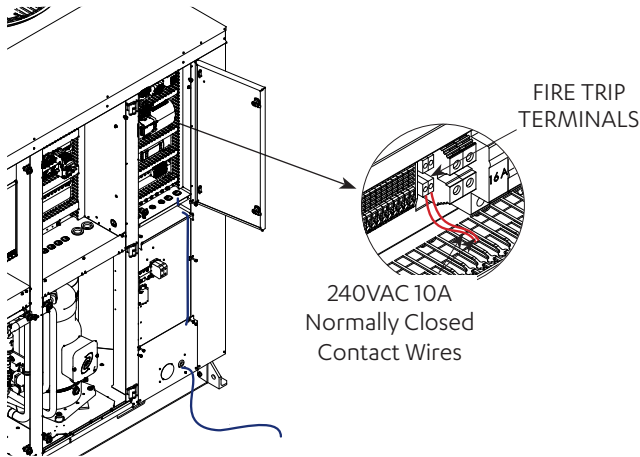


3. Disconnect and Remove Fire Trip Jumper from the terminals

- Loosen the screws on the Fire Trip Terminals and remove the Fire Trip Jumper.

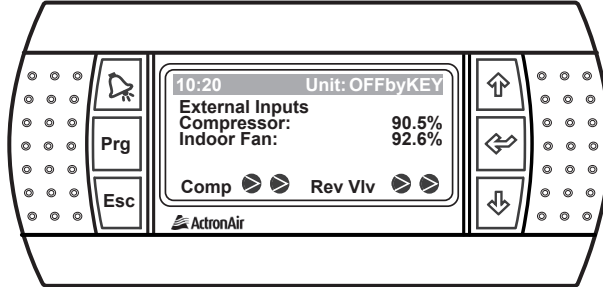


4. Connect a normally closed contact 240V AC 10A minimum to the Fire Trip terminals.



17. Control Menu

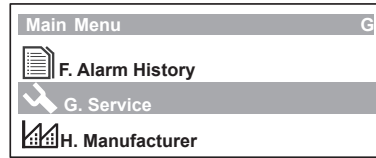
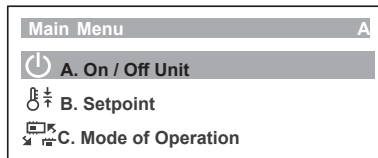
17.01. Menu Navigation



Example below will show the navigation to **Gfc4. Thermoregulat.**

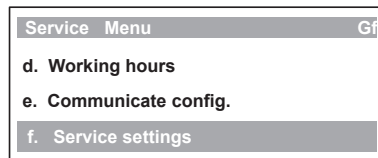
G. Service → **Gf. Service settings** → **Gfc. Thermoregulation** → **Gfc4. Thermoregulat.**

Step 1. To get into the main menu in the control interface, press **Prg**. The display will show the list of available sub menus. Press \downarrow or \uparrow button to scroll through the sub menus and select **G. Service**. Press \leftarrow to enter the sub menu.



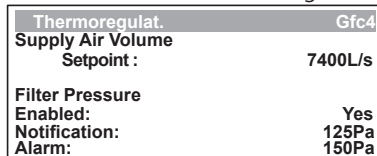
Step 2. Press \downarrow or \uparrow button to scroll to menu **Gf. Service settings** then press \leftarrow .

Press \downarrow or \uparrow button to scroll to menu **Gfc. Thermoregulation** then press \leftarrow .



Step 3. Press \downarrow or \uparrow button to scroll to menu **Gfc4 Thermoregulat.** then press \leftarrow .

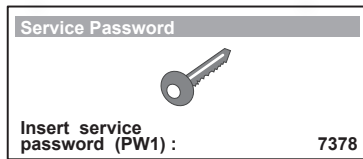
Set the fields based on desired configuration.



17.02. Service Password

To access the Service Settings pages, a password is required: 7378

G. Service → **Gf. Service settings** → **Change password to 7378**

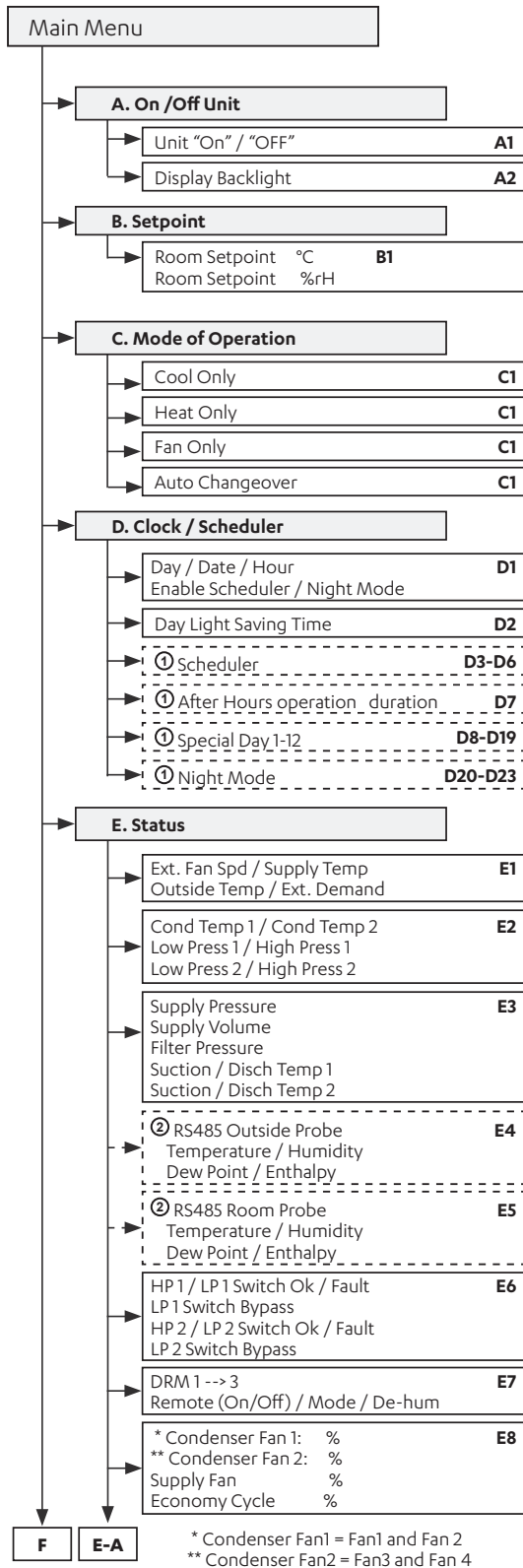


WARNING

Unauthorized access to Service Menu and inadvertent changes to the settings can cause damage to the air conditioning system which will render ActronAir warranty null and void.

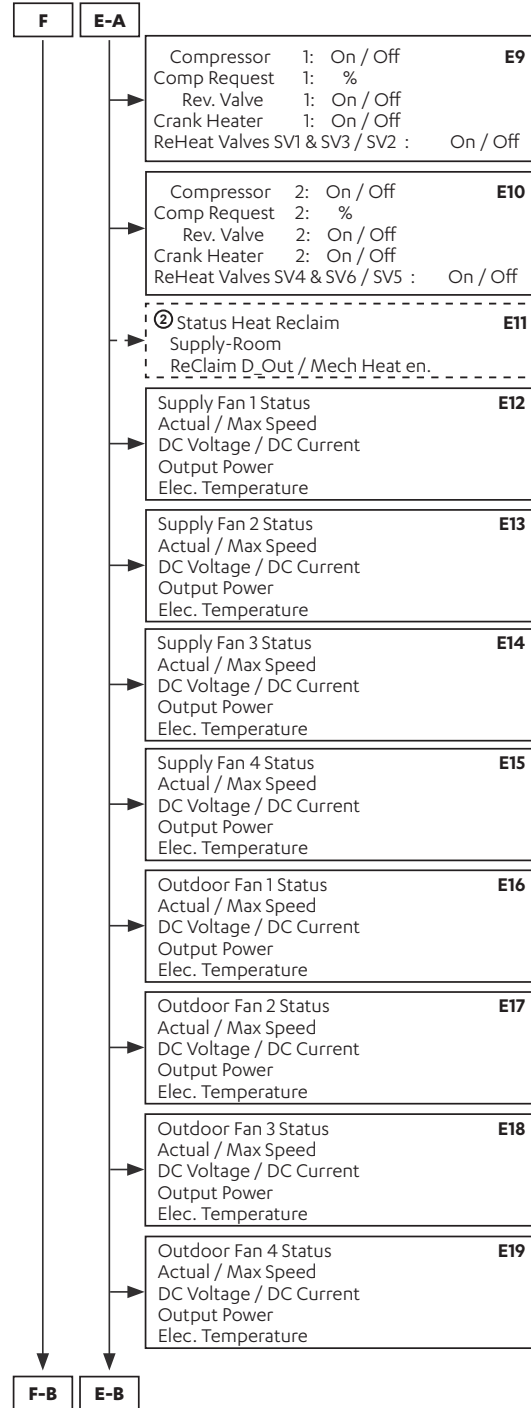
18. Menu Tree

18.01. Main / Status Menu

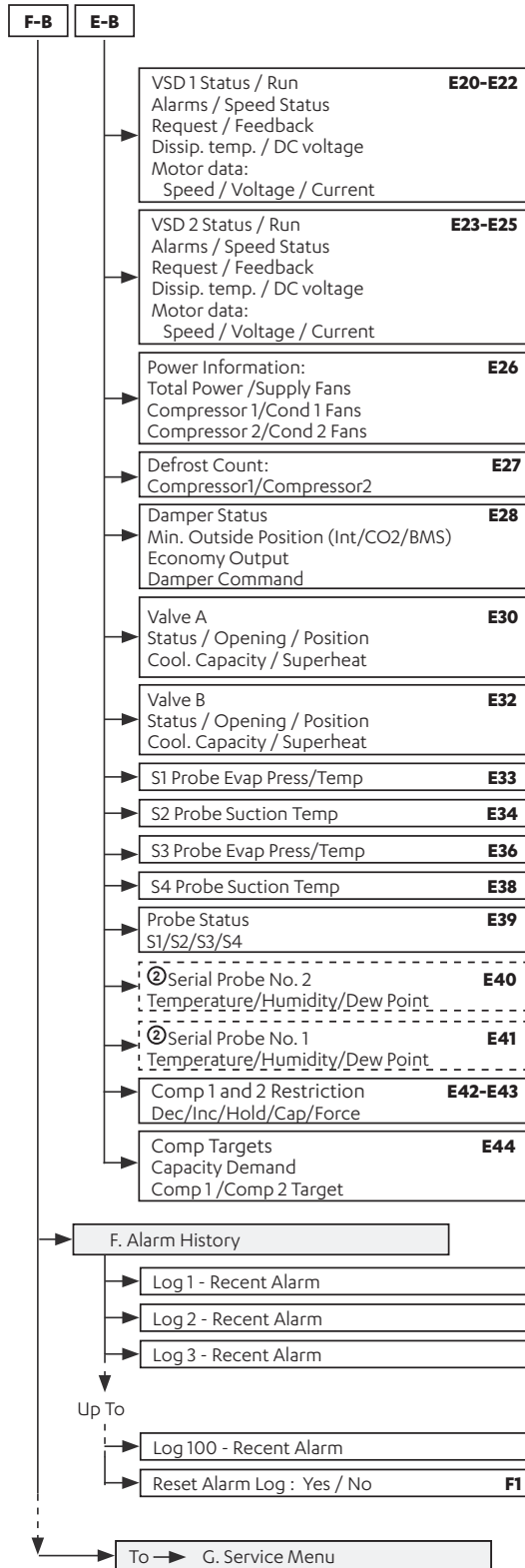


NOTES:
To toggle (scroll) **Up** or **Down** from existing menu, press ↓ or ↑ button.

LEGEND:
① Available when enabled via Clock / Scheduler **D1**.
② Available when enabled via Service Menu.



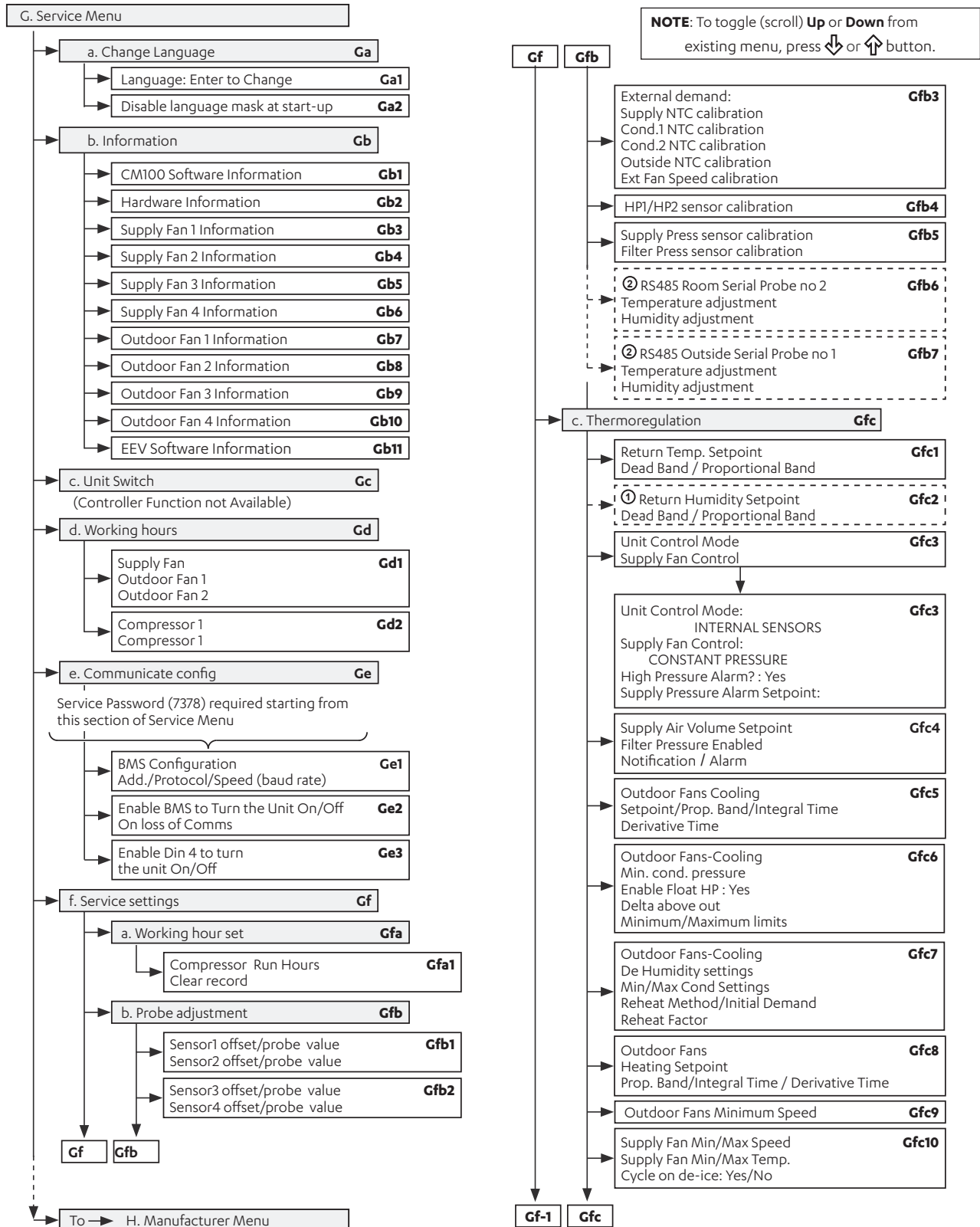
18.02. Consumer / End User Menu

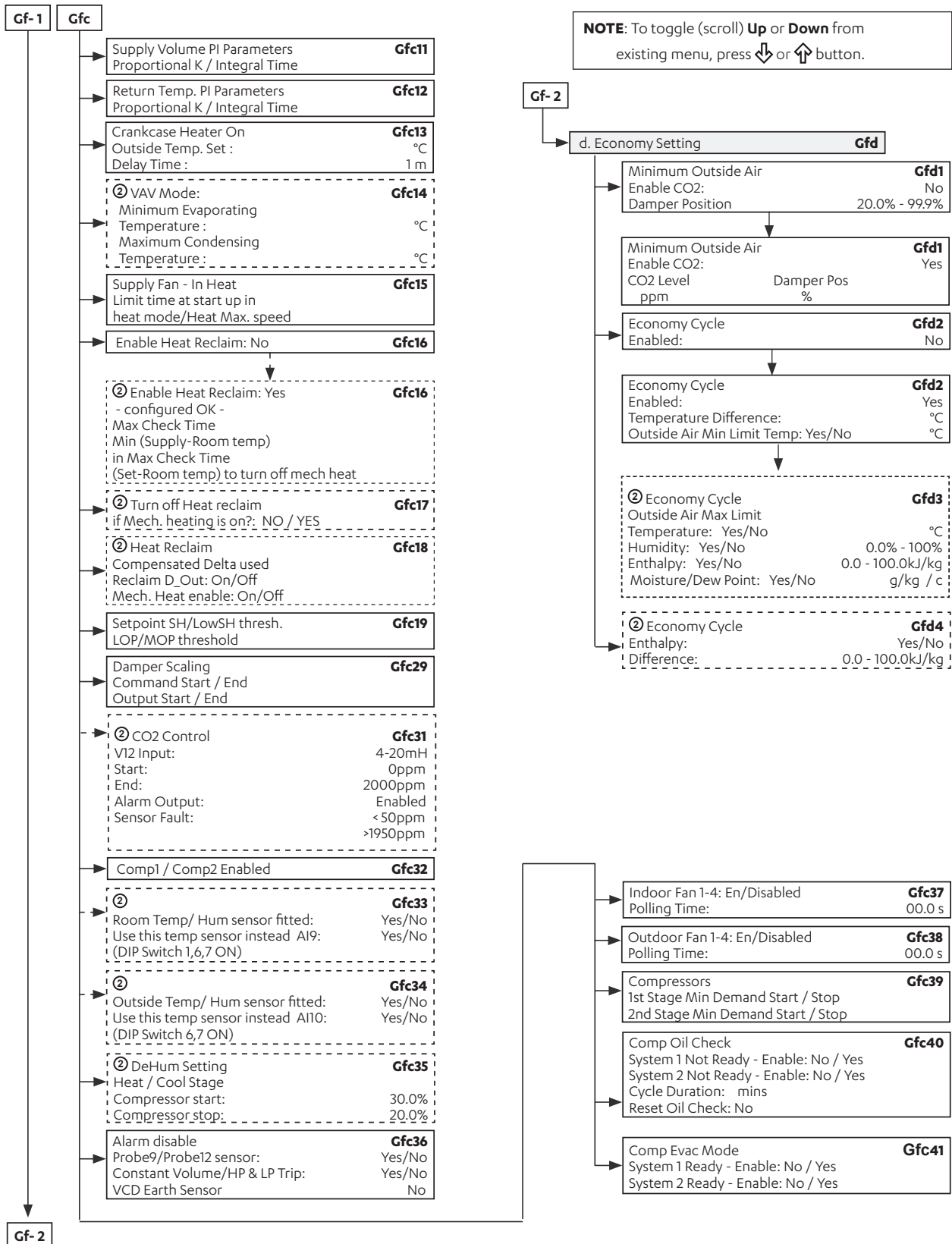


NOTES:
To toggle (scroll) **Up** or **Down** from existing menu,
press **↓** or **↑** button.

LEGEND:
ⓓ Available when enabled via Clock / Scheduler **D1**.
Ⓢ Available when enabled via Service Menu.

18.03. Service Menu





19. Unit Control Mode

19.01. Internal Sensors with Optional Basic BMS

19.01.01. Wiring

1. Fit supplied Return Air Temperature Sensor, or equivalent.
2. Fit optional Room Humidity Sensor for Economy Cycle or ReHeat, if required.
3. Fit optional Outside Air Humidity Sensor for Economy Cycle, if required.

19.01.02. Menu Settings

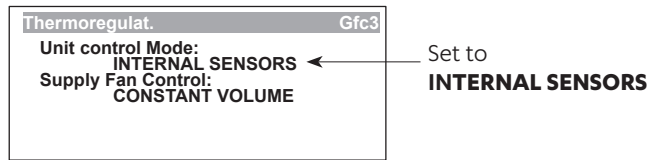
Step 1. Check that the Unit Control Mode is set to **INTERNAL SENSORS** via Service menu - screen **Gfc3**:

Menu Progression:

Main Menu → **G. Service** → **Gf. Service settings** → **Gfc. Thermoregulation** → **Gfc3**

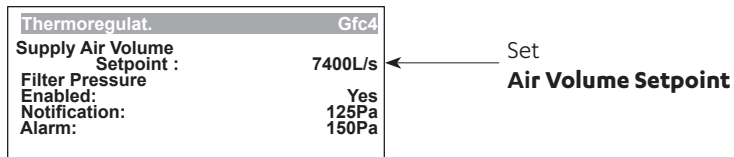
NOTE

Thermoregulation is under Service settings sub-menu level, which is password protected, enter the Service Password (7378) to access the menu.

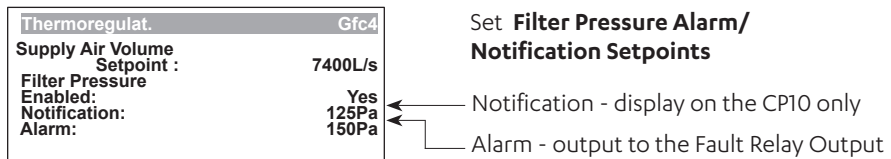


NOTE: Internal Sensors is the default setting.

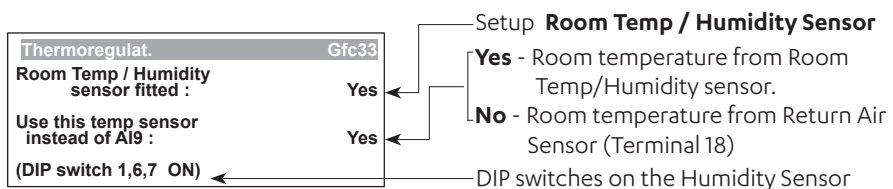
Step 2. Set Air Volume Setpoint - screen **Gfc4**:



Step 3. Set Filter Pressure Alarm Setpoint - screen **Gfc4**:



Step 4. If optional Room Temp/Humidity sensors are used, Setup - screen **Gfc33 / Gfc34**, as required:



Step 5. If optional Outside Temp/Humidity sensors are used, Setup - screen **Gfc33 / Gfc34**, as required:

Thermoregulat.		Gfc34
Outside Temp / Humidity sensor fitted :	Yes	Setup Outside Temp / Humidity Sensor Yes - Outside temperature from Outside Temp/Humidity sensor. No - Outside temperature from factory fitted outside air temperature sensor
Use this temp sensor instead of AI10 :	Yes	
(DIP switch 6,7 ON)		DIP switches on the Humidity Sensor

Step 6. Disable Alarms from Fault Relay Output if desired.

NOTE

Safety logic is not being bypassed. Only selected warning notifications to also be used on the Fault Output Relay - screen **Gfc36**:

Alarm disable		Gfc36
Probe 9 sensor :	No	Disable Alarms from Fault Relay Output, if desired
Probe 12 sensor :	No	
Constant Volume :	No	
HP & LP Trip :	No	
VSD Earth Sensor:	No	

Step 7. Setup **Economy Cycle** via Service menu - screen **Gfd1 - Gfd4**, as applicable:

NOTE

Some options require 1 or 2 Humidity Sensors to be connected and setup.

Min Outside Air		Gfd1
Enable CO2	No	
Damper Position :	20.0%	

Economy Cycle		Gfd2
Enabled :	Yes	
Temperature Difference :	2.°C	
Outside Air Min Limit Temperature :	No	

- or -

Economy Cycle		Gfd2
Enabled :	Yes	
Temperature Difference :	1.°C	
Outside Air Min Limit Temperature :	Yes	10.°C

Economy Cycle		Gfd3
Outside Air Max Limit Temperature :	Yes	28.°C
Humidity :	Yes	60.0%
Enthalpy :	Yes	45.0kJ/kg
Moisture :	Yes	8.0g/kg

- or -

Economy Cycle		Gfd3
Outside Air Max Limit Temperature :	Yes	28.°C
Humidity :	Yes	60.0%
Enthalpy :	Yes	45.0kJ/kg
Dew Point :	Yes	15.°C

Economy Cycle		Gfd4
Enthalpy Difference :	No	

- or -

Economy Cycle		Gfd4
Enthalpy Difference :	Yes	10.0kJ/kg

Step 8. Enable DIN4 to Turn the Unit On/Off if desired and not using Scheduler via Service menu - **Ge3**:

NOTE: Ensure Enable Scheduler is set to **No** (Step 9)

Menu Progression:

Main Menu → G. Service → e. Communicate config. → Bms config. Ge3:

Bms Config. Ge3	
Enable Din 4 to turn the unit On / Off :	Yes

Change to **Yes** to enable Remote ON/OFF Digital Input Control (Terminal 21)

NOTE: **No** is the default setting.

Step 9. Setup **Scheduler** via User menu - **D1** to **D6**, if applicable. If not in use, answer **No** in **D1**:

NOTE: Ensure DIN4 is set to **No** (Step 8)

Menu Progression:

Main Menu → D. Clock/Scheduler → Clock D1 - D6

Clock D1	
Day:	Tuesday
Date:	17 / 05 / 16
Hour:	12:18
Enable Scheduler:	Yes
Enable Night Mode:	No

Set to **Yes** to enable scheduler
No to disable scheduler

Setup Monday to Sunday Events, as required:

Clock D3	
Monday ,	
Event 1 :	00:00 to 00:00
Event 2 :	00:00 to 00:00
Tuesday ,	
Event 1 :	00:00 to 00:00
Event 2 :	00:00 to 00:00
Clock D6	
Sunday ,	
Event 1 :	00:00 to 00:00
Event 2 :	00:00 to 00:00

Setup **Monday to Sunday Events**, as required

Step 10. Set Mode of Operation to **AUTO CHANGE OVER** via User menu-**C1**:

Menu Progression:

Main Menu → C. Mode of Operation → C1:

Heat / Cool C1	
Mode :	AUTO CHANGE OVER

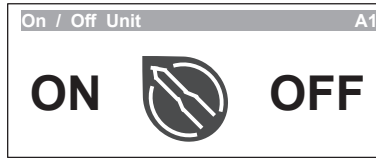
Set to **AUTO CHANGE OVER**

NOTE: **AUTO CHANGE OVER** is the default setting, set the Mode of Operation as per your requirement.

Step 11. Turn Unit **ON** via User menu - **A1**:

Menu Progression:

Main Menu → **A. On/Off Unit** → **A1**:

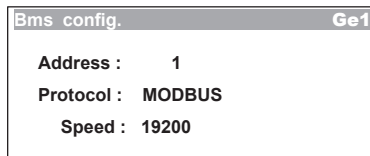


If you want to monitor system operation with basic BMS:

Step 12. Configure BMS via Service menu - **Ge1**:

Menu Progression:

G. Service → **Ge. Communicate Config.** → **Ge1**



Step 13. See document BMS Installation and Commissioning Guide Part No: 0525-036.

If you now want to also turn the unit on and off with the BMS. i.e. the BMS operates the Time Clock/Scheduler:

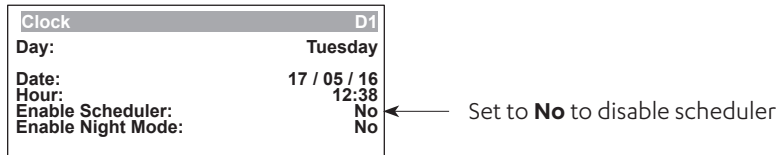
Step 14. Disable the **After Hours operation duration** via User menu - **D7**:



Step 15. Disable the **Scheduler** via User menu - **D1**:

Menu Progression:

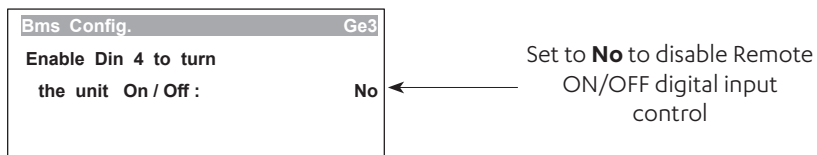
Main Menu → **D. Clock/Scheduler** → **Clock D1 - D6**



Step 16. Disable **Din 4** to Turn the Unit On/Off via Service menu - **Ge3**:

Menu Progression:

G. Service → **G3. Communicate Config.** → **Ge3**



Step 17. Enable **BMS** (Optional Basic BMS) to Turn the Unit On/Off via - **Ge2**:

Bms Config. Ge2	
Enable the BMS to turn the unit On / Off :	Yes
On loss of Comms:	TURN OFF

Set to **Yes** to enable BMS Remote ON/OFF control

Step 18. See document BMS Installation and Commissioning Guide Part No: 0525-036.

19.01.03. For Unit with ReHeat Coils (W - Option)

Step 1. Enable the optional Room Temp/Humidity sensor via Service menu - **Gfc33**:

Menu Progression:

Main Menu → G. Service → Gf. Service settings → Gfc. Thermoregulation → Gfc33

Thermoregulat. Gfc33	
Room Temp / Humidity sensor fitted :	Yes
Use this temp sensor instead of AI9 : (DIP switch 1,6,7 ON)	Yes

Select **Yes** to enable **Room Temp / Humidity Sensor**

See note below

NOTE

Select sensor to use for room temperature reading as follows:

- **Yes** - use the Room Temp / Humidity sensor (To be purchased separately).
- **No** - use the Return Temp Sensor (Terminal 18).

Step 2. Enter the desired **Room Setpoint %rh** via Setpoint menu - B1:

Menu Progression:

B. Setpoint → B1

Setpoint B1	
Room Setpoint:	23.0 °C
Room Setpoint:	60.0%rH

Enter the desired **Room Setpoint %rH**

19.02. External Inputs

19.02.01. Wiring

- Step 1. Wire up Fire Trip if applicable. Please refer to wiring diagram provided with the unit.
- Step 2. Connect: On/Off, Heat, De-hum (if fitted), 0-10V Comp Demand, 0-10V In-Fan Demand. (Refer to Wiring Diagram provided with your unit).
- Step 3. Remove Economy Damper wire, and insert 3rd Party Control 0-10V wire.

19.02.02. Menu Settings

Step 1. Check that the Unit Control Mode is set to **External Inputs** via Service menu - screen **Gfc3**:

Menu Progression:

Main Menu → G. Service → Gf. Service settings → Gfc. Thermoregulation → Gfc3



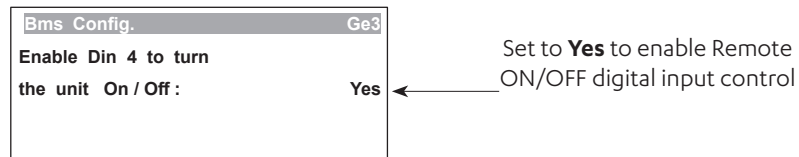
NOTE

Thermoregulation is under Service settings sub-menu level, which is password protected, enter the Service Password (7378) to access the menu.

Step 2. Enable **DIN4** to Turn the Unit On/Off via Service menu - **Ge3**:

Menu Progression:

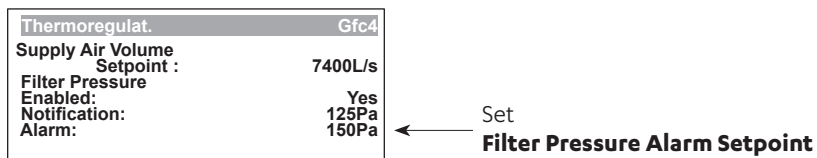
G. Service → Ge. Communicate Config. → Ge3



Step 3. Enable Filter Pressure then set Notification and Alarm Setpoints - screen **Gfc4**:

Menu Progression:

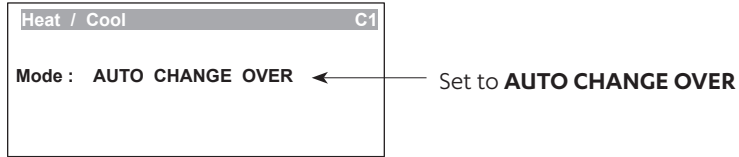
Main Menu → G. Service → Gf. Service settings → Gfc. Thermoregulation → Gfc4



Step 4. Set Mode of Operation to **AUTO CHANGE OVER** via User menu-**C1**:

Menu Progression:

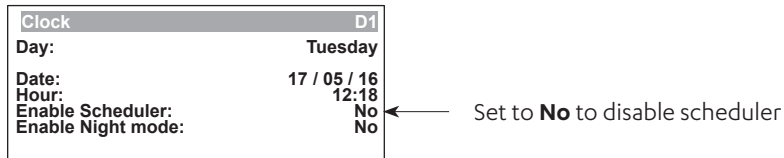
Main Menu → C. Mode of Operation → C1:



Step 5. Ensure **Scheduler** is Off via User Menu - **D1**:

Menu Progression:

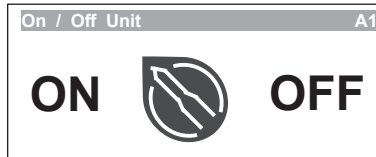
Main Menu → D. Clock/Scheduler → D1



Step 6. Turn Unit **ON** via User menu - **A1**:

Menu Progression:

Main Menu → A. On/Off Unit → A1:



19.02.03. External Inputs Operation

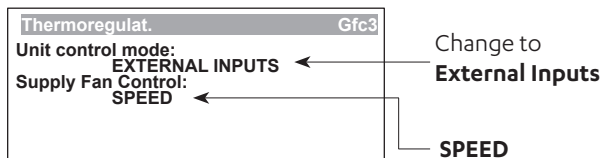
Step 1. Provide **REMOTE ON/OFF** signal. Indoor Fan will run at minimum speed (40%) if no IN-FAN DEMAND signal is provided.

There is the option of using the IN-FAN 0-10V terminal for either Supply Fan Control of either speed or volume.

For Supply Fan Control of Speed go to Step 2. For Supply Fan Control of Volume go to Step 3.

Step 2. Provide Indoor Fan speed signal of 4.0-10.0V for 40-100% speed via IN-FAN DEMAND 0-10V terminal.

Main Menu → G. Service → Gf. Service settings → Gfc. Thermoregulation → Gfc3



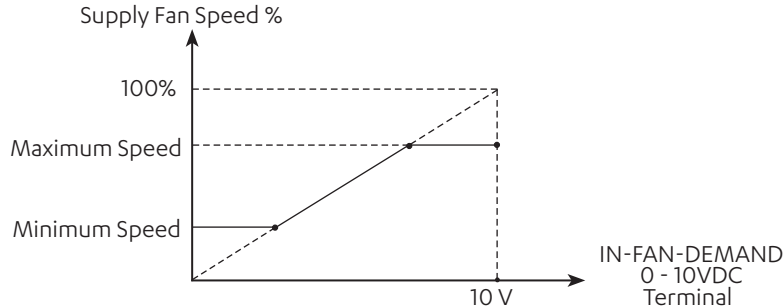
For Supply Fan Control with **SPEED** option, go to **Gfc10** to set the Supply Fan Minimum Speed and Supply Fan Maximum Speed.

Main Menu → **G. Service** → **Gf. Service settings** → **Gfc. Thermoregulation** → **Gfc10**

Thermoregulat.		Gfc10
Supply Fan		
Minimum Speed:	40.0%	
Maximum Speed:	99.0%	
Supply Fan Temp.		
Minimum temp.:	10.0°C	
Maximum temp.:	50.0°C	
Cycle on de-ice:	No	

Adjust Minimum Speed for your application (if required)

Adjust Maximum Speed for your application (if required)



The unit will now operate the supply fan to achieve the requested speed as applied to the IN-FAN DEMAND 0-10V terminal.

Step 3. If the user selects the Supply Fan Control with **VOLUME** option, as shown below:

Thermoregulat.		Gfc3
Unit control mode:	EXTERNAL INPUTS	
Supply Fan Control:	VOLUME	

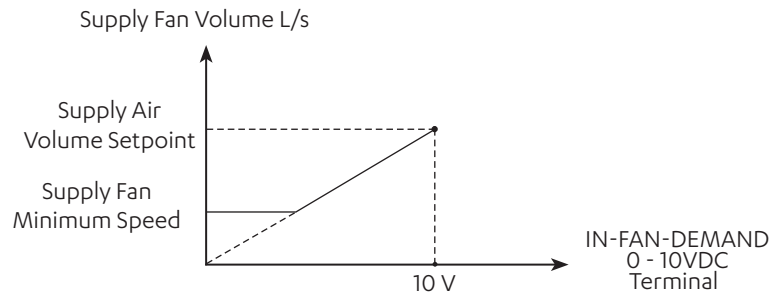
Change to **EXTERNAL INPUTS**

Change to **VOLUME**

Set the maximum Supply Air Volume by adjusting the Supply Air Volume Setpoint. This is adjustable between the units Minimum and Maximum Indoor Airflow (see Fan Performance Data in Section 23.01).

Main Menu → **G. Service** → **Gf. Service settings** → **Gfc. Thermoregulation** → **Gfc4**

Thermoregulat.		Gfc4
Supply Air Volume		
Setpoint:	7400L/s	
Filter Pressure		
Enabled:	Yes	
Notification:	125Pa	
Alarm:	150Pa	



The unit will now operate the supply fan to achieve the requested volume as applied to the IN-FAN DEMAND 0-10V terminal.

The Indoor Fan Speed Minimum and Maximum as set on screen **Gfc10** still apply.

Step 4. Provide **HEAT ON** and **COMP DEMAND 0-10V** signals as required for temperature regulation.

19.03. BMS Demand (Advanced BMS)

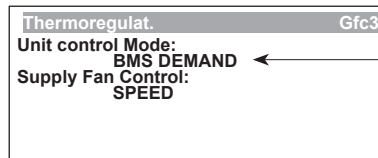
BMS DEMAND allows for a System Compressor Capacity Demand from a single BMS point /register and the unit will manage the operation of the 2 compressors as required.

19.03.01. Menu Settings

Step 1. Change Unit Control Mode to **BMS DEMAND** via Service menu - screen **Gfc3**:

Menu Progression:

Main Menu → G. Service → Gf. Service settings → Gfc. Thermoregulation → Gfc3



Set to **BMS DEMAND**

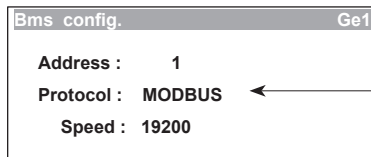
NOTE

Thermoregulation is under Service settings sub-menu level, which is password protected, enter the Service Password (7378) to access the menu.

Step 2. Configure BMS via Service menu - **Ge1**:

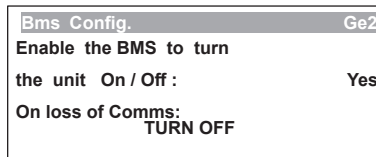
Menu Progression:

Main Menu → G. Service → Ge. Communicate Config. → Ge1



Screen settings dependent on BMS Card used (See document BMS Installation and Commissioning Guide Part No: 0525-036 for setup details)

Step 3. Enable **BMS** to Turn the Unit On/Off via - **Ge2**:

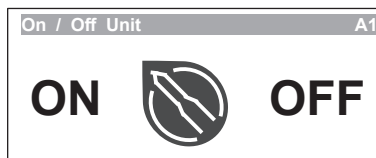


Set to **Yes** to enable BMS Remote ON/OFF control

Step 4. Turn Unit **ON** via User menu - **A1**:

Menu Progression:

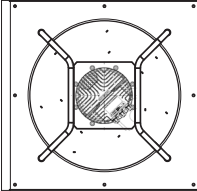
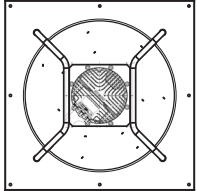
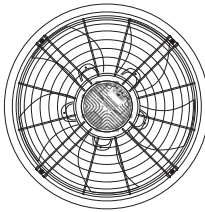
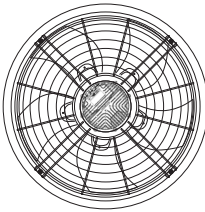
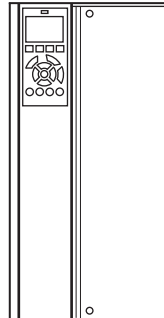
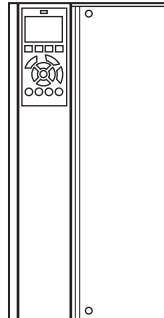
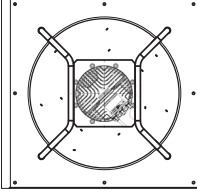
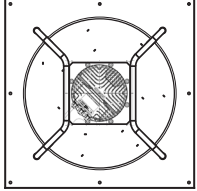
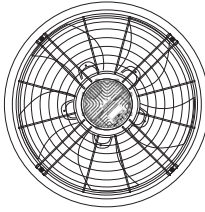
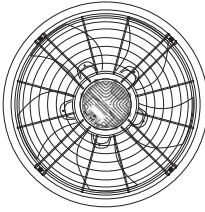
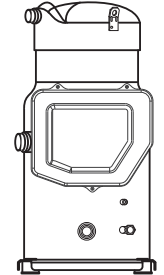
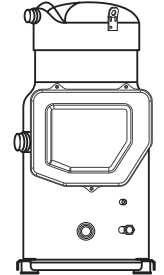
Main Menu → A. On/Off Unit → A1:



19.03.02. BMS Operation

Step 1. See document BMS Installation and Commissioning Guide Part No: 0525-036.

20. Indoor Fans, Outdoor Fans and Compressors Addresses

Indoor Fans Number and Address (Front View)					Outdoor Fans Number and Address (Top View)					VSD / Compressor No. and Address (Front View)		
												
Fan # 2 Address 3		Fan # 1 Address 2		Fan # 2 Address 11		Fan # 3 Address 12		VSD 1 Address #20		VSD 2 Address #21		
												
Fan # 3 Address 4		Fan # 4 Address 5		Fan # 1 Address 10		Fan # 4 Address 13		Comp # 1		Comp # 2		
Bottom					Compressor Section End							
Fan Number	1	2	3	4	Fan Number	1	2	3	4	VSD / Compressor No.	1	2
Address	2	3	4	5	Address	10	11	12	13	VSD Address	20	21

21. Sensors Detail

Temperature Sensors

Description	Location	Type
Compressor 1 Suction Temperature Sensor	Compressor 1 Suction line	NTC
Compressor 2 Suction Temperature Sensor	Compressor 2 Suction line	NTC
Compressor 1 Discharge Temp. Sensor	Compressor 1 Discharge line	PT100
Compressor 2 Discharge Temp. Sensor	Compressor 2 Discharge line	PT100
Outdoor Coil 1 Temperature Sensor	Last return bend of Top Coil system 1	NTC
Outdoor Coil 2 Temperature Sensor	Last Return Bend of Top Coil system 2	NTC
Supply Air Temperature Sensor	Indoor Fan outlet	NTC
Return Air Temperature Sensor	Return Air side before Filter	NTC
Ambient Air Temperature Sensor	Outdoor Coil System 2 Air Inlet side	NTC

Pressure Sensors (Refrigeration side)

Description	Location	Type
Compressor 1 High Pressure Sensor	Compressor 1 Discharge Line	Transducer
Compressor 2 High Pressure Sensor	Compressor 2 Discharge Line	Transducer
Compressor 1 Low Pressure Sensor	Compressor 1 Suction Line	Transducer
Compressor 2 Low Pressure Sensor	Compressor 2 Suction Line	Transducer

Pressure Sensors (Air side)

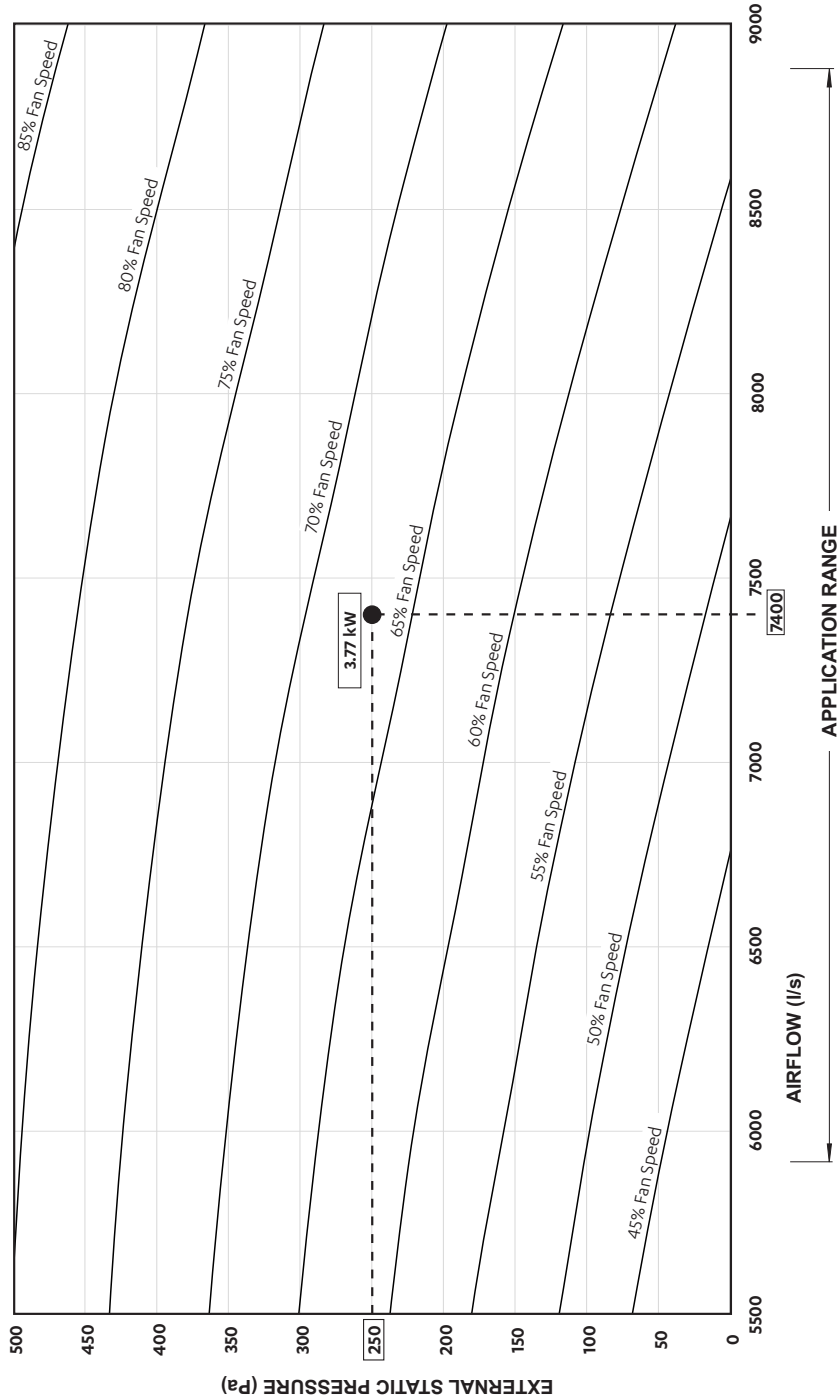
Description	Location	Type
Supply Fan Pressure Sensor	Indoor Fan Supply Air side (Taking reading between Fan Inlet and Inlet ring of the Fan)	Differential Pressure Sensor
Filter Differential Pressure Sensor	Before Filter on the Return Air side (Taking reading between Filter Inlet and Outlet)	Differential Pressure Sensor

Switches

Description	Location	Type
Compressor 1 High Pressure Switch	Compressor 1 Discharge Line	Pressure Switch
Compressor 2 High Pressure Switch	Compressor 2 Discharge Line	Pressure Switch
Compressor 1 Low Pressure Switch	Compressor 1 Suction Line	Pressure Switch
Compressor 2 Low Pressure Switch	Compressor 2 Suction Line	Pressure Switch

22. EC Indoor Fan Commissioning

22.01. Fan Curve - PKV1400T



NOTES

This Fan Curve shows the relationship between Airflow Volume (l/s), Fan Speed % and External Static Pressure.

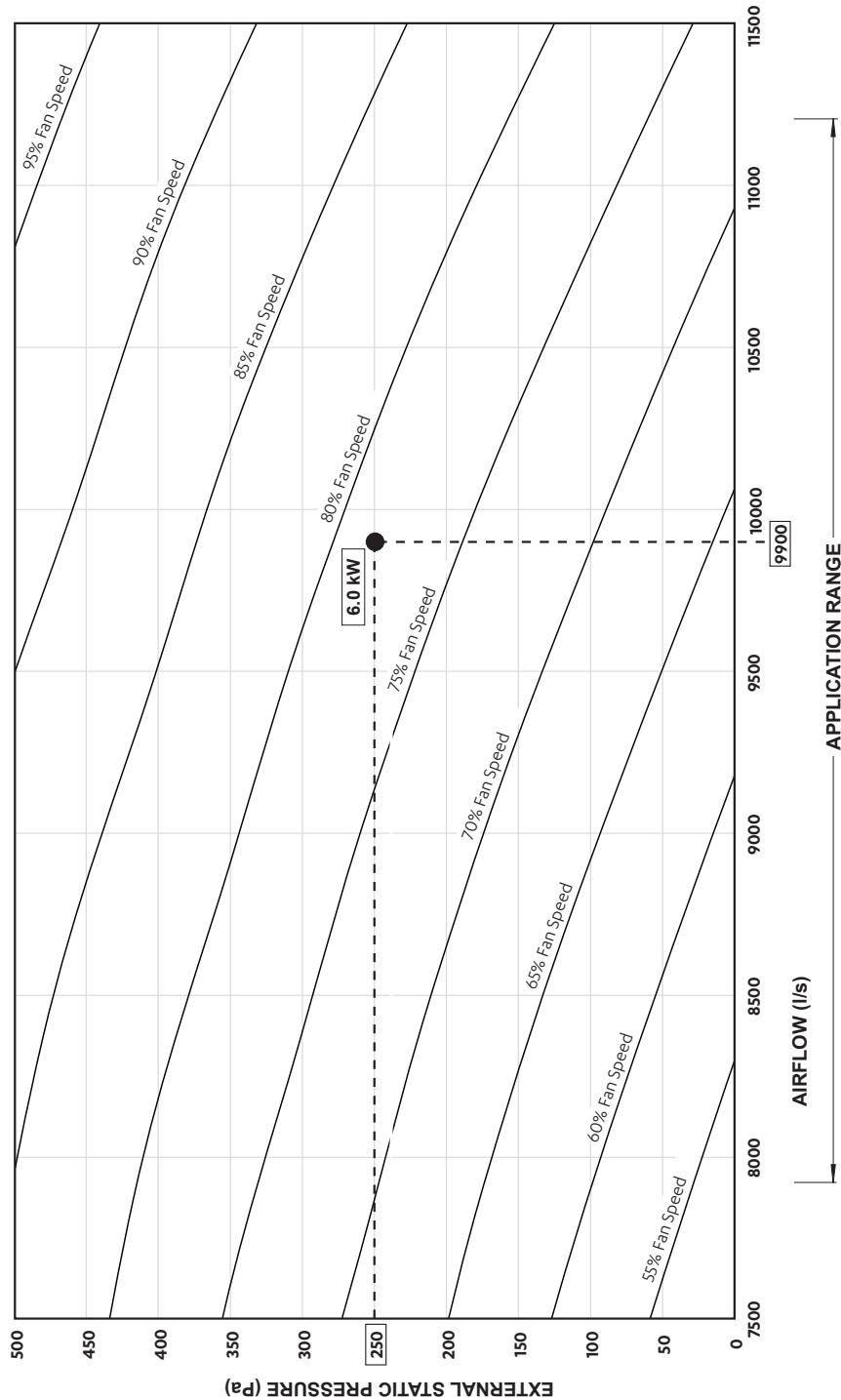
Example: Airflow of 7400 l/s with Ext. Static Press of 250 Pa will require 66.9% Fan Speed.

For Internal Sensors Control, set Airflow Volume (l/s) on the Control Interface via Service Menu, as follows:

G. Service Menu → **f.** Service settings → **c.** Thermoregulation → **Gfc4** Supply Air Volume Setpoint.

For External Inputs or BMS Demand, set the corresponding (0-10V or 0-100%) inputs for the required % Fan Speed.

22.02. Fan Curve - PKV2000T



NOTES

This Fan Curve shows the relationship between Airflow Volume (l/s), Fan Speed % and External Static Pressure.

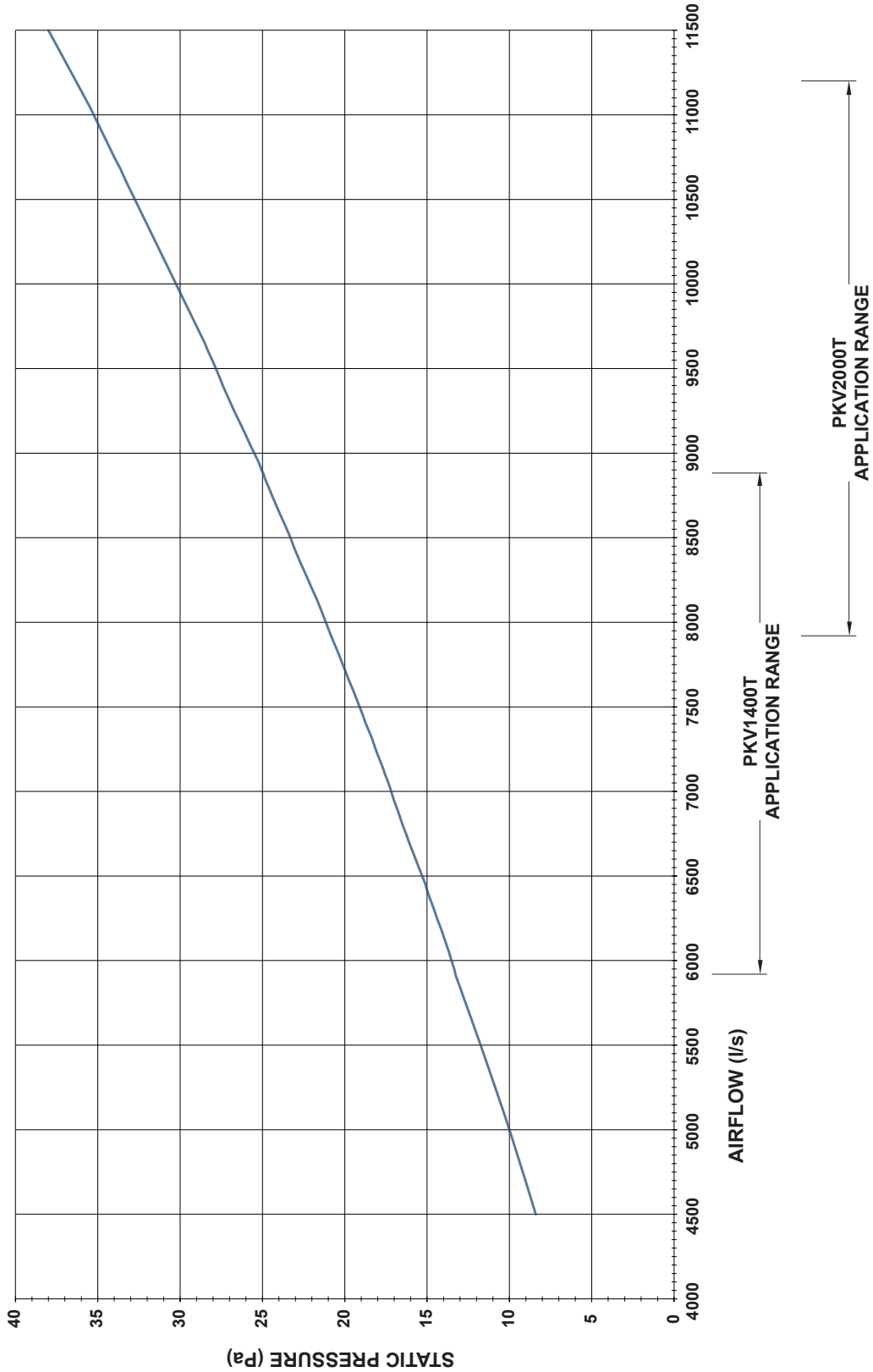
Example: Airflow of 9,900 l/s with Ext. Static Press of 250 Pa will require 78.6% Fan Speed.

For Internal Sensors Control, set Airflow Volume (l/s) on the Control Interface via Service Menu, as follows:

G. Service Menu → **f.** Service settings → **c.** Thermoregulation → **Gfc4** Supply Air Volume Setpoint.

For External Inputs or BMS Demand, set the corresponding (0-10V or 0-100%) inputs for the required % Fan Speed.

22.03. Re-Heat Coil Static Pressure



23. EC Fan Door Commissioning

23.01. Fan Performance Data - PKV1400T

AIRFLOW (l/s)	50		100		150		200		250		300		350		400		450		500	
	% Speed	kW	% Speed	kW	% Speed	kW	% Speed	kW	% Speed	kW	% Speed	kW	% Speed	kW	% Speed	kW	% Speed	kW	% Speed	kW
5920	45.2	1.18	49.9	1.54	54.1	2.02	58.1	2.47	62.1	2.99	66	3.55	69.8	4.10	73.3	4.72	76.9	5.35	80.4	5.96
6000	45.6	1.20	50.2	1.56	54.4	2.05	58.4	2.50	62.3	3.02	66.2	3.59	70	4.13	73.4	4.77	77	5.40	80.5	6.01
6500	48.1	1.37	52.3	1.79	56.3	2.25	60.3	2.73	63.7	3.27	67.4	3.82	71.1	4.41	74.5	5.07	77.8	5.69	81.1	6.35
7000	50.6	1.57	54.5	2.03	58.3	2.47	62	2.99	65.5	3.55	68.9	4.09	72.2	4.69	75.6	5.36	78.9	5.99	82	6.69
7400	52.5	1.77	56.3	2.23	60	2.66	63.5	3.22	66.9	3.77	70.3	4.35	73.4	4.97	76.6	5.60	79.9	6.25	82.9	6.98
7500	53	1.81	56.7	2.28	60.4	2.71	63.9	3.28	67.3	3.83	70.7	4.41	73.7	5.04	76.8	5.66	80.1	6.31	83.1	7.05
8000	55.6	2.05	59.2	2.54	62.5	3.04	65.8	3.56	69.3	4.14	72.4	4.76	75.4	5.40	78.3	6.00	81.3	6.69	84.2	7.42
8500	58.2	2.31	61.6	2.84	64.8	3.39	68	3.90	71.1	4.45	74.2	5.13	77.2	5.77	80.1	6.39	82.8	7.11	85.5	7.83
8880	60.2	2.51	63.4	3.11	66.5	3.65	69.7	4.18	72.6	4.76	75.6	5.41	78.6	6.05	81.4	6.74	84.1	7.47	86.7	8.17

NOTES:

Airflow = Supply Airflow, L/s

(Value is set on the Control Interface via G. Service Menu*).

% Speed = Corresponding Indoor Fan Speed at Set Static.

kW = Indoor Fan Power, kilowatts

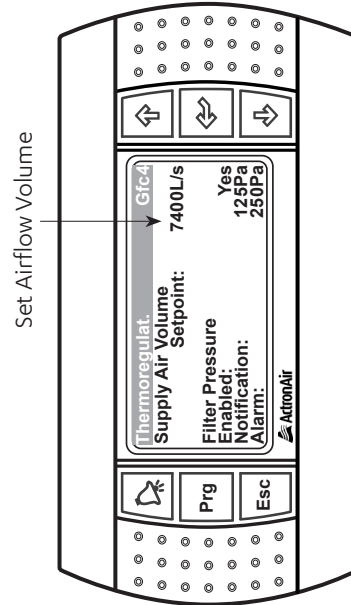
- Data in the box indicates values at selected Airflow.

Performance Fan Data shown is at Dry Coil Condition and without air filters.

For system with Re-Heat Coil, please see Re-Heat Coil Static Pressure graph.

*** NOTE:** Set the Airflow on the Control Interface as follows:

G. Service Menu → **f.** Service settings → **c.** Thermoregulation → **Gfc4** Supply Air Volume Setpoint



23.02. Fan Performance Data - PKV2000T

AIRFLOW (l/s)	50		100		150		200		250		300		350		400		450		500	
	% Speed	kW	% Speed	kW	% Speed	kW	% Speed	kW	% Speed	kW	% Speed	kW	% Speed	kW	% Speed	kW	% Speed	kW	% Speed	kW
7920	56.7	2.22	60.2	2.69	63.5	3.20	66.9	3.74	70.3	4.33	73.3	4.96	76.3	5.59	79.3	6.19	82.3	6.92	85.2	7.66
8000	57.1	2.26	60.6	2.74	63.9	3.25	67.2	3.79	70.6	4.38	73.6	5.02	76.6	5.65	79.5	6.25	82.5	6.99	85.4	7.72
8500	59.8	2.53	63.1	3.10	66.3	3.63	69.4	4.12	72.5	4.76	75.6	5.43	78.5	6.05	81.3	6.71	84	7.43	86.8	8.16
9000	62.4	2.88	65.6	3.49	68.7	3.99	71.7	4.56	74.6	5.17	77.5	5.81	80.5	6.50	83.2	7.23	85.8	7.93	88.4	8.62
9500	65.2	3.26	68.2	3.85	71.1	4.43	74	5.03	76.8	5.62	79.7	6.24	82.4	6.99	85.1	7.75	87.7	8.44	90.3	9.16
9900	67.4	3.56	70.4	4.17	73.2	4.83	75.9	5.43	78.6	6.00	81.4	6.67	84	7.39	86.7	8.15	89.3	8.88	91.7	9.65
10000	68	3.64	70.9	4.25	73.7	4.93	76.4	5.53	79.1	6.09	81.8	6.77	84.4	7.49	87.1	8.25	89.7	8.99	92.1	9.77
10500	70.8	4.05	73.5	4.74	76.3	5.43	78.9	6.03	81.5	6.68	84	7.34	86.6	8.05	89.2	8.78	91.6	9.57	94	10.41
11000	73.8	4.58	76.3	5.25	78.9	5.95	81.4	6.63	83.9	7.31	86.4	7.98	88.8	8.62	91.2	9.36	93.6	10.20	95.8	10.69
11200	74.9	4.77	77.4	5.45	80	6.18	82.4	6.89	84.9	7.58	87.4	8.23	89.8	8.91	92.1	9.65	94.4	10.45	96.5	11.00

NOTES:

Airflow = Supply Airflow, L/s

(Value is set on the Control Interface via G. Service Menu*)

% Speed = Corresponding Indoor Fan Speed at Set Static.

kW = Indoor Fan Power, kilowatts

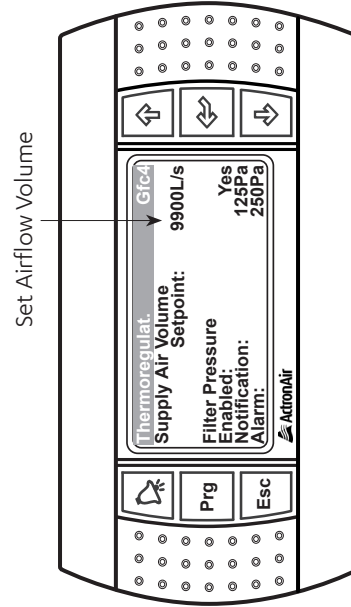
- Data in the box indicates values at selected Airflow.

Performance Fan Data shown is at Dry Coil Condition and without air filters.

For system with Re-Heat Coil, please see Re-Heat Coil Static Pressure graph.

*** NOTE:** Set the Airflow on the Control Interface as follows:

G. Service Menu → **f**. Service settings → **c**. Thermoregulation → **Gfc4** Supply Air Volume Setpoint



24. Refrigerant Charging

IMPORTANT NOTES

- **The units detailed on this guide are pre-charged with R-410A refrigerant.** Should there be need to add or remove some refrigerant, it is recommended to follow one of the charging methods explained below.
- Never allow R-410A refrigerant to vent into the atmosphere. This is a serious offence in Australia and New Zealand. Always reclaim refrigerant using equipment and container dedicated for R-410A system use only.
- All work must be carried out in accordance with Australia and New Zealand refrigerant handling code of practice.
- Only qualified technicians must perform any work related to addition or removal of refrigerant.
- R-410A refrigerant must always be charged in liquid state.
- Only during the compressor running condition the system can be charged through the suction service port on the compressor suction line.
- Changes in refrigerant charge must be noted to a label that is fixed to the unit for future reference.

CAUTION

R-410A refrigerant has POE oil that rapidly absorbs moisture. The maximum time any system can be opened to atmosphere is 15 minutes.

Refrigerant Charge Details			
Refrigerant Type	Units	PKV1400T	PKV2000T
		R-410A	R-410A
Refrigerant Charge - Circuit #1	grams	19,500	28,000
Refrigerant Charge - Circuit #2	grams	19,500	28,000

Charging Method: Subcooling and Superheat

The primary method for correctly adjusting the charge for electronic expansion valve system is subcooling. In normal steady state condition Controller adjusts the EEV steps to maintain superheat as close as possible to the target superheat, which corresponds with the discharge superheat as per below table.

Heating Cycle

During the heating cycle, the compressor will follow the logic below to achieve the target superheat.

Conditions		Target Superheat
Compressor Speed	Discharge Line Temperature (DLT)	
RPM > 3390	> 90°C	6K
	< 85°C	Normal 6K to 9K

Conditions		Target Superheat
Compressor Speed	Discharge Line Temperature (DLT)	
RPM < 3360	> 90°C	6K
	< 85°C	Normal 6K to 9K

Cooling Cycle

During the cooling cycle, the compressor will follow the logic below to achieve the target superheat.

Conditions		Target Superheat
Compressor Speed	Discharge Line Temperature (DLT)	
RPM > 3390	> 90°C	6K
	< 85°C	Normal 6K to 9K

Conditions		Target Superheat
Compressor Speed	Discharge Line Temperature (DLT)	
RPM < 3300	> 90°C	6K
	< 85°C	Normal 6K to 9K

Parameters:

LLT = Liquid Line Temperature

SLT = Suction Line Temperature

SCT = Saturated Condensing Temperature

SST = Saturated Suction Temperature

Cooling Operation:

Subcooling should be between 4K and 8K.

Heating Operation:

Subcooling should be between 8K and 14K.

Cooling and Heating Operation:

Adjust the refrigerant charge to obtain the correct super heat and sub-cool for optimal performance as follows:

1. Ensure that air filters are fitted and total system airflows are achieved. (Air filters are not supplied with the unit, it is the responsibility of the installing contractor to provide and fit adequate return air and fresh air filters).
2. Connect service gauges to the schrader valves. Two sets of service gauges are required, each one connected to circuit 1 and 2, in order to conduct simultaneous refrigerant charge adjustments.
3. Start the unit in cool mode ensuring that all refrigeration circuit compressors are in 100% operation before taking service gauges reading. Allow the system to stabilise for next 20 minutes before recording.

Record the discharge pressure, suction pressure, liquid line temperature and suction line temperature for both of the systems.

Circuit 1 (Compressor 1)

Discharge Pressure = _____ kPa

Suction Pressure = _____ kPa

Liquid Line Temperature (**LLT**) = _____ °C

Suction Line Temperature (**SLT**) = _____ °C

Circuit 2 (Compressor 2)

Discharge Pressure = _____ kPa

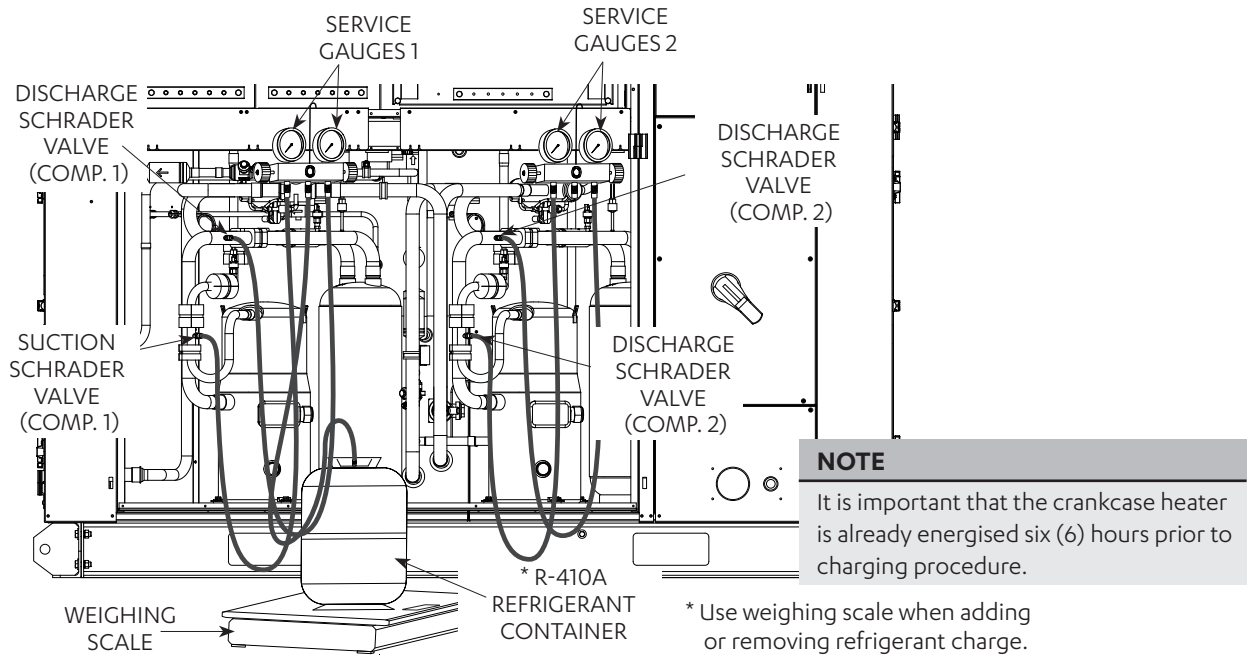
Suction Pressure = _____ kPa

Liquid Line Temperature (**LLT**) = _____ °C

Suction Line Temperature (**SLT**) = _____ °C

NOTES

Accurate pressure and temperature measuring tools should be used to achieve satisfactory results. The sensors of thermocouple must be in good contact with the area being measured and must be insulated in order to obtain correct reading.



Checking For Subcooling

(To be conducted for each refrigeration circuit compressor)

4. From the R-410A Pressure / Temperature Chart record the corresponding Saturated Condensing Temperature (SCT) at the given discharge pressure.
5. Calculate the system subcooling using the formula below:

$$\text{Subcooling} = \text{SCT} - \text{LLT}$$

6. If subcooling is within the range 4-8K, there is no need to add/remove refrigerant.
 - If subcooling is lower than 4K, the system is undercharged, it is necessary to add refrigerant.
 - If subcooling is higher than 8K, the system is overcharged, it is necessary to remove refrigerant.

Allow the systems to stabilise and repeat the step 1-3 until subcooling falls within 4-8K.

NOTE

The above recommendations are based on design conditions of 35°C DB (outdoor), air entering indoor at 27°C DB / 19°C WB (as per AS/NZS 3823.1.2).

Pressure / Temperature Chart

Temp °C	Pressure KPa	Temp °C	Pressure KPa	Temp °C	Pressure KPa	Temp °C	Pressure KPa
-60	-34.4	-28	194.9	4	805.9	36	2090.7
-59	-30.7	-27	206.9	5	834.1	37	2145.5
-58	-26.8	-26	219.2	6	862.9	38	2201.3
-57	-22.8	-25	231.9	7	892.6	39	2258.2
-56	-18.6	-24	245.1	8	922.8	40	2316.1
-55	-14.2	-23	258.7	9	953.8	41	2375.1
-54	-9.6	-22	272.6	10	985.4	42	2435.1
-53	-4.8	-21	286.9	11	1017.8	43	2496.2
-52	0.8	-20	301.7	12	1050.9	44	2558.5
-51	5.3	-19	316.9	13	1084.7	45	2621.8
-50	10.7	-18	332.6	14	1119.2	46	2686.2
-49	16.3	-17	348.7	15	1154.6	47	2751.8
-48	22.2	-16	365.2	16	1190.7	48	2818.5
-47	28.2	-15	382.3	17	1227.5	49	2886.4
-46	34.0	-14	399.7	18	1265.2	50	2955.5
-45	40.9	-13	417.7	19	1303.6	51	3025.7
-44	47.8	-12	436.2	20	1342.9	52	3097.2
-43	54.8	-11	455.1	21	1382.9	53	3169.9
-42	62.1	-10	474.6	22	1423.9	54	3243.7
-41	69.6	-9	494.6	23	1465.7	55	3318.9
-40	77.4	-8	515.1	24	1508.3	56	3395.2
-39	85.5	-7	536.2	25	1551.8	57	3472.9
-38	93.9	-6	557.8	26	1596.2	58	3551.8
-37	102.5	-5	579.9	27	1641.4	59	3631.9
-36	111.5	-4	602.6	28	1687.6	60	3713.5
-35	120.8	-3	625.9	29	1734.6	61	3796.3
-34	130.4	-2	649.8	30	1782.6	62	3880.5
-33	140.3	-1	674.3	31	1831.6	63	3965.9
-32	150.5	0	699.4	32	1881.5	64	4052.8
-31	161.1	1	724.9	33	1932.3	65	4140.9
-30	171.9	2	751.3	34	1984.1	66	4230.6
-29	183.3	3	778.3	35	2036.9	67	4321.5

25. Maintenance

Maintenance Procedures

This section describes the procedures that must be performed as a part of normal maintenance program. Regular servicing of equipment by licensed technician is highly recommended. Regular servicing of your unit helps in maintaining its optimum performance and reliability. **The checklist and service periods provided on this manual are guides only, as some sites may require more frequent servicing.** Always disconnect electrical power to the unit before performing these procedures. It is always a safe practice to observe all safety warnings and cautions when conducting maintenance tasks.

DANGER

Live Electrical Connections !

It may be necessary to work with live electrical components on certain maintenance tasks. Only licensed electricians and qualified technicians are allowed to perform these tasks.

Beware of Rotating Fan Blades !

- Always make sure that all power supply, to the Outdoor Fans are turn-off and isolated.
- Observe WH&S safety procedures, do not wear loose clothing and any jewellery when working near the fans.
- Wear PPE whenever performing any maintenance procedures.
- Observe all necessary procedures when working on a confined space.

WARNING

Hazardous Voltage !

Always make sure that all power supply, including remote controls, are disconnected before performing maintenance. Observe proper LOCK-OUT/TAG-OUT (LOTO) procedures to ensure that power cannot be inadvertently energised. Failure to disconnect power before maintenance procedures can result in serious injury and/or death.

EC Motors and Inverter Drives are fitted with high power capacitors and can have dangerous residual voltages at motor terminals after power has been isolated. Wait at least 5 minutes after power isolation and test for any residual voltage before beginning service work.

Periodic Maintenance Checklist

- Perform all monthly maintenance inspections
- Inspect coil surfaces for cleanliness. Clean as required, apply cleaning procedures based on prevailing industry standard.
- Inspect unit air filters, clean or replace as required.

Annual Maintenance Checklists

- Perform general maintenance inspections.
- Perform scheduled start-up checks.
- Leak test refrigerant circuits.
- Inspect contacts of all contactors and relays. Replace all worn contacts as required.
- Inspect, clean and tighten all electrical connections.
- Check fans for balanced operation. Make sure that there are no loose screws / bolts, no fan blades interference and no damage to the fans and guards.
- Inspect the air filters, clean or replace as required.
- Clean and repaint any corroded panel section.
- Ensure no blockage of airflow through variable speed drive.

Cleaning the Condenser Coils

Clean the coils at least once a year or more frequently if unit is located in a dusty and dirty environment, in order to maintain your system's proper operating performance. High discharge pressures are good indication that the coils need cleaning. When using detergent or solvents to clean the coils, follow the manufacturer's instructions to avoid potential damage to the coils and to the unit.

To clean the refrigerant coils, use a soft brush and water spray, such as garden hose or pressure washer with low pressure nozzle.

WARNING

Do Not Use High Alkaline Detergent!

When using detergent for coil cleaning, ensure that the alkaline level is no higher than 8.5, which can cause corrosion damage to the coils.

No Water into the Electrical Compartments!

Ensure consideration is given to the possibility of water entering the electrical compartments during cleaning of the condenser coil.

When using water jets to clean the coils, make sure that you do not spray water directly into the electrical components and connections.

Coil Cleaning Procedures

- Disconnect power to the unit.
- Remove the louvered panels from the unit to gain access to the air inlet side of the coils.
- Open evaporator access door and remove access panel to the condenser section.
- Use a soft brush to remove loose dirt and debris from both sides of the coils.
- Straighten bent coil fins with fin comb.
- Prepare the detergent solutions according to the manufacturer's instructions.
- Spray solution at a 90° angle to the coils, keeping a minimum nozzle spray angle of 15°, with at least a 1800mm distance from the coils and 600 psi pressure.
- Spray leaving air side of the coils first then the air inlet side. Allow the solution to stand on the coils for five minutes.
- Rinse both sides of the coils with cool clean water.
- Inspect the coils, if they are still dirty, repeat the cleaning procedure.
- Clean and wipe dry the outer and inner sides of the unit, the refrigerating parts and other components.
- Ensure that the condensate drain lines are not blocked.
- Reinstall all unit panels, covers and guards.
- Restore electrical power to the unit.

26. Maintenance Frequency Checklist

Electrical											
Parts	Service Frequency								Detail of Service Check	Service Methods	
	1 Mth	3 Mth	6 Mth	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs			
Printed Circuit Boards		✓								Visual Inspection	Tighten Terminals as necessary on printed circuit boards
Electrical Connections		✓								Check all electrical terminals, mains, communications, etc	Re-tighten if loose.
Magnetic Contactor		✓								Check for loose terminal connections.	Tighten electrical terminals. Remove any dust.

Indoor Unit											
Parts	Service Frequency								Detail of Service Check	Service Methods	
	1 Mth	3 Mth	6 Mth	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs			
Casing / Panels and Frames		✓			✓					Visual check for damage, rust and dust accumulation.	For highly corrosive environment, wash panels quarterly with water and neutral detergent solution. Wax panels. Repair / re-paint where required.
Insulation					✓					Visual check for insulation conditions.	Repair / replace insulation material.
Fan			✓							Visual check for run out of balance and dust attached	Clean off dust as necessary to negate possibility of fan running out of balance
Motor				✓						Visual check on wiring. Insulation resistance check to be carried out annually	Measure insulation resistance to earth with Megger. Insulation resistance should be more than 1MΩ.
		✓								Check motors are working within designed voltages/currents	Check all voltages/current with a multi meter to ensure they are within design specs.
Heat Exchanger			✓							Check for clogging by dust. Check for leaks / damage.	Clean air inlet side as necessary. Straighten any bent fins using fins comb.
Drain Pan/ Condensation line		✓								Check for obstructions and free flow of water	Clean to eliminate obstructions/ sludge and check condition of pan. Pour water to ensure flow
Filter	✓									Check for clogging by dust.	Clean Filter
Temperature Readings		✓								Measure air on and air off	Place temperature probe in return and supply air of unit.
Damper Motors (if fitted)			✓							Visual inspection of motors open/closing. Ensure no obstructions	Drive motors opened and closed. Ensure correct operation.
Air pressure tubing			✓							Visual inspection of plastic tubing and PTH sensor	Inspect plastic tubing and PTH sensors in evaporator for kinks or leaks

NOTES

- The above service periods are provided as guide only.
- Some sites may require more frequent servicing.

Outdoor Unit										
Parts	Service Frequency								Detail of Service Check	Service Methods
	1 Mth	3 Mth	6 Mth	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs		
Fan			✓						Visual check for run out of balance and dust attached	Clean off dust as necessary to negate possibility of fan running out of balance
Motor				✓ Ω					Visual check on wiring. Insulation resistance check to be carried out annually	Measure insulation resistance to earth with Megger. Insulation resistance should be more than 1MΩ.
		✓							Check motors are working within designed voltages/ currents	Check all voltages/current with a multi meter to ensure they are within design specs.
Heat Exchanger			✓						Check for clogging by dust. Check for leaks / damage.	Clean air inlet side as necessary. Straighten any bent fins using fins comb.
Condensate Drain Line		✓							Check for obstructions and free flow of water	Clean to eliminate obstructions/ sludge and check condition of drain line. Pour water to ensure flow
Compressor		✓ Ω							Check for high / low pressure. Measure insulation resistance. Check compressor for abnormal noise/vibrations	Measure insulation resistance to earth with Megger. Insulation resistance should be more than 1MΩ. Ensure to isolate first the VSD from the compressor before measuring insulation resistance. Also ensure sump heater is operating correctly.
Compressor Drive		✓							For variable drive compressor check full operation of drive from minimum hertz to maximum, check air filters on drive, check fan operation of drive	Check compressor amperage and RPM feedback from compressor on drive. Clean air filters on drive. Check ventilation holes on top and bottom of drive cover are free of any obstructions.
Refrigeration Operational Readings		✓							Make note of operational reading in test cool/heat	Check operating pressures, record super heat and sub-cool values
Refrigeration Metering Device		✓							Check metering device operation	Ensure metering device is operating correctly and any solenoids are within good working order.
Refrigeration Leaks			✓						Visual Leak Check	Check for signs of visual leaks or any oil signs
Safety Devices			✓						Check calibration of safety devices such as HP and LP controls, sensors, etc	Check resistance of sensors, pressure cut in / cut out of pressure controls
Faults		✓							Check for any previous fault history on unit.	Investigate any causes for previous faults, reset fault history.

Outdoor Unit										
Parts	Service Frequency								Detail of Service Check	Service Methods
	1 Mth	3 Mth	6 Mth	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs		
Oil		✓							Visual check of sight glass. Check for oil level/ discolouration	Top-up oil level when oil has been lost. Replace only when required.
				✓					Visual check of sight glass. Check for oil level/ discolouration.	Drain oil from compressor and system if discoloured and replace oil. Also take oil sample for analysis.
Casing / Panels and Frames		✓			✓				Visual check for damage, rust and dust accumulation.	For highly corrosive environment, wash panels quarterly with water and neutral detergent solution. Wax panels. Repair / re-paint where required.
Insulation					✓				Visual check for insulation conditions.	Repair / replace insulation material.

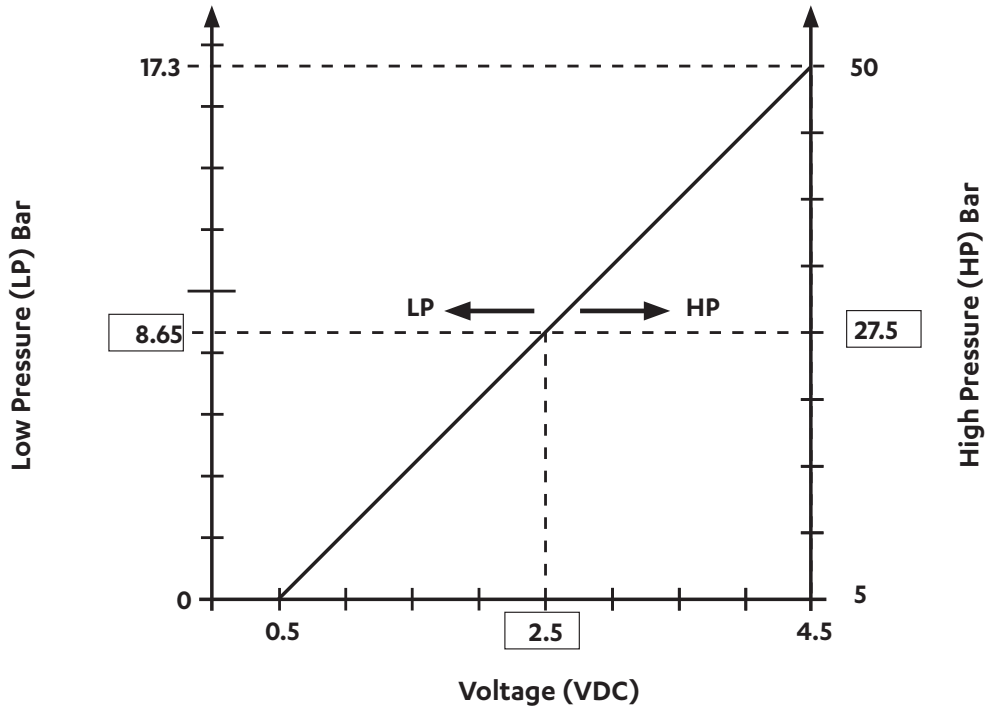
NOTES

- The above service periods are provided as guide only.
- Some sites may require more frequent servicing.

27. Alarm Matrix / Troubleshooting

Alarm Number	Description	Type	Start Condition	Stop Condition	Checkpoints
AL03	Probe 1 Faulty wiring / open or short circuit	Warning	Low Pressure Compressor 1 Sensor Fault	Sensor OK	See SPS-1 (Suction Pressure Sensor) on electrical wiring diagram. Check GND and 5V supply. Check analog U1 signal as per Graph 1: HP/LP Sensor Pressure vs Voltage. (Required to be between 0.5-4.5V). Check continuity of wiring if U1 signal is in error.
AL04	Probe 2 Faulty wiring / open or short circuit	Warning	Suction Compressor 1 Temperature Sensor Fault	Sensor OK	Check the resistance through the sensor probe
AL05	Probe 3 Faulty wiring / open or short circuit	Alarm	Low Pressure Compressor 2 Sensor Fault	Sensor OK	See SPS-2 (Suction Pressure Sensor) on electrical wiring diagram. Check GND and 5V supply. Check analog U3 signal as per Graph 1: HP/LP Sensor Pressure vs Voltage. (Required to be between 0.5-4.5V). Check continuity of wiring if U3 signal is in error.
AL06	Probe 4 Faulty wiring / open or short circuit	Alarm	Suction Compressor 2 Temperature Sensor Fault	Sensor OK	Check the resistance through the sensor probe
AL07	Probe 5 Faulty wiring / open or short circuit	Alarm	High Pressure Comp 1 Sensor Fault	Feedback signal OK	See DPS-1 (Discharge Pressure Sensor) on electrical wiring diagram. Check GND and 5V supply. Check analog U5 signal as per Graph 1: HP/LP Sensor Pressure vs Voltage. (Required to be between 0.5-4.5V). Check continuity of wiring if U5 signal is in error.
AL08	Probe 6 Faulty wiring / open or short circuit	Alarm	Outdoor Coil Comp 1 Temperature Sensor Fault	Feedback signal OK	Check the resistance through the sensor probe
AL09	Probe 7 Faulty wiring / open or short circuit	Alarm	High Pressure Comp 2 Sensor Fault	Feed back signal OK	See DPS-2 (Discharge Pressure Sensor) on electrical wiring diagram. Check GND and 5V supply. Check analog U7 signal as per Graph 1: HP/LP Sensor Pressure vs Voltage. (Required to be between 0.5-4.5V). Check continuity of wiring if U7 signal is in error.
AL10	Probe 8 Faulty wiring / open or short circuit	Warning	Outdoor Coil Comp 2 Temperature Sensor Fault	Sensor OK	Check the resistance through the sensor probe
AL11	Probe 9 Faulty wiring / open or short circuit	Warning	Return Air Temperature Sensor Fault	Sensor OK	Check the resistance through the sensor probe
AL12	Probe 10 Faulty wiring / open or short circuit	Warning	Outside Air Temperature Sensor Fault	Sensor OK	Check the resistance through the sensor probe
AL13	Probe 11 Faulty wiring / open or short circuit	Alarm	Supply Air Temperature Sensor Fault	Feed back signal OK	Check the resistance through the sensor probe

Alarm Number	Description	Type	Start Condition	Stop Condition	Check Points
AL17	Comp1 HP/LP Switch	Alarm	>4000kPa / <300kPa (PKV1400)	<3509kPa / >600kPa (PKV1400)	Comp1 and Comp2 HP Switch Check Points Check the Outdoor Fan operation Check the coils are clean Check for excess refrigerant charge Check for non-condensable (Standing pressure with reference to Press. Temp. Chart) Check the HP sensor terminal connections
AL18	Comp2 HP/LP Switch		>4000kPa / <300kPa (PKV2000)	<3509kPa / >600kPa (PKV2000)	Comp1 and Comp2 LP Switch Check Points Check the EEV opening Check for less refrigerant charge Check for non-condensable (Standing pressure with reference to Press. Temp. Chart) Check the LP switch for continuity (There is no continuity in OK condition) Check the LP sensor terminal connections
AL23 / AL24	Comp 1 / Comp 2 Overload	Alarm	Drive Alarm High Current	Current less than 90% of maximum	Check the compressor current is above 58A
AL28	Supply Fan 1 Device Off line	Alarm	Communication loss	Communication OK	Check the terminal connections for MODBUS Check the Fan set address and the address in the control are the same
AL29	Supply Fan 2 Device Off line				
AL30	Supply Fan 3 Device Off line				
AL31	Supply Fan 4 Device Off line				
AL32	Outdoor Fan 1 Device Off line	Alarm	Communication loss	Communication OK	Check the terminal connections for MODBUS Check the Fan set address and the address in the control are the same
AL33	Outdoor Fan 2 Device Off line				
AL34	Outdoor Fan 3 Device Off line				
AL35	Outdoor Fan 4 Device Off line				
AL210	Supply Air Filter Cleaning Notification	Warning	Filter Pressure > Filter Pressure Notification Setpoint (screen Gfc4)	Filter Pressure < Filter Pressure Notification Setpoint (screen Gfc4)	Check the filter if dirty Check the hoses to the differential pressure sensor pinched or choked
AL211	Supply Air Pressure sensor alarm	Warning	Air pressure < 15 Pa and fan speed > 250rpm	Air pressure > 15 Pa or fan speed < 250rpm	Check the hoses to the differential pressure sensor pinched or choked Check the Dip switch and the jumper settings on the differential pressure sensor
AL141 / AL181	VSD1 / VSD2 Device Off line	Alarm	Communication loss	Communication OK	Check the terminal connections for MODBUS Check the Compressor set address and the address in the control are the same



Graph 1: HP/LP Sensor Pressure vs Voltage

NOTE

Check signal voltage and gauge pressure reading against the graph above. E.g. Voltage reading of 2.5VDC will correspond to 8.65 bar of LP and 27.5 bar of HP.

28. Key Parts List

Item	Description	Part Number	PKV1400T	PKV2000T
			Quantity	Quantity
1	Suction Temperature Sensor	2060-031	2	2
2	Supply Air Temperature Sensor	2060-030	1	1
3	Return Air Temperature Sensor	2060-030	1	1
4	Supply Airflow Sensor	2060-117	2	2
5	Outdoor Air Temperature Sensor	2060-030	1	1
6	Outdoor Coil Temperature Sensor	2060-030	2	2
7	Discharge Temperature Sensor	2060-029	2	2
8	Discharge Temperature Transmitter	2045-177	2	2
9	Compressor - VZH117 Scroll	1560-468	2	---
	Compressor - VZH170 Scroll	1560-470	---	2
10	EC OD Fan Axial	2505-138	4	4
11	EC ID Plug Fan	2590-019	4	4
12	Outdoor Coil Assembly Top	1020-150	2	---
	Outdoor Coil Assembly Top	1020-148	---	2
13	Outdoor Coil Assembly Bottom	1020-151	2	---
	Outdoor Coil Assembly Bottom	1020-149	---	2
14	Indoor Coil Assembly	1040-256	2	---
	Indoor Coil Assembly	1040-251	---	2
15	LP Pressure Sensor	2060-048	2	2
16	LP Pressure Switch	2060-114	2	2
17	HP Pressure Sensor	2060-038	2	2
18	HP Pressure Switch	2060-113	2	2
19	Comp. VSD - CDS303P15KT4E20H2	2065-011	2	---
	Comp. VSD - CDS303P22KT4E20HZ2	2065-012	---	2
20	Control Interface - PGD1A50FW - CP10	2090-021	1	1
21	Crankcase Heater - 75 W	2025-007	2	2
23	Electronic Expansion Valve	4570-024	2	2
24	Fan Motor Circuit Breaker (ID and OD)	2010-033	8	8
25	Compressor Motor Circuit Breaker	2010-037	2	---
	Compressor Motor Circuit Breaker	2010-034	---	2
25	Control Circuit Breaker - 16A C Curve	2010-028	1	1
26	24V Transformer Circuit Breaker - 6A C Curve	2010-035	1	1
27	240V To 24V Transformer	2045-180	1	1
28	Main Control Board - CM100	2020-136	1	1
29	Control Board Med Connector Kit	2020-137	1	1
30	Crankcase Heater Contactor	2015-039	2	2

29. Start Up and Commissioning Report

Hercules Setting Log:

NOTES

Please log all required information below, before any software changes are to be made. Failure to do so will cause difficulties in re-starting the unit operation back to original settings. Leave this manual in a secure location near the unit. It is IMPORTANT to check that VSD speed bypass setting is configured as document 0525-049, VSD Configuration for setup procedure.

INSTALLATION INFORMATION	
CUSTOMER	Name: _____ Tel. Number: _____
	Address: _____
INSTALLER	Name: _____ Tel. Number: _____
	Address: _____
Site Address: _____	Date Installed: _____
Model: _____	Serial Number: _____

Setpoint:

Room Setpoint: _____ °C	_____ % rH	Filter Pressure Setpoint Alarm: _____ Pa
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Mode Of Operation:

Mode:	<input type="checkbox"/> AUTO CHANGE OVER	<input type="checkbox"/> COOL ONLY	<input type="checkbox"/> HEAT ONLY	<input type="checkbox"/> FAN ONLY
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Clock:

Enable Scheduler:	<input type="checkbox"/> Yes	DST:	<input type="checkbox"/> ENABLE	<input type="checkbox"/> DISABLE	(1) Transition Time: _____ min
	<input type="checkbox"/> No ⁽¹⁾		⁽²⁾ Start: _____ in _____ at _____		
			⁽²⁾ End: _____ in _____ at _____		

NOTE: ⁽¹⁾ SKIP SCHEDULER below; ⁽²⁾ Only visible when DST is **ENABLED**.

SCHEDULER:

	Event 1	Event 2
⁽³⁾ Monday	_____ to _____	_____ to _____
⁽³⁾ Tuesday	_____ to _____	_____ to _____
⁽³⁾ Wednesday	_____ to _____	_____ to _____
⁽³⁾ Thursday	_____ to _____	_____ to _____
⁽³⁾ Friday	_____ to _____	_____ to _____
⁽³⁾ Saturday	_____ to _____	_____ to _____
⁽³⁾ Sunday	_____ to _____	_____ to _____
⁽³⁾ After Hours Operation Duration:	_____ Hours	_____

NOTE: ⁽³⁾ Only visible when Enable Scheduler is set to Yes.

	Day	Month	Event 1	Event 2
(3) Special Day 1	_____	_____	_____ to _____	_____ to _____
(3) Special Day 2	_____	_____	_____ to _____	_____ to _____
(3) Special Day 3	_____	_____	_____ to _____	_____ to _____
(3) Special Day 4	_____	_____	_____ to _____	_____ to _____
(3) Special Day 5	_____	_____	_____ to _____	_____ to _____
(3) Special Day 6	_____	_____	_____ to _____	_____ to _____
(3) Special Day 7	_____	_____	_____ to _____	_____ to _____
(3) Special Day 8	_____	_____	_____ to _____	_____ to _____
(3) Special Day 9	_____	_____	_____ to _____	_____ to _____
(3) Special Day 10	_____	_____	_____ to _____	_____ to _____
(3) Special Day 11	_____	_____	_____ to _____	_____ to _____
(3) Special Day 12	_____	_____	_____ to _____	_____ to _____

• **SYSTEM CONFIGURATIONS: G. Service → e. Communicate config.**

Address:	Protocol:	<input type="checkbox"/> MODBUS	<input type="checkbox"/> CAREL	<input type="checkbox"/> MODBUS EXT.
Speed: <input type="checkbox"/> 19200	<input type="checkbox"/> 9600	<input type="checkbox"/> 4800	<input type="checkbox"/> 2400	<input type="checkbox"/> 1200
Enable the BMS to turn the unit On / Off:		<input type="checkbox"/> NO	<input type="checkbox"/> YES	
On loss of Comms:	<input type="checkbox"/> TURN OFF	<input type="checkbox"/> TURN ON	<input type="checkbox"/> USE T/CLOCK	
Enable DIN4 to turn the unit On / Off		<input type="checkbox"/> NO	<input type="checkbox"/> YES	

• **SYSTEM CONFIGURATIONS: G. Service → f. Service settings → b. Probe Adjustment**

Room NTC cal:	°C
Supply NTC cal:	°C
Cond. 1 NTC cal:	°C
Cond. 2 NTC cal:	°C
Outside NTC cal:	°C

High Pressure 1 sensor cal:	°C
High Pressure 2 sensor cal:	°C
Supply Pressure sensor cal:	°C
Filter Pressure sensor cal:	°C

• **SYSTEM CONFIGURATIONS: G. Service → f. Service settings → c. Thermoregulation**

Return Temp. Setpoint:	°C
Dead band:	°C
Prop. Band:	°C
(4) Return Humidity Setpoint:	°C
(4) Dead band:	°C
(4) Prop. Band:	°C

Unit Control Mode	<input type="checkbox"/> INTERNAL SENSORS	<input type="checkbox"/> BMS DEMAND
	<input type="checkbox"/> EXTERNAL INPUTS	<input type="checkbox"/> BMS DEMAND - 2 COMPRESSORS
Supply Fan Control	<input type="checkbox"/> CONSTANT VOLUME	
	<input type="checkbox"/> CONSTANT PRESSURE	
(5) High Pressure Alarm?:	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(6) Supply Pressure Alarm Setpoint:		Pa
(7) Supply Air Volume Setpoint:		L/s
Filter Pressure Enabled:	<input type="checkbox"/> No	<input type="checkbox"/> Yes
Notification:	Pa	Alarm: Pa

NOTES:

- (4) Only visible when ReHeat Option is available.
- (5) Only visible when Supply Fan Control: **CONSTANT PRESSURE**.
- (6) Only visible when High pressure Alarm?: **YES**
- (7) CM100 Ver. 2021-1002 onwards uses L/s.

For earlier version, use:

Supply Pressure Setpoint:	Pa
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Outdoor Fans - Cooling			
Cooling Setpoint:	B	Prop. Band:	B
Integral Time:	s	Derivative Time:	s

Minimum condensing pressure:	B		
Enable Float HP:	<input type="checkbox"/> No	<input type="checkbox"/> Yes	
Delta Temperature above Outside Air:	°C		
Minimum Limit	°C	Maximum Limit	°C

De- Humidity Setting:			
Min. Cond. Set.:	B	Max. Cond Set.:	B
Reheat Method:	Initial Demand:		%
Reheat Factor:			

Crank Heater On			
Outside temp. Set:	°C	Delay Time:	min

Supply Fan - in Heat			
Limit time at start up in heat mode:	s		
Heat Max. speed:	%		

Setpoint SuperHeat (SH):	K
Low SuperHeat threshold:	K

Outdoor Fans - Heating			
Heating Setpoint:	B	Prop. Band:	B
Integral Time:	s	Derivative Time:	s

Minimum speed:	%		
----------------	---	--	--

Supply Fan			
Minimum Speed:	%	Minimum Speed:	%
Minimum Temp.	°C	Maximum Temp.	°C
Cycle on de-ice?:	<input type="checkbox"/> YES <input type="checkbox"/> NO		

Supply Volume PI Parameters			
Proportional K:	L/s	Proportional K:	L/s

Return Temperature PI Parameters			
Proportional K:	L/s	Integral Time:	s

Enable Heat Reclaim?:	<input type="checkbox"/> YES <input type="checkbox"/> NO		
Maximum Check Time	sec		
(Min Supply-Room) in Max Check Time:	°C		
(Set-Room) to turn off mech. Heat:	°C		

LOP Threshold:	°C
MOP Threshold:	°C

• To access this menu, please enter the Service password: 7378.

• **SYSTEM CONFIGURATIONS: G. Service → f. Service settings → c. Thermoregulation**

Damper Scaling			
Command Start:	°C		
Command End	°C		
Output Start:	°C		
Output End	°C		

Compressor 1	<input type="checkbox"/> Enabled	<input type="checkbox"/> Disabled	
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Room Temp / Humidity Sensor fitted:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Use this sensor temp. instead of AI9:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	

Heat/Cool Stage			
Compressor Start:	Compressor Start:		

Indoor Fan 1:	<input type="checkbox"/> Enabled	<input type="checkbox"/> Disabled	
Indoor Fan 2:	<input type="checkbox"/> Enabled	<input type="checkbox"/> Disabled	
Indoor Fan 3:	<input type="checkbox"/> Enabled	<input type="checkbox"/> Disabled	
Indoor Fan 4:	<input type="checkbox"/> Enabled	<input type="checkbox"/> Disabled	

Outdoor Fan 1:	<input type="checkbox"/> Enabled	<input type="checkbox"/> Disabled	
Outdoor Fan 2:	<input type="checkbox"/> Enabled	<input type="checkbox"/> Disabled	
Outdoor Fan 3:	<input type="checkbox"/> Enabled	<input type="checkbox"/> Disabled	
Outdoor Fan 4:	<input type="checkbox"/> Enabled	<input type="checkbox"/> Disabled	

CO₂ Control			
U-12 Input:	<input type="checkbox"/> 4-20mA	<input type="checkbox"/> 0-10V	
Start:	pm	End:	ppm
Alarm Output:	<input type="checkbox"/> Enabled <input type="checkbox"/> Disable		
Sensor Fault:	< ppm	>	ppm

Compressor 2	<input type="checkbox"/> Enabled	<input type="checkbox"/> Disabled	
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Outside Temp / Humidity Sensor fitted:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Use this sensor temp. instead of AI10:	<input type="checkbox"/> Yes ⁽⁹⁾	<input type="checkbox"/> No	

Alarm disable			
Probe 9 Sensor:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Probe 12 Sensor:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Constant Volume:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
HP & LP Trip:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
VSD Earth Sensor:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	

Compressor Stage 1			
Min Demand Start:	%	Min Demand Start:	%
Compressor Stage 2			
Min Demand Start:	%	Min Demand Start:	%

• **SYSTEM CONFIGURATIONS: G. Service** → **f. Service settings** → **d. Economy Setting**

CO ₂ Sensor Disabled	Damper Position: %	
CO ₂ Sensor Enabled		
CO ₂ Level	ppm	ppm
Damper Position	%	%

Outside Air Max Limit		
Temperature:	<input type="checkbox"/> No <input type="checkbox"/> Yes	°C
⁽¹⁰⁾ Humidity:	<input type="checkbox"/> No <input type="checkbox"/> Yes	%
⁽¹⁰⁾ Enthalpy:	<input type="checkbox"/> No <input type="checkbox"/> Yes	kJ/kg
⁽¹⁰⁾ Moisture:	<input type="checkbox"/> No <input type="checkbox"/> Yes	g/kg
⁽¹⁰⁾ Dew Point	<input type="checkbox"/> No <input type="checkbox"/> Yes	°C

⁽¹⁰⁾ will be visible when ⁽⁹⁾ outside temp/humidity sensor is set to Yes

• To access this menu, please enter the Service password: 7378.

• **MANUFACTURER: H. Manufacturer** → **a. Configuration**

Unit Model:
Re-Heat Coils fitted?: <input type="checkbox"/> YES <input type="checkbox"/> NO
Integral Time: <input type="checkbox"/> No <input type="checkbox"/> Yes

Unit Control Mode:	<input type="checkbox"/> INTERNAL SENSORS
	<input type="checkbox"/> BMS DEMAND
	<input type="checkbox"/> EXTERNAL INPUTS
	<input type="checkbox"/> BMS DEMAND - 2 COMPS

Supply Fan Control:	<input type="checkbox"/> Modbus <input type="checkbox"/> Analog
Outdoor Fan Control:	<input type="checkbox"/> Modbus <input type="checkbox"/> Analog
Enable EEV Driver:	<input type="checkbox"/> YES <input type="checkbox"/> NO

De-Ice			
Confirmation Time:	m	Delay:	s
Interval Time Initial:	m	Interval Time Min.:	m
Interval Time Max.:	m		

Comp Speed Initial:	%	Comp Speed Target:	%
LP decrease:	B	LP stop:	%
Initiate:	°C	B	Instant Init: °C

Compressor			
Min on duration:	s	Min. off duration:	s
On to on delay:	s	Start offset:	s
Run fault timeout:	m		

Demand Response	
DRM2:	% DRM3: %

Alarm Setup	
Pressure Error:	Pa Timeout: m
HP/LP Switches Lockout Timer:	m

Economy Cycle Enabled	<input type="checkbox"/> No <input type="checkbox"/> Yes
Temperature Difference:	C
Outside Air Minimum Limit	<input type="checkbox"/> No <input type="checkbox"/> Yes
Temperature:	C

⁽¹²⁾ Enthalpy Difference (12)	<input type="checkbox"/> No <input type="checkbox"/> Yes
Difference:	kJ/kg

⁽¹²⁾ will be visible when ⁽⁹⁾ and ⁽¹¹⁾ are set to Yes

Number of Compressors fitted:
Number of Supply Fans fitted:
Refrigerant:

CO ₂ Function:	<input type="checkbox"/> Enabled <input type="checkbox"/> Disabled
Economy Cycle:	<input type="checkbox"/> Enabled <input type="checkbox"/> Disabled
On/Off/On Delay:	s Delta Air Equiv.: C

LP Config.	LP trip setpoint:	B
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De-Ice Terminate		
Cycle 1-3 Temp.:	°C	Pressure: B
Time:	m	

Cycle 4 Temp.:	°C	Pressure: B
Time:	m	

Oil RTN Setup	
Duty Cycle:	Cycle Duration: s
Comp Speed:	Initiate Speed: %
OilR Inject Speed:	%

Reverse Valve		
Change over time:	s	Max. idle time: s
OAT Threshold ON:	c	

EEV Control	
Alarm Delay:	s
EEV Proportional Duration at 5K:	s
EvapT Correction:	<input type="checkbox"/> NO <input type="checkbox"/> YES

• To access this menu, please enter the Manufacturer password: 6268.

SUPPLY FAN 1 CONFIGURATION

En. Sublist Adv.:	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Load Parameters:	<input type="checkbox"/> YES	<input type="checkbox"/> NO
En. Read Custom Data:	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Require default:	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Reboot firmware:	<input type="checkbox"/> YES	<input type="checkbox"/> NO			
Fan control source:	<input type="checkbox"/> MODBUS MASTER	<input type="checkbox"/> 0-10V ANALOG INPUT			
Day Speed control:	<input type="checkbox"/> CLOSED LOOP SPEED CONTROL <input type="checkbox"/> CLOSED LOOP SENSOR CONTROL	<input type="checkbox"/> OPEN LOOP PWM CONTROL			
Night Speed control:	<input type="checkbox"/> CLOSED LOOP SPEED CONTROL <input type="checkbox"/> CLOSED LOOP SENSOR CONTROL	<input type="checkbox"/> OPEN LOOP PWM CONTROL			
Maximum Speed:	rpm	Ramp-up time:	sec	Ramp-down time:	sec
Parameter Set Source:	<input type="checkbox"/> INTERNAL PARAMETER SET <input type="checkbox"/> DIGITAL INPUT DIN3	<input type="checkbox"/> DIGITAL INPUT DIN2			
Internal Parameter Set:	<input type="checkbox"/> PARAMETER SET 1	<input type="checkbox"/> PARAMETER SET 2			

SUPPLY FAN 2 CONFIGURATION

En. Sublist Adv.:	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Load Parameters:	<input type="checkbox"/> YES	<input type="checkbox"/> NO
En. Read Custom Data:	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Require default:	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Reboot firmware:	<input type="checkbox"/> YES	<input type="checkbox"/> NO			
Fan control source:	<input type="checkbox"/> MODBUS MASTER	<input type="checkbox"/> 0-10V ANALOG INPUT			
Day Speed control:	<input type="checkbox"/> CLOSED LOOP SPEED CONTROL <input type="checkbox"/> CLOSED LOOP SENSOR CONTROL	<input type="checkbox"/> OPEN LOOP PWM CONTROL			
Night Speed control:	<input type="checkbox"/> CLOSED LOOP SPEED CONTROL <input type="checkbox"/> CLOSED LOOP SENSOR CONTROL	<input type="checkbox"/> OPEN LOOP PWM CONTROL			
Maximum Speed:	rpm	Ramp-up time:	sec	Ramp-down time:	sec
Parameter Set Source:	<input type="checkbox"/> INTERNAL PARAMETER SET <input type="checkbox"/> DIGITAL INPUT DIN3	<input type="checkbox"/> DIGITAL INPUT DIN2			
Internal Parameter Set:	<input type="checkbox"/> PARAMETER SET 1	<input type="checkbox"/> PARAMETER SET 2			

SUPPLY FAN 3 CONFIGURATION

En. Sublist Adv.:	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Load Parameters:	<input type="checkbox"/> YES	<input type="checkbox"/> NO
En. Read Custom Data:	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Require default:	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Reboot firmware:	<input type="checkbox"/> YES	<input type="checkbox"/> NO			
Fan control source:	<input type="checkbox"/> MODBUS MASTER	<input type="checkbox"/> 0-10V ANALOG INPUT			
Day Speed control:	<input type="checkbox"/> CLOSED LOOP SPEED CONTROL <input type="checkbox"/> CLOSED LOOP SENSOR CONTROL	<input type="checkbox"/> OPEN LOOP PWM CONTROL			
Night Speed control:	<input type="checkbox"/> CLOSED LOOP SPEED CONTROL <input type="checkbox"/> CLOSED LOOP SENSOR CONTROL	<input type="checkbox"/> OPEN LOOP PWM CONTROL			
Maximum Speed:	rpm	Ramp-up time:	sec	Ramp-down time:	sec
Parameter Set Source:	<input type="checkbox"/> INTERNAL PARAMETER SET <input type="checkbox"/> DIGITAL INPUT DIN3	<input type="checkbox"/> DIGITAL INPUT DIN2			
Internal Parameter Set:	<input type="checkbox"/> PARAMETER SET 1	<input type="checkbox"/> PARAMETER SET 2			

SUPPLY FAN 4 CONFIGURATION

En. Sublist Adv.:	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Load Parameters:	<input type="checkbox"/> YES	<input type="checkbox"/> NO
En. Read Custom Data:	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Require default:	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Reboot firmware:	<input type="checkbox"/> YES	<input type="checkbox"/> NO			
Fan control source:	<input type="checkbox"/> MODBUS MASTER	<input type="checkbox"/> 0-10V ANALOG INPUT			
Day Speed control:	<input type="checkbox"/> CLOSED LOOP SPEED CONTROL <input type="checkbox"/> CLOSED LOOP SENSOR CONTROL	<input type="checkbox"/> OPEN LOOP PWM CONTROL			
Night Speed control:	<input type="checkbox"/> CLOSED LOOP SPEED CONTROL <input type="checkbox"/> CLOSED LOOP SENSOR CONTROL	<input type="checkbox"/> OPEN LOOP PWM CONTROL			
Maximum Speed:	rpm	Ramp-up time:	sec	Ramp-down time:	sec
Parameter Set Source:	<input type="checkbox"/> INTERNAL PARAMETER SET <input type="checkbox"/> DIGITAL INPUT DIN3	<input type="checkbox"/> DIGITAL INPUT DIN2			
Internal Parameter Set:	<input type="checkbox"/> PARAMETER SET 1	<input type="checkbox"/> PARAMETER SET 2			

OUTDOOR FAN 1 CONFIGURATION

En. Sublist Adv.:	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Load Parameters:	<input type="checkbox"/> YES	<input type="checkbox"/> NO
En. Read Custom Data:	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Require default:	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Reboot firmware:	<input type="checkbox"/> YES	<input type="checkbox"/> NO			
Fan control source:	<input type="checkbox"/> MODBUS MASTER	<input type="checkbox"/> 0-10V ANALOG INPUT			
Day Speed control:	<input type="checkbox"/> CLOSED LOOP SPEED CONTROL <input type="checkbox"/> CLOSED LOOP SENSOR CONTROL	<input type="checkbox"/> OPEN LOOP PWM CONTROL			
Night Speed control:	<input type="checkbox"/> CLOSED LOOP SPEED CONTROL <input type="checkbox"/> CLOSED LOOP SENSOR CONTROL	<input type="checkbox"/> OPEN LOOP PWM CONTROL			
Maximum Speed:	rpm	Ramp-up time:	sec	Ramp-down time:	sec
Parameter Set Source:	<input type="checkbox"/> INTERNAL PARAMETER SET <input type="checkbox"/> DIGITAL INPUT DIN3	<input type="checkbox"/> DIGITAL INPUT DIN2			
Internal Parameter Set:	<input type="checkbox"/> PARAMETER SET 1	<input type="checkbox"/> PARAMETER SET 2			

OUTDOOR FAN 2 CONFIGURATION

En. Sublist Adv.:	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Load Parameters:	<input type="checkbox"/> YES	<input type="checkbox"/> NO
En. Read Custom Data:	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Require default:	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Reboot firmware:	<input type="checkbox"/> YES	<input type="checkbox"/> NO			
Fan control source:	<input type="checkbox"/> MODBUS MASTER	<input type="checkbox"/> 0-10V ANALOG INPUT			
Day Speed control:	<input type="checkbox"/> CLOSED LOOP SPEED CONTROL <input type="checkbox"/> CLOSED LOOP SENSOR CONTROL	<input type="checkbox"/> OPEN LOOP PWM CONTROL			
Night Speed control:	<input type="checkbox"/> CLOSED LOOP SPEED CONTROL <input type="checkbox"/> CLOSED LOOP SENSOR CONTROL	<input type="checkbox"/> OPEN LOOP PWM CONTROL			
Maximum Speed:	rpm	Ramp-up time:	sec	Ramp-down time:	sec
Parameter Set Source:	<input type="checkbox"/> INTERNAL PARAMETER SET <input type="checkbox"/> DIGITAL INPUT DIN3	<input type="checkbox"/> DIGITAL INPUT DIN2			
Internal Parameter Set:	<input type="checkbox"/> PARAMETER SET 1	<input type="checkbox"/> PARAMETER SET 2			

OUTDOOR FAN 3 CONFIGURATION

En. Sublist Adv.:	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Load Parameters:	<input type="checkbox"/> YES	<input type="checkbox"/> NO
En. Read Custom Data:	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Require default:	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Reboot firmware:	<input type="checkbox"/> YES	<input type="checkbox"/> NO			
Fan control source:	<input type="checkbox"/> MODBUS MASTER	<input type="checkbox"/> 0-10V ANALOG INPUT			
Day Speed control:	<input type="checkbox"/> CLOSED LOOP SPEED CONTROL <input type="checkbox"/> CLOSED LOOP SENSOR CONTROL	<input type="checkbox"/> OPEN LOOP PWM CONTROL			
Night Speed control:	<input type="checkbox"/> CLOSED LOOP SPEED CONTROL <input type="checkbox"/> CLOSED LOOP SENSOR CONTROL	<input type="checkbox"/> OPEN LOOP PWM CONTROL			
Maximum Speed:	rpm	Ramp-up time:	sec	Ramp-down time:	sec
Parameter Set Source:	<input type="checkbox"/> INTERNAL PARAMETER SET <input type="checkbox"/> DIGITAL INPUT DIN3	<input type="checkbox"/> DIGITAL INPUT DIN2			
Internal Parameter Set:	<input type="checkbox"/> PARAMETER SET 1	<input type="checkbox"/> PARAMETER SET 2			

OUTDOOR FAN 4 CONFIGURATION

En. Sublist Adv.:	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Load Parameters:	<input type="checkbox"/> YES	<input type="checkbox"/> NO
En. Read Custom Data:	<input type="checkbox"/> YES	<input type="checkbox"/> NO	Require default:	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Reboot firmware:	<input type="checkbox"/> YES	<input type="checkbox"/> NO			
Fan control source:	<input type="checkbox"/> MODBUS MASTER	<input type="checkbox"/> 0-10V ANALOG INPUT			
Day Speed control:	<input type="checkbox"/> CLOSED LOOP SPEED CONTROL <input type="checkbox"/> CLOSED LOOP SENSOR CONTROL	<input type="checkbox"/> OPEN LOOP PWM CONTROL			
Night Speed control:	<input type="checkbox"/> CLOSED LOOP SPEED CONTROL <input type="checkbox"/> CLOSED LOOP SENSOR CONTROL	<input type="checkbox"/> OPEN LOOP PWM CONTROL			
Maximum Speed:	rpm	Ramp-up time:	sec	Ramp-down time:	sec
Parameter Set Source:	<input type="checkbox"/> INTERNAL PARAMETER SET <input type="checkbox"/> DIGITAL INPUT DIN3	<input type="checkbox"/> DIGITAL INPUT DIN2			
Internal Parameter Set:	<input type="checkbox"/> PARAMETER SET 1	<input type="checkbox"/> PARAMETER SET 2			

Alarm Delays

Fans:	sec
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• MANUFACTURER: H. Manufacturer → b. I/O Configuration

Room / Remote fitted:	<input type="checkbox"/> YES	<input type="checkbox"/> NO	<input type="checkbox"/> Carel NTC	Other Type:
Minimum scale:	Maximum scale:			
Supply Air Temp sensor fitted:	<input type="checkbox"/> YES	<input type="checkbox"/> NO	<input type="checkbox"/> Carel NTC	Other Type:
Minimum scale:	Maximum scale:			
Cond 1 Temp sensor fitted:	<input type="checkbox"/> YES	<input type="checkbox"/> NO	<input type="checkbox"/> Carel NTC	Other Type:
Minimum scale:	Maximum scale:			
Cond 2 Temp sensor fitted:	<input type="checkbox"/> YES	<input type="checkbox"/> NO	<input type="checkbox"/> Carel NTC	Other Type:
Minimum scale:	Maximum scale:			
Outside Temp sensor on AI 10 fitted:	<input type="checkbox"/> YES	<input type="checkbox"/> NO	<input type="checkbox"/> Carel NTC	Other Type:
Minimum scale:	Maximum scale:			

High Pressure 1 sensor fitted:	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> 0.5 - 4.5V	Other Type:
Minimum scale:	Maximum scale:		
High Pressure 2 sensor fitted:	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> 0.5 - 4.5V	Other Type:
Minimum scale:	Maximum scale:		
Supply Fan Sensor Source:	<input type="checkbox"/> AIN1 <input type="checkbox"/> AIN2	Fan K-Value:	
Sensor 1 value Now:			
Supply Fan Sensor 1 Min limit:		Supply Fan Sensor 1 Max limit:	
Supply Fan Sensor 2 Min limit:		Supply Fan Sensor 2 Max limit:	

DI 1:	<input type="checkbox"/> N/O <input type="checkbox"/> N/C	DI 5:	<input type="checkbox"/> N/O <input type="checkbox"/> N/C	DI 9:	<input type="checkbox"/> N/O <input type="checkbox"/> N/C
DI 2:	<input type="checkbox"/> N/O <input type="checkbox"/> N/C	DI 6:	<input type="checkbox"/> N/O <input type="checkbox"/> N/C	DI 10:	<input type="checkbox"/> N/O <input type="checkbox"/> N/C
DI 3:	<input type="checkbox"/> N/O <input type="checkbox"/> N/C	DI 7:	<input type="checkbox"/> N/O <input type="checkbox"/> N/C		
DI 4:	<input type="checkbox"/> N/O <input type="checkbox"/> N/C	DI 8:	<input type="checkbox"/> N/O <input type="checkbox"/> N/C		

Modbus Settings Baud rate:	<input type="checkbox"/> 19200 <input type="checkbox"/> 9600 <input type="checkbox"/> 4800 <input type="checkbox"/> 2400 <input type="checkbox"/> 1200
Modbus Settings Stop bit:	<input type="checkbox"/> 1 <input type="checkbox"/> 2
Modbus Settings Parity mode:	<input type="checkbox"/> EVEN <input type="checkbox"/> ODD <input type="checkbox"/> NONE
Modbus Settings Timeout:	sec

Supply Fan 1 Configuration Comm. Address:	
Does this fan have 2 Analog inputs for the Pressure Sensors:	<input type="checkbox"/> YES <input type="checkbox"/> NO

Supply Fan 2 Configuration Comm. Address:	Outdoor Fan 1 Configuration Comm. Address:
Supply Fan 3 Configuration Comm. Address:	Outdoor Fan 2 Configuration Comm. Address:
Supply Fan 4 Configuration Comm. Address:	Outdoor Fan 3 Configuration Comm. Address:
	Outdoor Fan 4 Configuration Comm. Address:

VSD No. 1 Address:	Data Value:
Data Address:	Default install: <input type="checkbox"/> YES <input type="checkbox"/> NO

VSD No. 2 Address:	Data Value:
Data Address:	Default install: <input type="checkbox"/> YES <input type="checkbox"/> NO

• **MANUFACTURER: H. Manufacturer → c. Factory Settings**

Enable Unit On/Off by Digital Input:	<input type="checkbox"/> YES <input type="checkbox"/> NO	Enable Unit On/Off by Digital Input:	<input type="checkbox"/> YES <input type="checkbox"/> NO
SH Setpoint in DSH Mode:	K	Delay-Cool mode:	sec
		Delay-Heat mode:	sec
VSD No. 1 min speed:	%	VSD No. 1 Acceleration time:	sec
VSD No. 1 max speed:	%	VSD No. 1 Deceleration time:	sec
VSD No. 2 min speed:	%	VSD No. 2 Acceleration time:	sec
VSD No. 2 max speed:	%	VSD No. 2 Deceleration time:	sec

• To access this menu, please enter the Manufacturer password: 6268.

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