USE AND MAINTENACE MANUAL FOR PROTECTED CONTAINERIZED UNIT

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PCU MANUAL REVISION TABLE

Issue	Page(s)	Para(s)	Applicability S/N	Description
2020_01_27	all	all	RIGP6303001 through RIGP6303005	First Issue
2020_03_25	113/1 and 113/2	n/a	RIGP6303006 through RIGP6303014	Added Drawings nr. 07 and 08 to illustrate new seating cushions in the personnel compartment, and new wastewater flushing device.

ISO 9001:2008

ISO 14001:2004

ISO 3834-2:2006

FIRE PREVENTION CERTIFICATE

STEEL PROCESSING CENTER CERTIFICATION

PRODUCTION IN SERIES OF TRAILERS INTERNATIONAL CAT 0

SOA: CERTIFICATION OF QUALIFICATION TO EXECUTE PUBLIC WORKS

TULPS: GOVERNMENTAL AUTHORIZATION FOR THE PRODUCTION AND MARKETING OF ARMAMENTS

F-GAS CERTIFICATION

LEGALITY RATING

GERMAN CONSTRUCTION VOB/A SUPPLIER PRE-QUALIFICATION

INDEX

1.0 Brief description of the containerized bunker..... pag. 5

2.0 Installation and positioning..... pag. 8

3.0 Check control..... pag. 9

4.0 Time counter ..... pag. 10

5.0 TVCC..... pag. 11

6.0 CO_2 and CO detectors..... pag. 14

7.0 Portable toilette..... pag. 16

8.0 Automatic NBC air filtration..... pag. 26

9.0 Maintenance..... pag. 29

9.1 Check of the structural components..... pag. 29

9.2 Check of the electrical plant..... pag. 30

9.3 Ordinary maintenance..... pag. 30

10.0 Warnings for the cleaning..... pag. 31

11.0 Generating set ..... pag. 32

12.0 HVAC ..... pag. 61

13.0 UPS ..... pag. 88

14.0 Drawings and schemes..... pag. 107

15.0 Electrical panel and drawing..... pag. 114

16.0 Thuraya Satellite Antenna ..... pag. 117

17.0 Spare parts ..... pag. 118

1.0 BRIEF DESCRIPTION OF THE CONTAINERIZED BUNKER

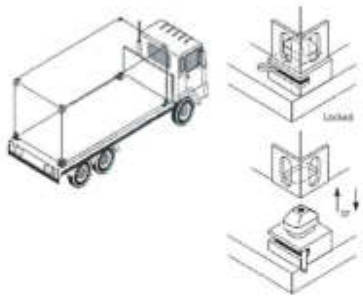
The PCU is realized by the use of a standard ISO 1CC container (20' sea-freight container). As a standard sea-freight container, the unit can be transported on trains, vessels, flat-bed trucks, trucks with CHU (Container Handling Unit) and it can be handled with the standard handling machines used for such commodity as fork-lift, crane spreader, etc..
The unit is equipped with a CSC plate.

Before the loading of the unit it is important to check that:

1) The extra shield steel plates are disassembled from the external of the PCU and safely placed inside the PCU.
2) The accessories, tools, etc.. are safely anchored to avoid movements inside the unit while it is transported;
3) The unit is disconnected to any power source (including the generating set that equips the unit);
4) All the doors are closed (and where foreseen lock by keys);

The unit can be easily anchored to the carrier by the use of the twist locks

Twist lock



Positioning on a flatbed truck

The unit is equipped with

- Automatic generating set diesel powered with Automatic Transfer Switch and oversized fuel tank
- UPS to supply all the system with exception of the HVAC system
- 18.000 BTU/h tropicalized air conditioner
- Nuclear Bacteriological Chemical (NBC) air filter
- Portable Toilette
- Waste water tank
- TVCC
- Schuko sockets
- USB sockets
- 12 V cigarette lighter sockets
- Smoke detector and CO detector
- CO_2 detector
- Magnetic antenna sat phone Thuraya
- Benches
- Sleeping bags
- Clocks
- Water tank
- Powder fire extinguisher
- CO_2 fire extinguisher
- First aid box
- Led lamps
- Earth rod

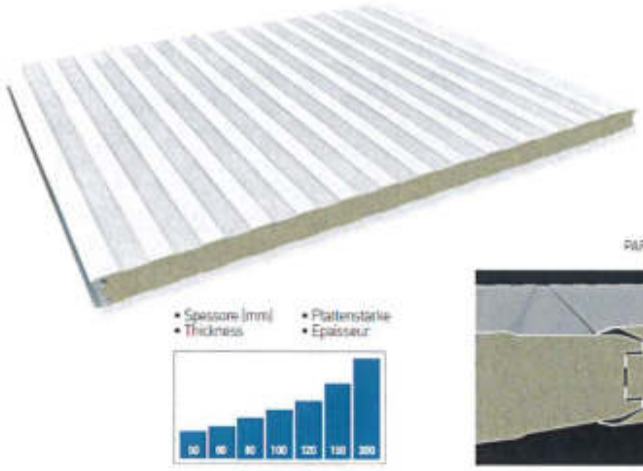
BALLISTIC RESISTANCE

Accordingly to the test performed on the 15/01/2020 ref. M_D GTER_RM REG2020 1000866 dated 22/01/202, the PCU complies with the requirement of ballistic resistance as foreseen in the SOW par. 2.3.1 (A2-C3-D3 under the NATO STANAG 2280, ed.10 June 2016).

FIRE RESISTANCE

The walls, the roof and the floor of the PCU is layered by 100 mm sandwich rock wool panels that allow a fire rating up to 2 hours

Sandwich rock wool panels thickness 100 mm:
Sound insulation: RW=30 dB UNI EN ISO 140-3-717-1
Fire reaction : A2-S1, d0 UNI EN 13501-1
Fire resistance : R.E.I. 120



2.0 INSTALLATION AND POSITIONING

The PCU has been realized with a plug and play approach so the installation is very simple and fast.
The PCU can be placed on any compacted surface without any previous preparation works. It is preferred to place the PCU on almost levelled area.

After the positioning, in order to consider the bunker ready to be used, it is important to

- Install the extra shield steel plates by fixing the bolts that during the transportation are placed inside the PCU.

- Connect the bunker to a grounding system by placing the ground rod according to prescribed engineering procedures;
- Connect the bunker to mains power source with a single phase plug 2P+G+N 32 Amps socket;

> For extra safety the technical compartment is equipped with electrical locks.
> In order to unlock them, after the connection to the mains it is requested to activate the LED push button placed inside the bunker. The correct opening is confirmed by the light ON of the LED and now is possible to open the technical compartment doors.

- Fill the diesel generating set with diesel fuel of the same quality and standard used for the vehicle supply. The diesel generating set is located in the extra locked technical compartment and it is equipped with an oversized extra fuel tank of 150 liters to allow an autonomy of 96 hours of running. While filling up the tank it is requested the maximum

attention to avoid to pour out the fuel that may cause fire or pollution. As per latest regulation the fuel tank is equipped with the fuel leakage basin.

- Fill up the water tank placed in the living area by adding clean drinkable water;
- Add the special liquid to the waste water tank of the portable toilette;
- Check that all circuit breakers of the electrical panel are on and all the systems run in a proper way. Note that the electrical panel is equipped with a power light lamps. When the lights are on the electrical panel is powered by the mains.

If it is the case, we suggest to store some food in bunker while the dry and tinned food has to be preferred

3.0 CHECK CONTROL

The PCUbefore the to be considered on service must be subject to the following checks:

Pos.	Check Controls	YES	NO
1	Check the functioning of the anti NBC air filter (for more details see paragraph 8) by rotating the turn-on knob		
2	Check the functioning of the TVCC system by visual inspection		
3	Check the functioning of the electro lock systems by activate the push red button inside the living area		
4	Check the functioning of the time counter by activate it by the remote control		
5	Check the functioning of the clocks (visual check)		
6	Check the functioning of the plugs (USB, cigar plug, schuko) by plugging any electrical device		
7	Check the functioning of the HVAC by activate it		
8	Check the functioning of the lights by turn on the switch		
9	Check the pressure of the fire extinguisher by check the pressure gauge		
10	Check the level of the clean water for the rinse of the WC and the level of the waste water of the WC by checking the indicator		
11	Check the alarm push button		
12	Check the functioning of the generating set and UPS by simulating a mains failure by following particular care to ensure work safety procedures		
13	Check the functioning of the satellite telephonic antenna by connecting a proper device		
14	Check the connection of the earth rod		

For your safety only if all the checks are satisfied the PCU can be consider on duty.

4.0 TIME COUNTER

The time counter is foreseen to check the time running when the personnel is safely closed inside the PCU. The time counter can work as count-down or count-up. To measure the time while the operators are safely close in the PCU the count-up has to be activated by the remote control as follow:

1) Turn on the time counter by pressing the RED push button
2) Push the push button "UP"
3) Push the push button "START"

REMOTE CONTROL:

5.0 TVCC

The bunker is equipped with 4 cameras placed at the 4 angles and hidden from the view and protected with ballistic glass a DVR and a monitor. For additional information about the monitor please refer to OEM manual provided. The system is already set and ready to be used without any further operation by the final users.
In the case of system reset, it is needed to follow the instruction below by taking in consideration that the default PASSWORD of the system is **RIGROUPspa2019.** In case of any problem relevant to password or access to the system the final users are invited to contact the helpdesk (+39 0832758225 or send an help request at info@rigroup.it).

Start up

Proper startup is crucial to expanding the life of the DVR.

Step 1 Check the power supply is plugged into an electrical outlet.
It is HIGHLY recommended that an Uninterruptible Power Supply (UPS) be used in conjunction with the device. The Power button on the front panel should be red, indicating the device is receiving the power.

Step 2 Press the POWER button on the front panel.
The Power LED should turn blue. The unit will begin to start.

Activate your device

Purpose

For the first-time access, you need to activate the device by setting an admin password. No operation is allowed before activation. You can also activate the device via Web Browser, SADP, or client software.

Step 1 Enter the admin password twice.

Step 2 Enter the password to activate the IP camera (s) connected to the device.

Step 3 Optionally, check **Export GUID, Security Question Configuration,** or **Reserved E-mail Settings** for password resetting in the future.

Step 4 Click **OK** to save the password and activate the device.

WARNING

STRONG PASSWORD RECOMMENDED–We highly recommend you create a strong password of your own choosing (Using a minimum of 8 characters, including at least three of the following categories: upper case letters, lower case letters, numbers, and special characters.) in order to increase the security of your product. And we recommend you reset your password regularly, especially in the high security system, resetting the password monthly or weekly can better protect your product.

powered on and then powered off, and there is no video and "Insufficient Power for PoC" is overlaid on the live view image.

- If the power consumption of the DVR is higher than that of the AT camera, when AF or AT camera is connected, it is powered on normally.

Step 4 Check the connected AF or AT camera number and the connectable camera number.

NOTE

- Only Hikvision PoC camera is supported.
- The maximum connectable AT/AF camera number varies with different models.

WARNING

Please turn off the PoC function if the camera does not support PoC, or the camera is not produced by Hikvision. Otherwise, it may result in permanent damage to the camera or DVR.

Use the UNLOCK Pattern for Login

For the Admin user, you can configure the unlock pattern for device login.

After the device is activated, you can configure the device unlock pattern.

Step 1 Use the mouse to draw a pattern among the 9 dots on the screen. Release the mouse when the pattern is done.

NOTE

- Connect at least 4 dots to draw the pattern.
- Each dot can be connected for once only.

Step 2 Draw the same pattern again to confirm it. When the two patterns match, the pattern is configured successfully.

Step 3 You can use the configured unlock pattern for future login.

User Login

If DVR has logged out, you must log in to the device before operating the menu and other functions.

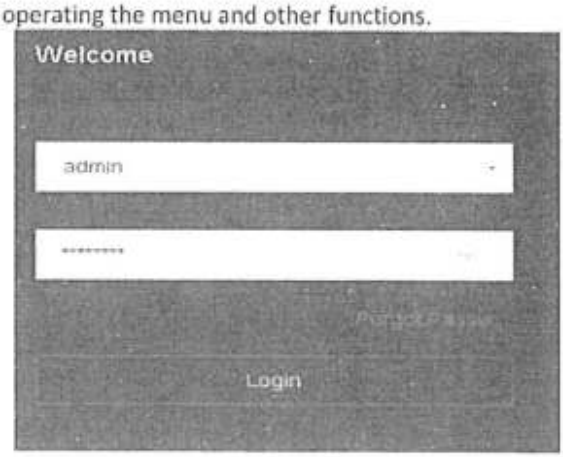
Step 1 Select **User Name**.

Step 2 Enter **Password**.

Step 3 Click **OK** to log in.

NOTE

For the admin, if you have entered the wrong password for 7 times, the account will be locked for 60 seconds. For the operator, if you have entered the wrong password for 5 times, the account will be locked for 60 seconds.



User Logout, shutdown and reboot

Purpose

You can log out of the system, shut down, or reboot the device.

Step 1 Click on the menu bar.

Step 2 Click **Logout**, **Shutdown**, or **Reboot**.

NOTE

After you have logged out of the system, menu operation on the screen is invalid. User name and password are required to unlock the system.

Live view

Enter the live view mode ( ).

- You can select a window and double click a camera from the list to play the video from the camera in the selected window.
- Use the toolbar at the playing window bottom to realize the capture, instant playback, audio on/off, digital zoom, live view strategy, show information and start/stop recording.

Recording settings

Before you start

Make sure that the disk has already been installed. If not, please install a disk and initialize it. You may refer to the user manual for detailed information.

In the live view mode, select a connected camera window and click at the toolbar to start recording.

Playback

Purpose

The recorded video files and pictures on the hard disk can be played back in the following modes: instant playback, all-day playback for the specified channel, and playback by normal/event/smart/tag/system logs/sub-periods/external file search/picture.

Step 1 Enter the playback mode ( ).

Step 2 Check the channel(s) in the list.

Step 3 Double-click to select a date on the calendar.

Step 4 You can use the toolbar in the bottom part of Playback interface to control playing progress.

6.0 CO_2 and CO DETECTORS

The CO_2 detector is foreseen to check the CO_2 levels inside the PCU. In the normal configuration the detector has to be set to AUTO mode. To select the AUTO mode please act on the round large button shown in the image below.

When the indicator is

Green=low CO_2 level
Yellow = medium CO_2 level
Red = high CO_2 level

The CO detector is foreseen to check the the CO levels inside the PCU.

The CO detector is already set and ready to use. The 9V battery life expectancy is about 10 years.
In order to check the detector is needed to push the press test button on weekly basis.
When the level of CO exceed the normal value an audible alarm is activated and a red led light is turned on.

7.0 PORTABLE TOILETTE

The portable toilette foreseen to assure a comfortable living in the PCU and is already mounted and for the functioning is just request the filling of the flush tank for the rinse and chemical preparation for the waste tank.

The portable toilette is basically composed by two main parts:

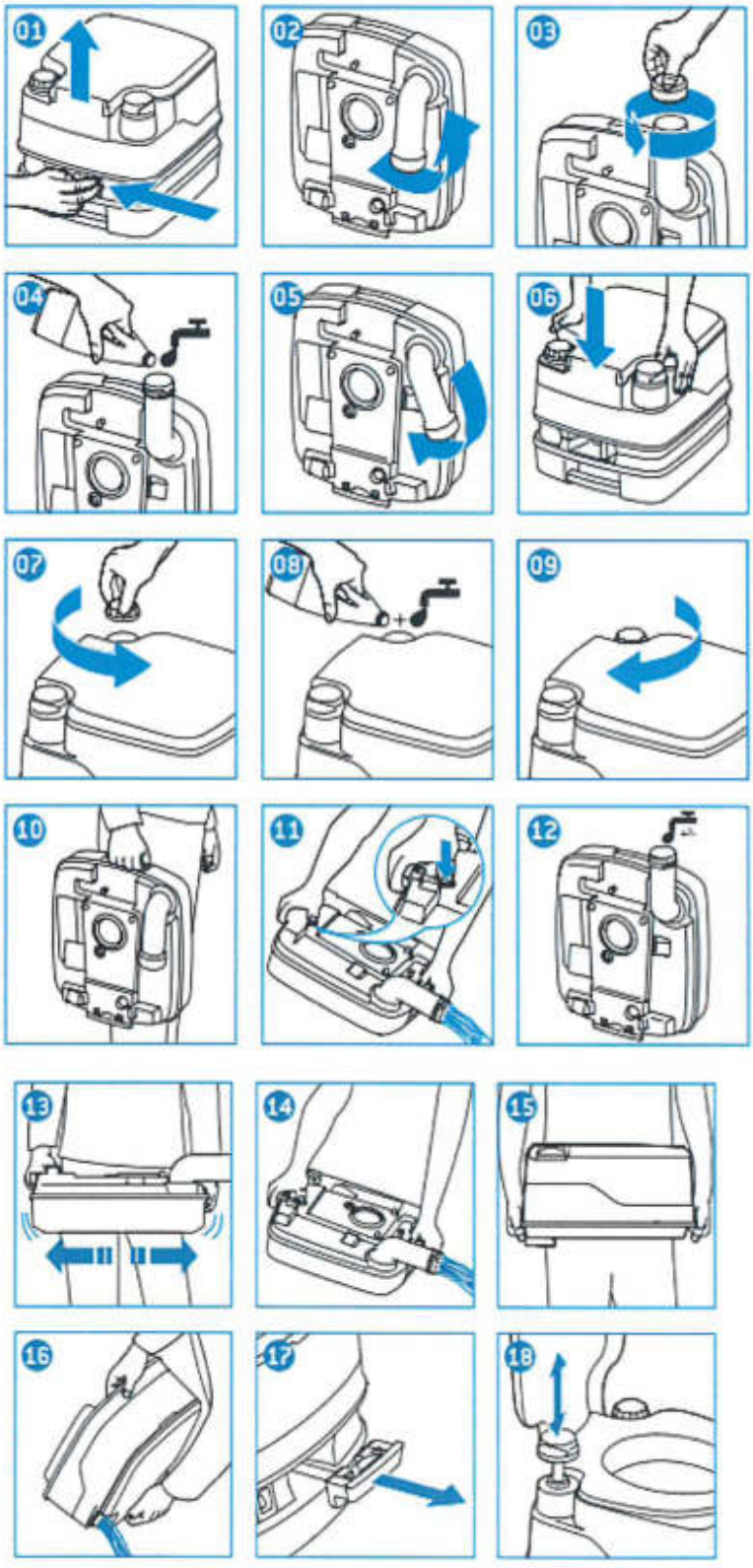
1) Fill the flush tank with water preferably added with the specific rinse solution (not mandatory)

2) Open the blade with the blade handle

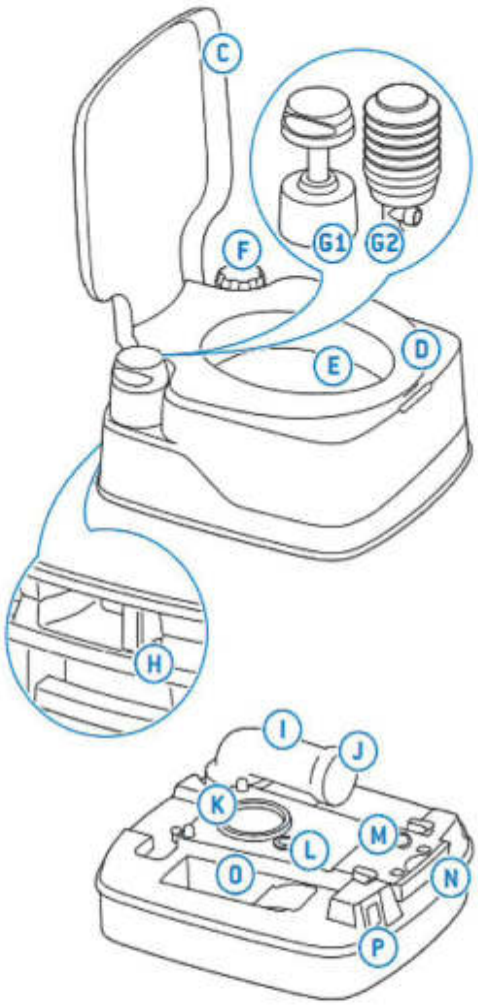
3) Flush the toilette using the manual bellow

4)

QUICK GUIDE



Main parts



A Flush-water tank

- C Cover
- D Seat
- E Toilet bowl
- F Water fill cap
- G1 Piston pump
- G2 Bellow pump
- H Clasp

B Waste-holding tank

- I Pour out spout
- J Cap pour out spout
- K Lip seal
- L Vent seal
- M Vent button
- N Valve handle
- O Storage for toilet fluids
- P Level indicator waste-holding tank (dependent on model)

1. Introduction

This is the user manual for your Thetford portable toilet. Read the safety instructions and information on use and maintenance of the toilet carefully before continuing. This will enable you to use the toilet safely and efficiently. Retain this manual for future reference.

For the latest version of this manual, please visit **www.thetford.com**

2. Symbols

Key to symbols:

Warning. Risk of serious injury and/or damage.

Caution. Risk of injury and/or damage.

Attention. Important information.

Note. Information.

3. Before use

See the images in the 'Quick Guide' at the front of the manual for a visual reference (p 2-3).

Your portable toilet is made up of two detachable sections: the flush-water tank (A) and the waste-holding tank (B). Before using the toilet, it is vital that you add toilet additives (where available) to both tanks.

Not using the correct products to care for your Thetford toilet could cause damage.

Prepare the waste-holding tank (B):

- Separate tanks (01).
- Remove the cap from the pour out spout while it is pointing upwards (02/03).
- Add the correct dosage of waste-holding tank toilet additive (04).
- Add the correct dosage of water to ensure that the bottom of the waste-holding tank is covered (04).
- Replace the cap (05).

⚠ Never add toilet additives directly via the blade as this could damage the lip seal of the waste-holding tank. Only fill the waste-holding tank via the pour out spout.

Prepare the flush-water tank (A):

- Recombine tanks (06).
- Remove the water fill cap (07).
- Add the correct dosage of flush-water tank toilet additive (where available) and fill the flush-water tank with clean water (08).
- Replace the cap (09).

4. Use of the toilet

See the indicated Quick Guide images for visual reference.

To vent any built-up heat or altitude pressure and prevent for splashing close the cover and once open and close the blade.

Opening the blade

The toilet can be used with the blade open or closed. To open the blade, pull the blade handle (17).

Make sure you always close the blade completely after use.

Flushing the toilet

You can achieve the most effective flush by operating the manual pump with three or four short flushes (18).

Do not use ordinary toilet paper, as this may cause clogging.

To prevent water damage to your caravan or motor home, do not travel with a waste-holding tank that is more than 3/4 full. This may cause leakage through the venting system.

To prevent water damage to your caravan or motor home, do not travel with water in the toilet bowl.

To prevent water damage to your caravan or motor home, do not travel with a flush-water tank that is too full. Thetford advises travelling with an empty flush-water tank, but at least not filled more than half-ful.

The toilet can withstand a maximum load of 120kg (265 lbs). Make sure you do not overload the toilet.

5. Emptying the tanks

See the indicated Quick Guide images for visual reference.

If you want to continue using your toilet after emptying, prepare the waste-holding tank again.

Waste-holding tank

You need to empty the waste-holding tank when the level indicator turns red.

- Separate the tanks [01].
- Take the waste-holding tank to an authorised waste disposal point [10].
- Remove the cap from the pour out spout, while it is pointing upwards [03].
- Press and hold the vent button with your tumb while the pour out spout is pointing downwards to empty the waste-holding tank without splashing [11].
- Rinse the tank [12/13/14].
- Recombine the tanks [08].

⚠ Do not allow the waste-holding tank to become too full.

Flush-water tank

Only empty the flush-water tank completely if you expect not to use your toilet for a long period.

- Remove the water fill cap [07].
- Empty the flush-water tank through the water fill opening [15].
- Flush the toilet until no more water is being pumped out [18].

Emptying is only allowed at an authorised waste dump.

To vent the flush-water tank the water fill cap contains a small vent hole. Fresh water can come through when lifting or positioning the toilet under an angle.

6. Maintenance and cleaning

Thetford recommends cleaning your toilet regularly to prevent limescale and ensure optimal hygiene.

- Clean the inside of the bowl with a soft brush and a special cleaning product.
- Clean the complete toilet with special cleaning products.

Never use household cleaners to clean your portable toilet. These may cause permanent damage to the seals and other toilet components.

Also maintain your toilet regularly to prolong the lifespan of your toilet.

- Clean the inside of the waste-holding tank 2 to 3 times a year to remove stubborn limescale.
- Treat the seals with special lubricant to keep the seals soft and pliable.

Never use Vaseline or vegetable oil to lubricate the seals. This may cause leakage to your waste-holding tank.

Thetford offers a wide range of toilet additives and care products. Look on the flyer for the variety of all products.

The valve blade seal is a part of the toilet that is subject to wear. Depending on the extent and manner of servicing, after a certain period the seal will lose quality and must be replaced.

7. Winter use

You can use your toilet as normal in cold weather as long as the toilet is situated in a heated location. If this is not the case, and there is a risk of frost, we advise not to use your toilet. Make sure you completely drain the toilet. Then empty the waste-holding tank and the flush-water tank, see Putting in storage.

8. Putting in storage

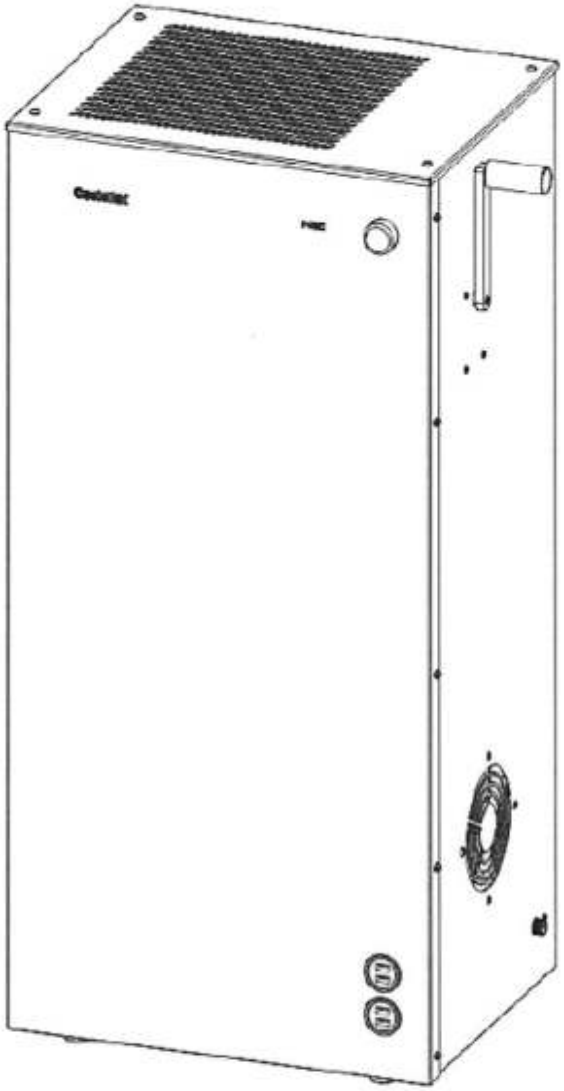
- Empty the flush-water tank.
- Flush the toilet until no more water is being pumped out.
- Empty the waste-holding tank.
- Thoroughly clean and dry the whole toilet.
- Open the blade and loosen the cap of the pour out spout to ventilate the waste-holding tank.
- Loosen the water fill cap to ventilate the flush-water tank.

We recommend maintaining your toilet before putting it into storage. See Maintenance and cleaning.

9. Disposal

Your product has been designed and manufactured with high quality materials and components, which can be recycled and reused. When your product has reached its end of life, dispose of the product according of the local rules. Do not dispose of the product with the normal household waste. The correct disposal of your old product will help prevent potential negative consequences to the environment and human health.

8.0 Automatic NBC Air Filtration Station



The NBC filtering system is a fully automated four-stage air filtration system with internal backup battery suitable for use in nuclear bunkers, panic rooms, and bomb shelters as well as in domestic and commercial environments at high risk from pollution or attack. This system is fitted with a high efficiency pre-filter, an F7 rated pre-filter, impregnated activated carbon filter and highest-rated H14 HEPA filter capable of removing all known warfare gases from pollution or attack. The system works by drawing air from outside through system of filters and introducing it into the protected space creating a positive pressure. This overpressure is designed to deny access to any unfiltered air that would migrate back into the protective shelter area through openings such as door/ windows gaps, etc. This positive pressure

enables for occupants safe and comfortable environment. The system operates from any standard 100-240 volt AC, 50/60 Hz power source. In the event of a mains power failure the unit has two embedded emergency backup systems plus the UPS and the generating set provided in the PCU.

The first embedded backup is an automatic switching power supply that trickle battery and then automatically draws power from that battery in the event of a power outage. When the electricity comes back on line, it will automatically revert to drawing from the AC power and recharging the battery. The second backup is manual power generator that can be used in the event of a long-term power outage.

The filtration system is basically composed by
the Central Unit 1 pcs
Pre-filter 1 pcs (preinstalled)
HEPA filter 1 pcs (preinstalled)
Carbon filter 1 pcs (preinstalled)
NBC pipe (3m, one end with plug) 1 pcs
Power unit 1 pcs Power cord 1 pcs
Backup internal battery 1 pcs (preinstalled)
Blast Valve 1 pcs
Overpressure Blast Protected Valve 1 pcs
Blast valve fixing set 1 pcs
Overpressure valve fixing set 1 pcs

Caution!

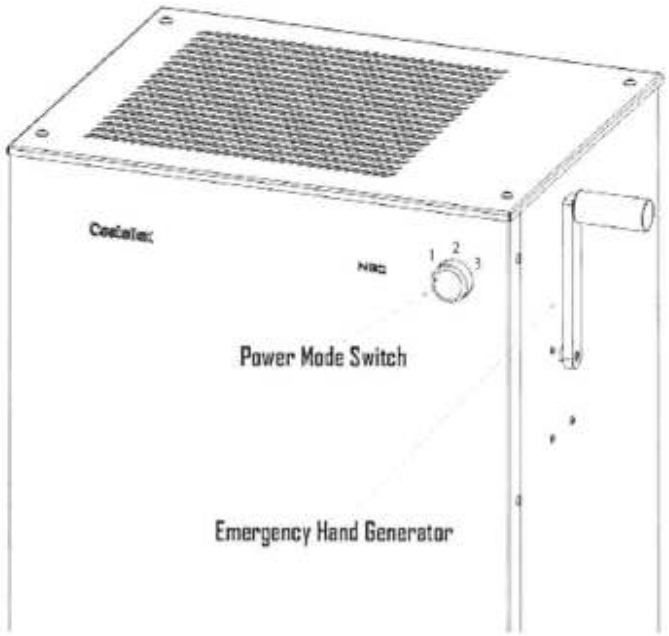
During storage, servicing and transportation of the system, **mains** and **battery** MUST BE DISCONNECTED!

Use

To start using the system, switch the power mode switch to "2" (Daily Ventilation) position, "Castellex" logo will light in red and blue, that indicates the system is in Daily Ventilating mode.

To switch system into NBC air filtration mode, turn the power mode switch to "3" (NBC Air Filtration) position, "Castellex" logo will light in red and blue and "NBC" logo will light in green, that indicates the system is in NBC air filtration mode.

To switch system off, turn the power mode switch to "1" (Standby) position.



Finally the system can run by the use emergency hand operated generator in event of battery discharge or failure. Please note that hand operated generator is electronically disconnected by ECU when the system operates from mains or backup battery.

Caution!

To prevent backup battery from discharge, **do not disconnect** mains power plug from power outlet!

Filtering specifications:

Pre-filter F7 class

Carbon filter ASZM TEDA impregnated carbon

HEPA H14 class (99.995% efficiency)

System output: up to150 m3/hour

The filters must to be replaced as follow:
a) an annual maintenance
b) after every usage in NBC mode

For annual maintenance, you need to replace filters every 12 months period. Backup batteries replacement requires every 24 months period.

9.0 PCU GENERAL MAINTENANCE

In order to keep high the quality level and preservation status of the unit, it is periodically needed to operate maintenance on the containerized bunker.
The suggested operations are: check control, ordinary maintenance and the substitution of the most fatigued components.
The maintenance can be shared in two section:
- ordinary maintenance
- special maintenance

The ordinary maintenance refers to the cleaning, checking, testing of parts of plants, to the small repairs, lubrication, substitution of fatigued parts.
The special maintenance refers to repair after damaging, deformations, large corrosion, break down that needs the substitution of parts.
In order to assure the highest reliability, quality and the accuracy the maintenance should be taken by skilled personnel from our Company or from authorized personnel.
If during a maintenance / substitution operation some refusals will be present, they should be disposed by following the actual regulation about the environment.

9.1 Check of the structural components

In order to assure the best performance the following checks are suggested:

Floor

- check the integrity of the surface

Roof

The roof is composed by a metallic part, insulating panels. The following testing have been foreseen:
Metallic part

- check the integrity of the surface
- check the presence of eventual rust

Walls and insulating panels

- check the integrity of the surface
- check of the accuracy of the fixing
- check of the sealants

Door

In order to assure the best performance the following checks are suggested:

- check the integrity of the metallic surface by visual inspection
- check the integrity of the sealants and gaskets by visual inspection
- check the painting status by visual inspection
- check the hinges, handles and other mobile parts for corrosion, dirt, fatigue and clean/replace as required

9.2 Check of the electrical plant

The activities of ordinary maintenance for the electrical plant are only the checking activities and the substitution of the fatigued parts (lamps, fuses...)
All the activities for the rehabilitation of the damaged parts and all the activities on the main electrical panel must to be realized by skilled and authorized personnel.

Main electrical panel

The check activities allowed are the following:
- Check of the differential circuit breaker by the TEST push button
- Check the functioning of the magneto-thermal circuit breakers by closing and the opening the circuit breakers
- Visual check of the integrity of the components

Check of the electrical plant

The check activities allowed are the following:
- Check the right working of the electrical plugs by plugging a generic electrical devices such as table light or other and relevant switches by acting on them
- Check the right working of the ceiling lights
- Check the earth connection by verifying that the clamping of the bolts for the earth cables is safely closed.

9.3 Special maintenance tasks

For the metallic parts of the PCU can be realized the following operations by skilled personnel. Activities for the repairing of metallic structures as breaks, large dents, deformations, large corrosions, etc...

Repairing of part with a small presence of rust:

1) Remove the rust by abrasive paper or metallic brush
2) Clean the surface with a clean cloth
3) Paint with anti-rust primer and two hands of paint

Repairing of little dents

1) Scratch with abrasive paper
2) Clean the surface with a clean cloth
3) Plaster the dent up to the level the other surface area
4) When the plaster is dried, remove the exceeding part by the use of the abrasive paper
5) Paint with anti-rust primer and two hands of paint

10.0 WARNINGS FOR THE CLEANING

For the cleaning of the PCU is forbidden the use of:

- High concentrate acids
- Abrasive sponges
- High pressure water pumps (hydro jet cleaners)
- Powder cleansing

11.0 GENERATING SET

A 5KW, 230 VAC 50Hz single phase Power Generator Set is provided as a backup electrical power source, complete with a 400 litres fuel tank in order to guarantee at least 4 calendar days of autonomous operation in case of external electrical power loss.

HYUNDAI

3000/1500rpm Standby Generator Maintenance

3000rpm Diesel Generators

Check oil level daily.

Ensure battery is fully charged.

Oil change service intervals: after first 20 hours, then every 100 hours or 12 months whichever is sooner.

Light Duty

Light duty rating is applicable for supplying power in portable and/ or intermittent applications. The average load should not be lower than 30% or higher than 80% of the rated output of the generator. Continuous use should not exceed 5 hours and annual operation should not exceed 500 hours to be within the sanctioned parameters.

Emergency Duty

Emergency duty rating is applicable for supplying power for the duration of a utility power outage. No overload capability is available.

Average load should not be lower than 30% or higher than 80% of the rated output of the generator. Annual operation should not exceed 500 hours to be within the sanctioned parameters.

Section Description	Page No/Nos
1. SAFETY	3 - 7
2. MACHINE LAYOUT	7 - 8
3. PREPARATION for STARTING	8 - 11
4. OPERATING THE GENERATOR	12 - 14
5. LOAD	14 - 15
6. STOPPING THE MACHINE	15
7. PERIODIC MAINTENANCE	16
8. LONG TERM STORAGE	17
9. TROUBLE SHOOTING	18
10. SPECIFICATIONS	19
11. WIRING DIAGRAM	20
12. SERVICE RECORD SHEET	21
13. GENPOWER CONTACT DETAILS	22
14. DECLARATIONS OF CONFORMITY	23

1. SAFETY

1.1. General safety notes.

1.1.1. The operator of the machine is responsible for, and has a duty of care in making sure that the machine is operated safely and in accordance with the instructions in this user manual. Keep the manual safe and pass it on if the machine is loaned or sold to anotheruser.

1.1.2. Please note the following safety points.

1.1.2.1. The machine should never be left it in a condition which would allow an untrained or unauthorised person/s to operate thismachine.

1.1.2.1.1. All due care and diligence should be taken by the operator for the safety of, and with regard to, those around whilst using the machine.

1.1.2.1.2. Some or all of the following - warning signs, symbols and/or PPE pictograms may appear throughout this manual. You MUST adhere to their warning/s. Failure to do so may result in personal injury to yourself or those around you.

The FOLLOWING safety notes will help avoid or reduce risk of injury or death.

⚠ DANGER	⚠ WARNING	⚠ CAUTION
Indicates a hazard, which, if not avoided, could result in serious injury or death.	Indicates a hazard, which, if not avoided, could result in serious injury.	Indicates a hazard which, if not avoided, might result in minor or moderate injury.
⚠ NOTE		
Indicates a situation that could easily result in equipment damage.	READ and keep the manual safe and pass it on if the machine is loaned or sold to another user.	You MUST fully read instructions to make sure you use and operate machine safely.

Appropriate Personal Protective Equipment (PPE)
MUST be worn at all times when machine is in use or being repaired.

ALWAYS keep the working area clear of non-essential people to include, but not limited to, children, the elderly and vulnerable persons.

NEVER ALLOW an untrained person to use this machine.

1.2. Carbon monoxide (where applicable).

1.2.1. Carbon monoxide is a colourless and odourless gas. Inhaling this gas can cause death as well as serious long term health problems such as braindamage.

1.2.2. The symptoms of carbon monoxide poisoning can include but are not limited to the following;

Headaches, dizziness, nausea, breathlessness, collapsing or loss of consciousness.

1.2.2.1. Carbon monoxide poisoning symptoms are similar to flu, food poisoning, viral infections and simply tiredness. It is quite common for people to mistake this very dangerous poisoning for somethingelse.

1.2.2.2. To avoid carbon monoxide poisoning DO NOT use Petrol/Diesel-powered equipment inside any of thefollowing;

Home, garage, tent, camper van, mobile home, caravan or boat.

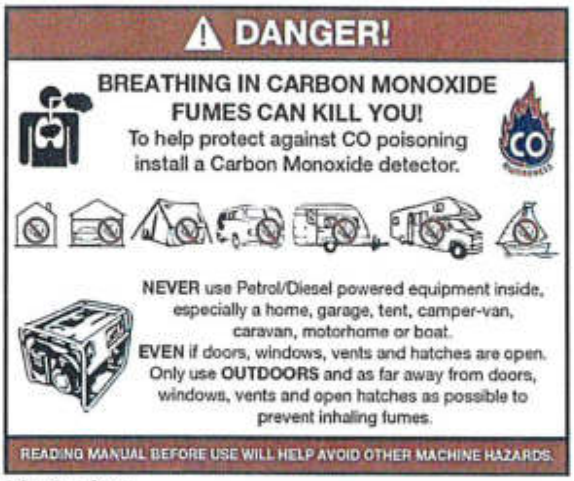
This list is not exhaustive and if you are in any doubt contact your dealer.

1.2.3. If you think you have or someone around you has been affected by carbon monoxide poisoning;

1.2.3.1. Get them fresh air immediately, by leaving the affected area or by opening doors and windows. If safe and practical to do so make sure that the machine is turned off. DO NOT enter a room you suspect of having carbon monoxide present – instead call the emergencyservices.

1.2.3.2. Contact a doctor immediately or go to hospital - let them know that you suspect carbon monoxide poisoning.

1.2.4. **DO NOT** use in an enclosed area or a movingvehicle.



1.3. General fuel safety.

⚠ CAUTION ALL FUELS ARE FLAMMABLE

1.3.1. Fire hazard - keep fuel away from all sources of ignition for example heaters, lamps, sparks from grinding orwelding.

Fire Hazard

1.3.2. DO NOT carry out hot work on tanks that have contained fuel it is extremely dangerous.

1.3.3. ALWAYS keep work area clean and tidy.

1.3.4. ALWAYS clean up all spills promptly using correct methods i.e. absorbent granules and a lidded bin.

1.3.5. ALWAYS dispose of waste fuels correctly.

1.4. Fueling/De-fueling (where applicable).

⚠ CAUTION ALL FUELS ARE FLAMMABLE

1.4.1. ALWAYS fuel and defuel in a well-ventilated area outside of buildings.

1.4.2. ALWAYS wear correct, suitable and fit for purpose Personal Protective Equipment (PPE), suggested items are but not limited to safety gloves and overalls.

1.4.3.When fueling/de-fueling ALWAYS avoid inhalingfumes

1.4.4.When de-fueling ALWAYS use a propriety fuelretriever.

1.4. 5.ALWAYS carry fuel in the correct and clearly markedcontainer.

Fire Hazard

1.5. Electrical safety.

Risk of electric shock

1.5.1. Electricity can kill - NEVER work on LIVE/ENERGISEDequipment.

1.5.2. Prior to carrying out any maintenance work you MUST Identify electrical isolation methods and isolate all electricalsupplies,

1.5.3. Prior to use and with all electrical supplies isolated You MUST check all electrical cables, plugs and connections for thefollowing;

1.4.1.1. Are intact and have no signs of damage, to include but not limited to bare wires, chaffing, cuts and loose wiring.

1.4.1.2. If there are any signs of damage, the damaged item MUST be taken out of service until the damage has been repaired by an electrically competent person.

1.4.1.3. All trailing cables should be routed so as not to cause any kind of trip hazard.

1.4.1.4. NEVER work on or near electricity with wet hands, wet clothing, and wet gloves.

1.6. Batteries

Corrosive

1.6.1. Batteries present a risk if they become damaged by the possible leaking of electrolyte. This electrolyte is an acid and can cause serious burn injuries. Care

should be taken when working on or near them. NOTE the electrolyte may be in liquid or gel form.

1.6.2. Should you come into contact with electrolyte youshould;

1.6.2.1. Remove all clothing contaminated with electrolyte. If you cannot remove then saturate in water.

1.6.2.2. Get medical assistance as soon as possible. You must advise the medical staff of the type acid.

1.4.1.4.1. Lead/acid battery = dilute sulphuric acid

1.4.1.4.2. Nickel/cadmium = potassium hydroxide alkalielectrolyte.

1.6.2.3. Use fresh running water to wash off excess electrolyte, continue this until medical assistance arrives. Make sure that you do not wash the electrolyte to another part of the face or body.

1.6.2.4. If electrolyte comes into contact with Eyes the electrolyte needs to be immediately washed away with large amounts of water. Make sure that you do not wash the electrolyte to another part of the face orbody.

1.6.3. Gasses from charging batteries are highly flammable and great care should be taken to charge in well ventilated areas.

1.6.4. There is an explosion risk if the battery terminals are short circuited, when connecting/dis-connecting ALWAYS exercise great care so that the terminals or battery leads are NOT allowed to touch and cause a spark. ALWAYS use suitable insulated tools.

Risk of explosion

1.7. Vibrations (where applicable).

1.7.1. Prolonged use of hand held (operated) machines will cause the user to feel the effects of/from vibrations. These vibrations can lead to white finger (Raynaud's phenomenon) or carpal tunnel syndrome. This condition reduces the ability of the hand to feel and regulate temperature, causing numbness and heat sensations and may cause nerve damage and circulatory tissuedeath.

1.7.2. Not all factors that lead to white finger disease are known, but cold weather, smoking and other diseases that affect blood vessels and blood circulation as well as large and long-lasting impact of shocks are considered factors in the formation of white finger. Note the following to reduce the risk the white finger and carpal tunnel syndrome:

1.7.2.1. Wear gloves and keep your hands warm

1.7.2.2. Take regular breaks

1.7.3. All of the above precautions may help reduce the risk of white finger disease but not rule out carpal tunnel syndrome. Long-term and regular users are therefore recommended to observe the condition of your hands and fingers. Seek medical attention immediately if any of the above symptoms shouldoccur.

1.8. Noise.

1.8.1. The operating noise of the machine can damage your hearing. Wear hearing protection such as earplugs or ear defenders to protect your hearing. Long- term and regular users are advised to have hearing checked regularly. Be especially vigilant and cautious when wearing hearing protection because your ability to hear alarm warnings will be reduced.

1.8.2. Noise emissions for this equipment is unavoidable. Carry out noisy work at approved times and for certain periods. Limit the working time to a minimum. For your personal protection and protection of people working nearby it is also advisable for them to wear hearing protection.

1.8.3. See CERTIFICATE of CONFORMITY section for Outdoor Noise declaration of conformity.

1.4.7. Dispose of waste fuelscorrectly.

1.4.8. Diesel safety. 

1.4.8.1. Always fuel and defuel in well-ventilated area.

1.4.8.2. Always wear correct, suitable and fit for purpose Personal Protective Equipment (PPE), suggested items are as follows, but are not limited too.

1.4.8.3. Hand protection.

1.4.8.4. Protective clothing.

1.4.8.5. Respiratory protective equipment should be used when in an unventilated area.

1.4.8.6. When defueling always use a propriety fuel retriever.

1.4.8.7. Always carry fuel in the correct and clearly marked container.

1.4.9. Petrolsafety. 

1.4.9.1. Always fuel and defuel in well-ventilated area.

1.4.9.2. Always wear correct, suitable and fit for purpose Personal Protective Equipment (PPE), suggested items are as follows, but are not limited too.

1.4.9.3. Hand protection.

1.4.9.4. Protective clothing.

1.4.9.5. Respiratory protective equipment should be used when in an unventilated area.

1.4.9.6. When defueling always use a propriety fuel retriever.

1.4.9.7. Always carry fuel in the correct and clearly marked container.

1.4.10. Electrical Safety. 

1.4.10.1. Electricity can kill - never workon LIVE/ENERGISED equipment.

1.4.10.2. Identify electrical isolation method and always isolate all electrical supplies, prior to carrying out any maintenance work.

1.4.10.3. Prior to use and with all electrical supplies isolated check all electrical cables, plugs and connections for thefollowing.

1.4.10.3.1. Are intact and have no signs of damage, to include but not limited to bare wires, chaffing, cuts and loose wiring. If there are any signs of damage, the damaged item should be taken out of service until the damage has been repaired by an electrically competentperson.

1.4.10.4. All trailing cables should be routed so as not to cause any kind of trip hazard.

1.5. Additional Safety guidelines'

1.5.1. Exhaust and Engine

1.5.1.1. The engine and exhaust will become very hot during use do not touch.

1.5.1.2. These items remain hot for some time after use.

1.5.1.3. Place the machine in an area where pedestrians or children are not likely to touch themachine.

1.5.1.4. Avoid placing any flammable materials near the exhaust outlet during operation.

1.5.1.5. Keep the machine at least 1 m from buildings or other equipment, or the engine mayoverheat.

1.5.1.6. Avoid operating the engine with a dust cover.

1.5.2. Control Functions

1.5.2.1. Oil WarningSystem

1.5.2.1.1. When the pressure switch senses low oil pressure engine will stop automatically.

1.5.2.1.2. Unless you refill with oil the engine will not start again.

1.5.3. Starter Switch (SW)

1.5.3.1. The engine starter switch controls the ignition.

1.5.3.2. In the 'OFF' Position the ignition circuit is switched off and the enginewill not run

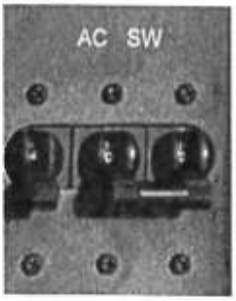
1.5.3.3. In the 'ON' position the engine is ready for starting

1.5.3.4. In the 'START' position (pushed against spring tension) the starter motor is engaged and the machine will start.

1.5.4. AC Switch (Breaker)

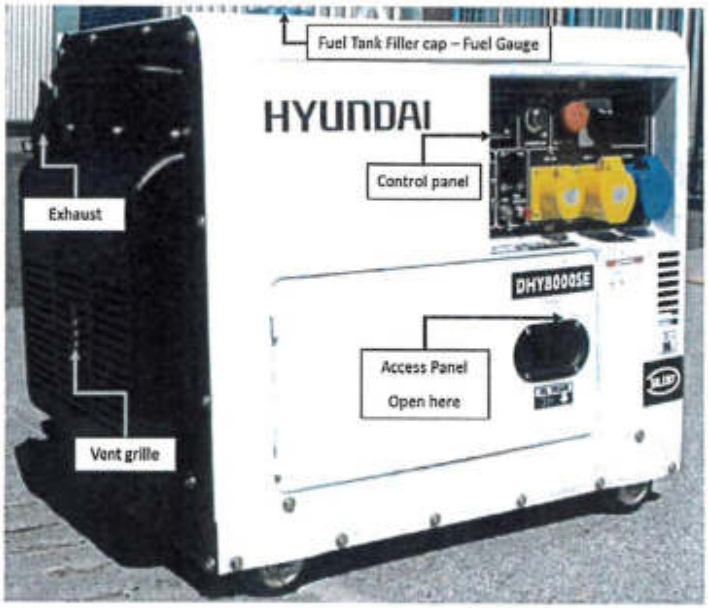
1.5.4.1. The AC Switch (Breaker) will turn 'OFF' automatically when the load exceeds the generator output.

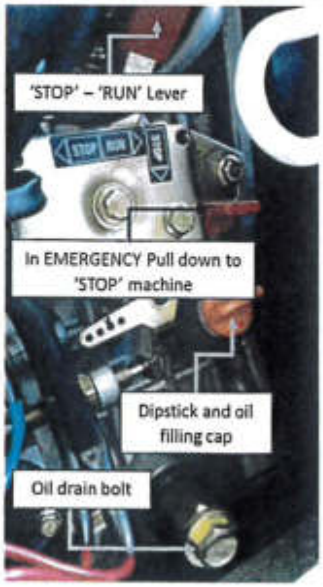
1.5.4.2. If AC switch turns 'OFF' then before resetting remove some of the load and keep below the rated output of the machine.



1.5.5. DO NOT Connect the generator to Mains AC sockets in your building – commonly known as 'back feeding' it is extremely dangerous and illegal.

2. MACHINELAYOUT Typical control panel layout for Single phase machine.





Typical control panel layout for Single & Three phase machine.

3. PREPARATION for STARTING

⚠ WARNING	▯ DO NOT EXCEED INDIVIDUAL SOCKET AMP RATINGS.

⚠ WARNING

- ▯ DO NOT refill tank while engine is running or HOT.
- ▯ Do not smoke or allow flames or sparks in the area where the engine is refueled or where the fuel is stored.
- Do not overfill the diesel tank and make sure the filler cap is securely closed after refueling.
- Take care not to spill fuel when refueling. If any fuel is spilled, make sure the area is clean and dry before starting the engine.

⚠ CAUTION Wear suitable PPE, suggested but not limited too

3.1. Selection and handling of fuel.

3.1.1. Selection of fuel.

3.1.1.1. Only use standard specification diesel, this can be red or white.

3.1.1.2. Keep dust and water out of thefuel.

3.1.1.3. When filling the fuel tank from drums, make sure that no dust or water is mixed in with the fuel. This can cause serious damage to the fuel injection pump or the injector nozzle.

3.1.1.4. Do not overfill. Overfilling can potentially be very dangerous. Diesel can expand in hot weather and overflow

3.1.1.5. Always leave a 25mm gap above the fuel level.

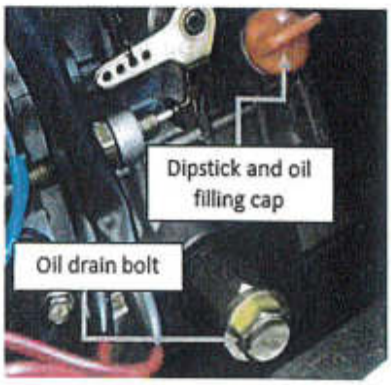
⚠ WARNING

- Always check the engine oil level with the generator on a flat, level surface before starting or refilling the machine.

- If an insufficient amount of engine oil is used, damage to the engine mayresult.
- Do not overfill the engine with oil.
- This generator is equipped with a low oil pressure switch this system will stop the engine automatically when the oil pressure falls below the minimum pressure required.
- This helps prevents damage such as bearing seizures etc. However, this should not be relied upon and the engine oil level should be checked and topped up if required, daily.

⚠ CAUTION Wear suitable PPE, suggested but not limited too

3.2. Check and refill the engine oil.



3.2.1. To ensure the generator maintains an optimum performance and the life of the generator is as long as possible, it isimportant to use the correct engine oil – SAE10W/30 – SAE15W/40 **(API CH-4/CF/SJ/SL diesel engine oil or higher grade)** and **change after the first 20 hours, then every 100 hours.**

3.2.2. If the correct engine oil is not used, or the engine oil is not replaced every 100 hours, as required, the risk of crankshaft bearing failure, piston seizure, piston ring sticking and

accelerated wear of the cylinder liner, main bearing and failure of other moving components increases significantly. The generator lifespan will be greatly reduced if oil level and oil changes are reduced.

3.2.3. Remove oil filler cap and check engine oil level

3.2.4. If oil level is below the lower level line, refill with SAE API CH-4/CF/SJ/SL diesel engine oil on dipstick, or to the top of filler neck. N.B. do not screw oil filler in the oil filler cap when checking oil level.

3.2.5. Change contaminated oil.

3.3. Service the AirCleaner.

⚠ WARNING

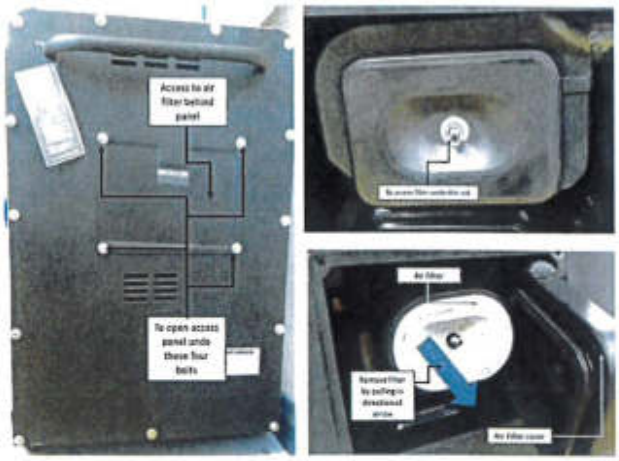
- Do not wash air filter with detergent.
- Replace the air filter if the engine output decreases or excessive exhaust smoke is noticed.
- Never run the generator without the air filter, otherwise rapid engine wear will result.

3.3.1. Remove the access panel to reveal air filter cover.

3.3.2. Undo the nut (anti-clockwise) and removethe air cleaner cover and take out theelement.

3.3.3. Clean the air filter.

3.3.4. Reattach the air filter cover and screw on the nut.



3.4. Checking the Generator before start up.

generator should be earthed to prevent electric shocks.

- Turn off the main breaker switch and remove all loads.

⚠ WARNING

- Be sure to turn off the main breaker switch before starting. The

⚠ CAUTION

- Before starting the engine, be sure to switch OFF any appliances connected to it.
- Ensure that the breaker switch is OFF before switching between 115v/230v.

3.5. Running-in periods of Operation.

3.5.1. The first 20 hours are the break-in period of the engine. For this reason, it is important to follow the following instructions during this period.

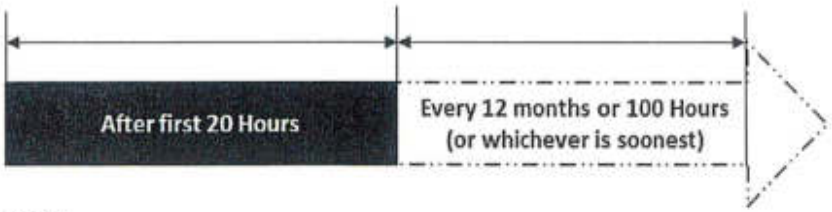
3.5.1.1. Warm up the engine 5 minutes after the initial starting, before applying load.

3.5.1.2. Avoid applying loads above 3kw during the first 20 hours of operation.

3.5.1.3. It is important to replace the engine oil on time.

3.5.1.4. Replace the engine oil whilst the engine is warm, after 20-hours running.

3.5.1.5. Ensure that old engine oil is drained out completely.



3.6. Battery.

⚠ WARNING

- Do not connect tools or any other appliances to the generator before starting.

⚠ CAUTION

- Explosive gases are given off when charging battery. Only charge in a well-ventilated area, away from sparks and naked flames.

3.6.1. Battery.

3.6.1.1. When you first install the battery, ensure that the battery's polarity is the same as the generator's battery leads - Black = negative, Red = positive.

3.6.1.2. Using a voltmeter - check the voltage is 12.3V+, if lower, the battery must be charged.

3.6.1.3. Check that the voltage is correct every month. The battery should be between 12.5v and 13.6v. When the engine is running it should re-charge the battery.

3.6.1.4. Make sure battery is free from damage and is not leaking. If battery shows signs of damage or leaking – DO NOT continue to use. Instead replace battery immediately.

3.6.1.5. Make sure that all battery acid spills are correctly cleaned up straight away.

3.6.1.6. The battery should be stored in a chargedcondition.

3.6.1.7. The battery is a 12 volt 36Ah sealed lead acid battery and requires no maintenance otherthan;

3.6.1.7.1. Ensure battery terminalsare;

3.6.1.7.2. Kept clean.

3.6.1.7.3. Kepttight.

3.6.1.7.4. Covered to prevent shortcircuiting.

3.6.1.8. If the battery voltage is too low, it will require charging before use.

3.6.1.9. Keep the battery in a cool, dry place. It is important to clean the battery every three months and charge every sixmonths.

4. OPERATINGTHE GENERATOR

⚠ CAUTION

- Do not loosen or readjust either the engine speed limiting bolt or the fuel injection limiting bolt as this will cause the performance of the generator to be affected.

4.1. Starting.

4.1.1. Turn the main AC switch to the 'OFF' position.

4.1.2. Make sure that the machine has fuel for the task.

4.1.3 Make sure the emergency STOP switch is out (turn anti-clockwise).

4.1.4. Set the engine speed lever is set to 'RUN'.

4.1.5 Turn the starting key clockwise to the 'START' position.

4.1.6 Remove your hand from the key as soon as the engine starts.

4.1.7. If the engine does not start after 10 seconds, wait 15 seconds before trying again. Excessive start attempts will cause the battery to flatten.

4.1.8. If it does not start after 3 attempts, or runs intermittently with excessive smoke check that the fuel system is fully primed.

4.1.8.1. Priming - before starting to prime make sure that there is fuel in tank and that you can contain any fuel spilt.

4.1.8.1.1. It is done by releasing the pipe clip on the diesel fuel line connected to the injector pump. Make sure you pinch the fuel line and then release slowly until all air is released and fuel appears.

4.1.8.1.2. When fuel appears replace pipe onto the injector pump and replace clip. Clear up any fuel spills before restarting.

4.1.8.1.3. The above may be necessary when new, or if the machine runs out of fuel.


Towel to collect spilt fuel


Injector pump inlet


No fuel


Fuel showing

4.1.9. Always leave the key in the 'ON' position whilst the engine is running.

4.1.10. Run machine for two minutes before applying load

4.1.11. Insert the plug into the socket you are about to use.

4.1.12. Turn the main AC switch to the 'ON' position and turn the electrical appliance 'ON'.

⚠ CAUTION

- If the engine has been running, the muffler will become very hot. Be careful not to touch the muffler until it has had time to fully cool down.
- Never refuel the fuel tank whilst the engine is still running.

4.2. Wireless remote controlled start (where fitted). **Not included in the supply**

omissis

4.3. Checks whilst generator is running.

4.3.1. After each use make sure that there are no abnormal sounds or vibration.
4.3.2. Check that the engine is running smoothly normally.
4.3.3. Check that there is no excessive smoke from the exhaust after 10 minutes of running, and the engine has reached working temperature
4.3.4. Check that there are no oil or fuel leaks.

fault.

- Please contact Genpower for assistance if required.

NOTE

- If you notice if any of the above, stop the engine and locate the

5. LOAD

CAUTION

- Start appliancesone-by-one.

5.1. 230 Volt AC use.

5.1.1. After switching ON the main breaker switch, and the engine running check the Voltage reading when in 'Voltage Mode'. It should read 230v ± 5% (50Hz).

5.1.2. The Digital panel only becomes active when the Main breaker is in the 'ON' position. The following will be displayed by successive presses of the 'M' or mode button.

Lamp Illuminated	Indicating
V	Voltage
Hz	Frequency
V1	Event timer - or current running time (hours). This will reset to zero when main Breaker is 'OFF'
V2	Total Run Time

5.1.3. Connect the equipment to the generator in correct order.

5.1.4. Connecting the loads with the largest motor first, then the smaller items.

5.1.5. If the generator is overloaded the main breaker will trip.

5.1.6. To reset the breaker do the following;

5.1.6.1. Turn OFF and disconnect all loads.

5.1.6.2. Reset breaker, and add load onto the circuit to within 50% to 75% of rated output.

5.1.7. Wait a few minutes before resuming operation.

5.2. Electrical appliances, particularly motor driven equipment, will have a very high start-up current. The table below provides reference for connecting these appliances to the generator.

Type	Wattage		Example

	Starting	Rated	Typical appliance	Appliance	Starting	Rated
Lighting	x 1	x 1	Incandescent lamp or heating appliance	Incandescent lamp 1000 watts	100 vA	100 vA
Heating Appliance						
Fluorescent Lamp	x 2	x 1 to x 1.5	Fluorescent Lamp	Fluorescent Lamp	80 vA	40 to 60 vA
Motor Driven Equipment	x 3.5	x 1 to 2	Refrigerator, Electric fan, Compressoror grinder	Refrigerator150 watts	450 to 750 vA	150 to 30 vA

6. STOPPINGMACHINE

- Do not stop the engine suddenly or whilst under load.

⚠ WARNING This can damage the AVR and cause damage to the alternator through overheating.

- Do not stop the engine with the decompression lever.

6.1. Switch OFF equipment connected to thegenerator.

6.2. Turn off the main breakerswitch.

6.3. Run the generator without load for three minutes.

6.4. Turn the electric key start switch to the 'OFF' position.

6.5. Or press or pull down the stop lever.

7. PERIODICMAINTENANCE

⚠ WARNING Ensure the engine is off before performing any service.

- If the engine must be run, make sure that the area is well ventilated.
- The exhaust contains poisonous carbon monoxidegas.

7.1. Maintenance chart.

All work/s should be carried out by a competent person – if you need technical advice contact Genpower					
Item	**Daily**	**First month or 20 hours**	**Every 100 hours / 12 months**	**Every 500 hours**	**Every year or 1000 hours**
Check and refill with diesel	Yes				
Check and refill with engine oil	Yes				
Check for oil leakage	Yes				
Check and tighten fastening parts	Yes				
Check and tighten head bolts				Yes	

Replace engine oil		Yes First oil change	Yes		
Replace engine oil filter			Yes		
Replace air filter			Yes		
Replace fuel filter			Yes		
Check Fuel injection pump					Yes
Check injector nozzle					Yes
Check fuel pipes					Yes
Adjust clearance of intake and exhaust valves		Yes – First time			Yes
Grind intake/exhaust valves					Yes
Replace piston rings					Yes
Check battery condition			Yes		
Check carbon brushes and slip rings				Yes	

7.2. Replacing engine oil.

⚠ CAUTION After engine has been run prior to changing the oil will be very hot. Wear correct PPE minimum of  gloves and overalls.

⚠ CAUTION DO NOT allow any dust, dirt or any other debris enter oil or crankcase.

7.2.1. Remove the oil filler cap.

7.2.2. Remove the drain plug and drain the old oil while the engine is still warm.

7.2.3. The plug is located on the bottom of the cylinder block.

7.2.4. After draining, re-tighten the drain plug and refill with the recommended oil **API CH-4/CF/SJ/SL diesel engine oil or highergrade.**

8. LONG TERMSTORAGE

⚠ WARNING □ After running the engine the oil will be very hot. □ Wear correct PPE minimum of gloves and overalls. 

8.1. If storing the generator for long periods of time, make the following operations.

8.1.1. Operate the engine for 10 minutes and then stop.

8.1.2. Stop the engine.

8.1.3. Drain the engine oil whilst the engine is still warm and refill with fresh oil.

8.1.4. Turn the engine for 2-3 seconds with the decompression lever set at the non-compression position and the starting key set at the 'START' position. (Do not start the engine.)

8.1.5. Wipe off the oil and dirt from the engine and store in a dry place.

9. TROUBLESHOOTING.

9.1. Troubleshooting - N.B. all corrective actions should be carried out by suitably qualified person/s.

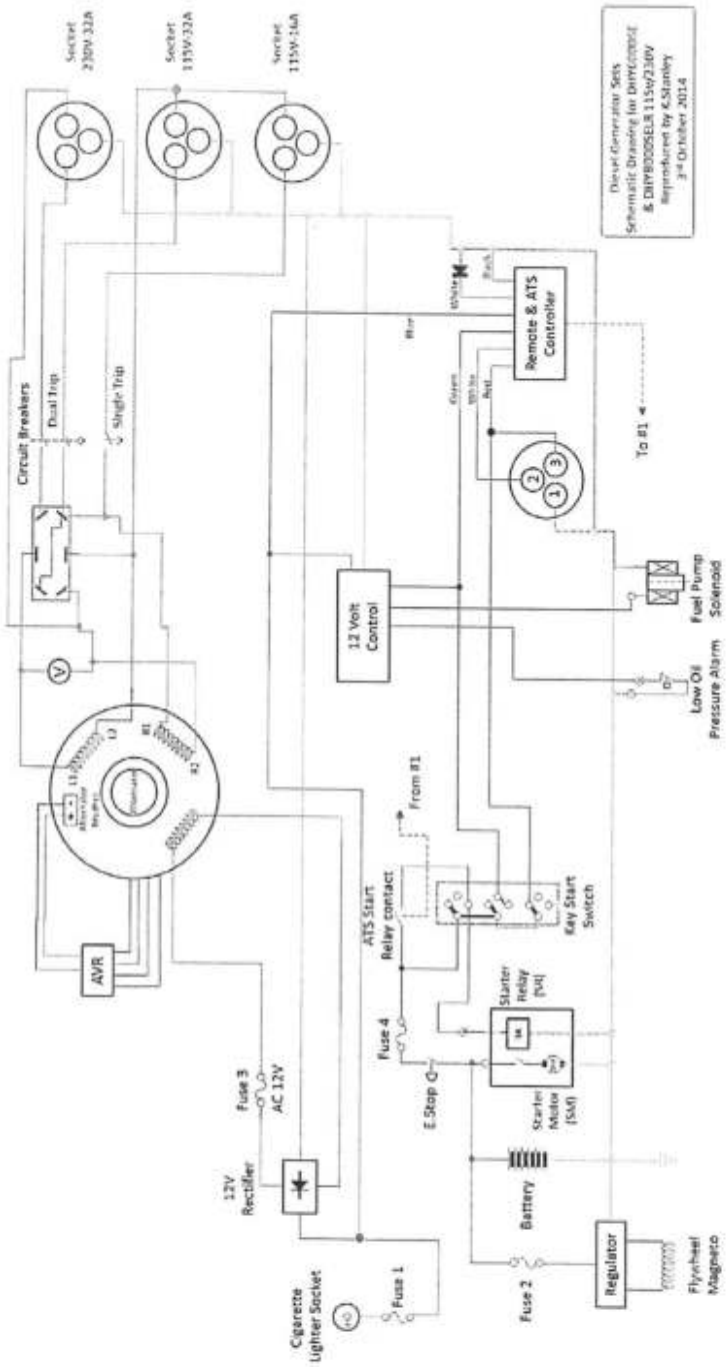
Problem	Possible fault/cause	Remedy
The Diesel engine will not start	The governer lever is not at START position	Set lever to START position
	Emergency STOP button activated(depressed)	Re-set emergency STOP button
	Insufficient fuel	Refill with fuel
	Fuel injection pump does not deliver fuel or delivers insufficient fuel	Remove the injector pump and have it tested
	Check the engine oil level	The specified oil level should be to the upper lever
	The injector has severe carbon build-up	Clean the injector
	The start motor turns slowly	Check battery performance and all connections
	The battery is flat	Charge or replace with a new one
The generator is not producing power	Main breaker switch has not been turned ON	Turn the main breaker to the ON position
	Alternator brushes worn	Replace the brushes
	The contact in the socket is not good	Make sure plugs are fully inserted into sockets
	The rated sped is too HIGH or too LOW	Adjust engine speed to produce 52 Hz with no load
	AVR is damaged	Replace AVR

10. SPECIFICATIONS

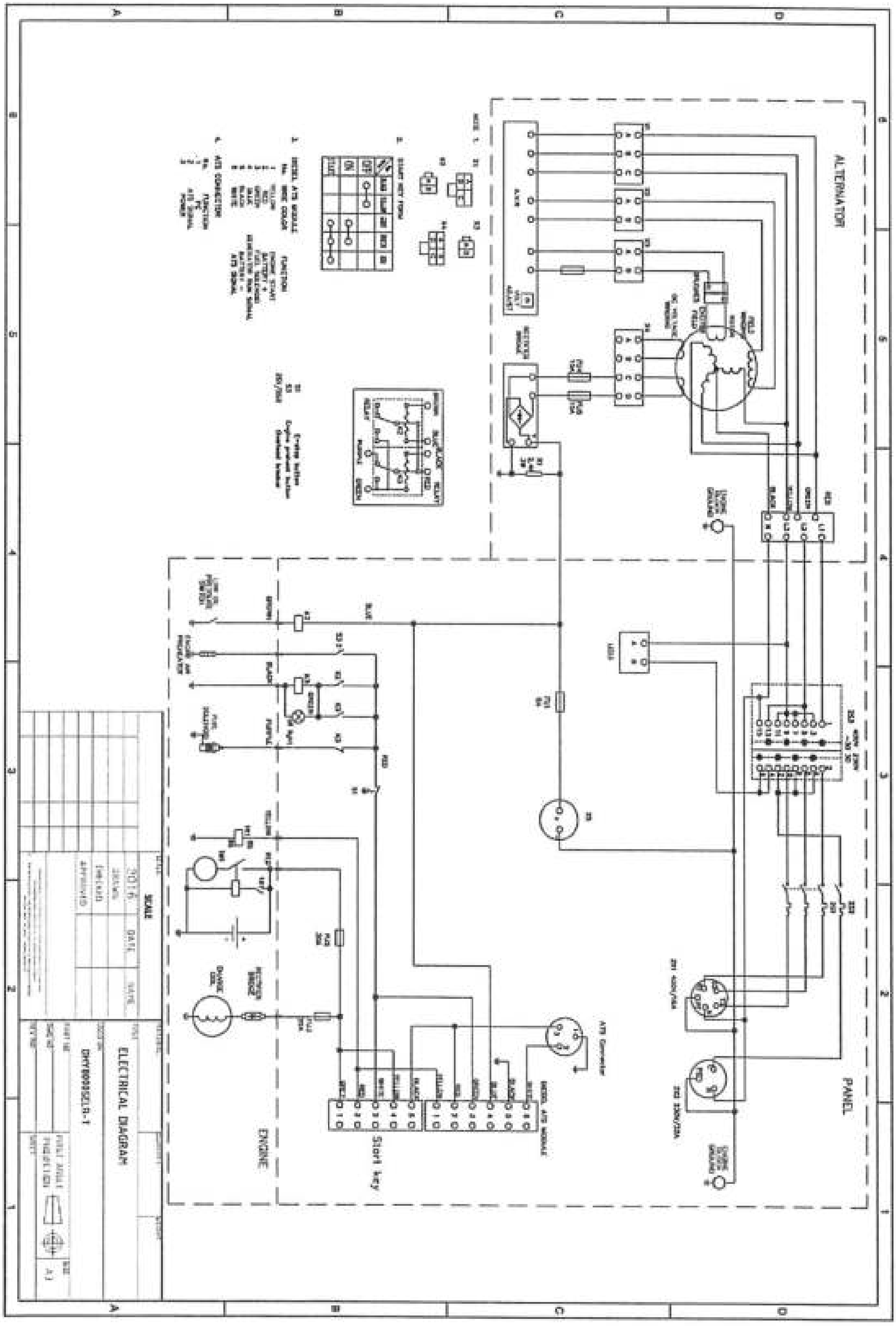
Model		DHY6000SE	DHY6000SELR	DHY8000SE	DHY8000SELR	DHY8000SELR-T	
		Single phase only				Single phase	Three phase
GENERATOR	Frequency Hz	50 Hz					
	Continuous Output Power kW	4.5 kW		5.5 kW		5.0 kW	6.3 kVA
	Max Power	5.2 kW		6.0 kW		5.5 kW	6.9 kVA

	Voltage AC Volts	115V/230V				230V	400V
	Sockets	16A + 32A @115V - 32A @230V				1 x 32A @ 230V	1 x 16A @ 400V
	Fuel Tank capacity	16	30	16	30	30	
	DC Output Volts - Amps	12V - 8.3A					
	Battery	12 v 36Ah					
ENGINE	Engine Type	Diesel					
	Engine	Hyundai D400, Forced Air-cooled, OHV		Hyundai D500E, Forced Air- cooled, OHV			
	Power Output HP	10 HP		12 HP			
	Start method	Electric					
	Displacement cc	418 cc		456 cc			
	Engine Speed rpm	3000 rpm					
	Lubrication Oil	SAE 10W/30 or 15W/40 (API CH-4/CF/SJ/SL diesel engine oil grade or higher)					
	Lubrication Oil Capacity (Litres)	1.75 Litres					
	Power Factor cos$^{\phi}$	1				1	0.8
	Voltage Regulati	Automatic Voltage Regulation - A.V.R.					
Weight	Net Weight kg	152	156	154	160	156	
Dimension	Dimensions (L x W x H) mm	935 x 520 x 765	935 x 545 x 835	935 x 520 x 765	935 x 545 x 835	935 x 545 x 835	

11. WIRINGDIAGRAM



11.1. (N.B. Subject to change without priornotice).


ELECTRICAL DIAGRAM
ALTERNATOR
PANEL
ENGINE
Start key

12. SERVICE RECORD SHEET

Date	Hours	Maintenanceundertaken	Name

13. CONTACT DETAILS

13.1. POSTAL ADDRESS Genpower Ltd, Isaac Way, London Road,
Pembroke Dock, Pembrokeshire, SA72 4RW. UK.

13.2. TELEPHONE +44 (0) 1646 687880

13.3. FAX +44 (0) 1646 686198

13.4. TECHNICAL E-MAIL service@genpower.co.uk

13.5. WEBSITE www.hyundaipowerequipment.co.uk

14. MANUAL UPDATES

14.1. Our manuals are constantly being reviewed and updated. However if should you find an error, omission or something you find unclear please contact your dealer for assistance. E&OE.

14.2. Our latest manuals are also placed on line.

14.3. We reserve the right to make any modifications without prior notice whenever necessary.

15. DECLARATIONS OF CONFORMITY

15.1. Genpower Ltd confirms that these Hyundai products conform to the following CE Directives;

2006/42/EC Machinery Directive.

2004/108/EC EMC Directive.

2000/14/EC Noise Emissions Directive .

97/68/EC NRMM Emissions Directive.

2006/95/EC Low Voltage Directive.

EC DECLARATION OF CONFORMITY

The undersigned, asauthorised by: **Genpower Ltd**

Declares that the following equipment manufactured under licence by Hyundai Corporation, Korea.
Conforms to the Directive: -

2000/14/EC (as amended)

Of the European Parliament and of the council on the approximation of the laws of the Member States relating to the noise emission in the environment by equipment for use outdoors.

Equipment Category:	**Generator**		
Product Name/Model:	**DHY6000SE(LR) – DHY8000SELR – DHY8000SELR-T**		
Type/Serial No:	**Silenced diesel generator**		
Electric Power	**DHY6000SE(LR)**	-	**5.2 kW**
	DHY8000SELR- DHY8000SELR-T	-	**6.0 kW**
The technical documentation iskept by:	**Roland Llewellin,**		
	Genpower Ltd, Isaac Way, London Road, Pembroke Dock, SA72 4RW, Pembrokeshire, SA73 2RS, United Kingdom.		

The conformity assessment procedure followed was in according with annex **VI** of the Directive.

Notified Body:	**European Certifying Organisation** **Via Mengolina, 33, Faenze, 48018,** **Italy** **Certification N° N714F09351011**
Measured Sound Power Level:	**96dB(A)**
Guaranteed Sound Power Level:	**96dB(A)**

A copy of this certificate has been submitted to the European Commission and to EU Member State UnitedKingdom.

Place of Declaration:	**Pembroke Dock**
Date:	**28/06/2013**
Signed by:	**Roland Llewellin**
Position in Company:	**Director**

Name and address of manufacturer or Authorised representative:

Roland Llewellin,
Genpower Ltd, Isaac Way, London Road,
Pembroke Dock, SA72 4RW, Pembrokeshire, SA72 4RW, United Kingdom.

16. RECYCLING & PRODUCT DISPOSAL

16.1. We do not offer a takeback scheme for the recovery of Waste Electrical Electronic Equipment (WEEE) & Batteries instead the responsibility to dispose of WEEE and or Batteries is passed onto you by us. So when it becomes necessary to dispose of your machine you must take it to your local Civic Amenity Site. For further information please contact your Local Authority for disposaladvice.

16.2. You MUST make sure that all unused oil and fuel is disposed of correctly either beforehand or at your local Civic Amenity Site. Under NO circumstance must any oil and fuel be put down any drains.

16.3. Waste Electrical Electronic Equipment (WEEE) recycling.

16.3.1. Certain products contain WEEE waste which should not be disposed of in your domestic waste.

16.3.2. You MUST recycle WEEE in accordance with your local authority or recycling centre.

16.4. Battery recycling, certain products contain batteries which should not be disposed of in your domestic waste.

16.4.1. You MUST recycle batteries in accordance with your local authority or recycling centre.

16.5. Unwanted packaging materials should be sorted and taken to a recycling centre so it can be disposed of in a manner which is compatible with the environment.

16.6. The following symbol means that you should 'Reduce – Reuse – Recycle'.

16.7. We are a Member of the VALPAK National Compliance scheme and our registration number is **RM08660**

16.8. For further information about disposal please contact your Local Authority.

16.9. You can also get more advice and guidance about recycling at the following website http://www.recycle-more.co.uk

16.10. Should you pass this product onto another user either sold or loaned you MUST pass on this user manual. This will make sure that all other users can use and maintain the machine safely.

NOTES

12.0 HVAC

The PCU is equipped with a HVAC system composed of an 18.000 BTU/h split type air conditioning system, suitable for particularly harsh climatic zones. The system is completed with any additional equipment needed to ensure PCU internal temperature responsiveness to the climatic conditions specified for operation.

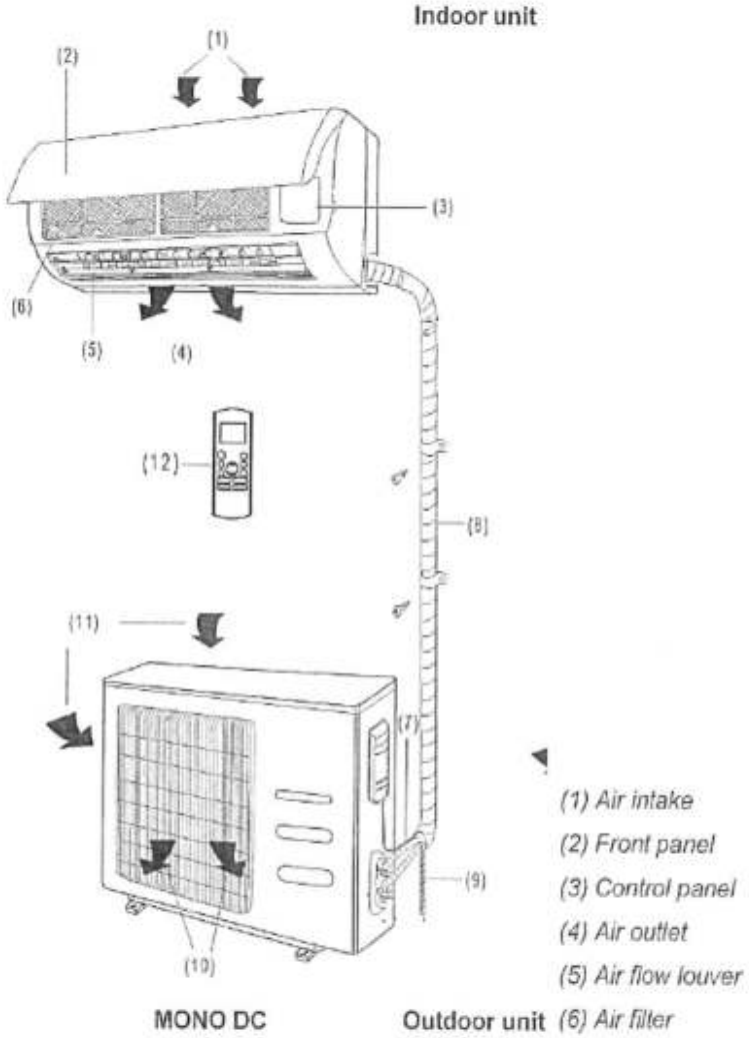


Table of Contents

Owner's Manual

0 Safety Precautions.....04

1 Unit Specifications and Features.....06

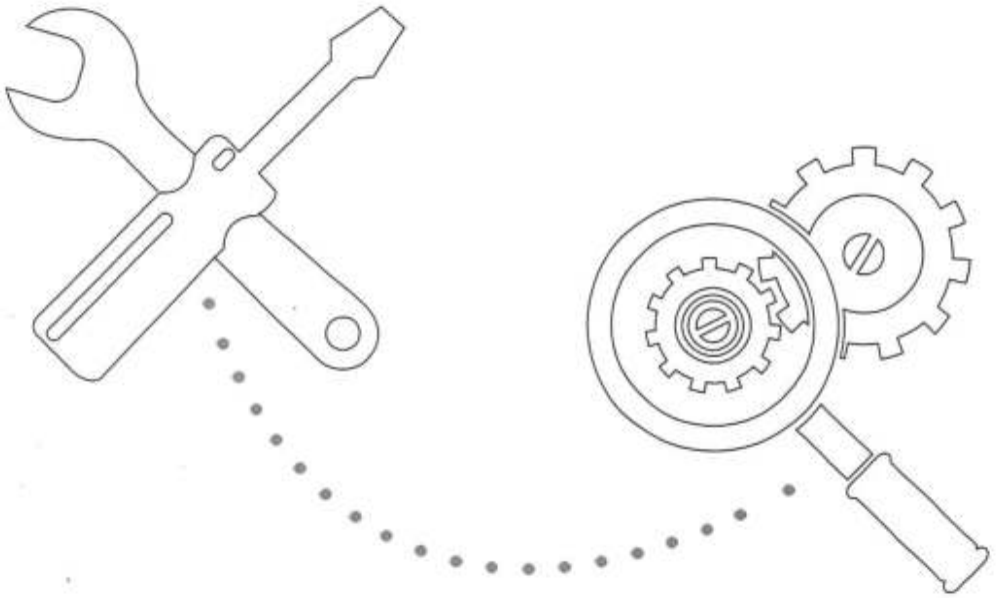
2 Manual Operation
(Without Remote).....11

3 Care and Maintenance.....12

4 Troubleshooting.....14

5 European Disposal Guidelines.....19

Wiring diagrams at the end of the manual



C aution: **Risk of fire**
(refrigerant R32-R290)

WARNING: Servicing shall only be performed as recommended by the equipment manufacturer. Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of the person competent in the use of flammable refrigerants. For more details ,please refer to the "Information on servicing"on "INSTALLATION MANUAL ."

INDEX

- Handling the remote controller 11
  - Location of the remote controller 11
  - Using the remote controller holder (optional) 11
  - Replacing batteries 11
- Remote control specifications 12
- Introduction of function buttons on the remote controller 12
- Indicators on remote controller 13
- How to use the buttons 14
  - Automatic operation 14
  - Cooling/Heating/Fan only operation 14
  - Dehumidifying operation 14
  - Adjusting air flow direction 14
  - Timer operation 15
  - Example of timer setting 15

Safety Precautions

Read Safety Precautions Before Installation

Incorrect installation due to ignoring instructions can cause serious damage or injury.
The seriousness of potential damage or injuries is classified as either a WARNING or CAUTION.

WARNING

This symbol indicates that ignoring instructions may cause death or serious injury.

CAUTION

This symbol indicates that ignoring instructions may cause moderate injury to your person, or damage to your appliance or other property.

⚠ WARNING

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

INSTALLATION WARNINGS

- Ask an authorized dealer to install this air conditioner. Inappropriate installation may cause water leakage, electric shock, or fire.
- All repairs, maintenance and relocation of this unit must be performed by an authorized service technician. Inappropriate repairs can lead to serious injury or product failure.

WARNINGS FOR PRODUCT USE

- If an abnormal situation arises (like a burning smell), immediately turn off the unit and pull the power plug. Call your dealer for instructions to avoid electric shock, fire or injury.
- Do not insert fingers, rods or other objects into the air inlet or outlet. This may cause injury, since the fan may be rotating at high speeds.
- Do not use flammable sprays such as hair spray, lacquer or paint near the unit. This may cause fire or combustion.
- Do not operate the air conditioner in places near or around combustible gases. Emitted gas may collect around the unit and cause explosion.
- Do not operate the air conditioner in a wet room (e.g., bathroom or laundry room). This can cause electrical shock and cause the product to deteriorate.
- Do not expose your body directly to cool air for a prolonged period of time.

ELECTRICAL WARNINGS

- Only use the specified power cord. If the power cord is damaged, it must be replaced by the manufacturer or certified service agent.
- Keep power plug clean. Remove any dust or grime that accumulates on or around the plug. Dirty plugs can cause fire or electric shock.
- Do not pull power cord to unplug unit. Hold the plug firmly and pull it from the outlet. Pulling directly on the cord can damage it, which can lead to fire or electric shock.
- Do not use an extension cord, manually extend the power cord, or connect other appliances to the same outlet as the air conditioner. Poor electrical connections, poor insulation, and insufficient voltage can cause fire.

CLEANING AND MAINTENANCE WARNINGS

- Turn off the device and pull the plug before cleaning. Failure to do so can cause electrical shock.
- Do not clean the air conditioner with excessive amounts of water.
- Do not clean the air conditioner with combustible cleaning agents. Combustible cleaning agents can cause fire or deformation.

CAUTION

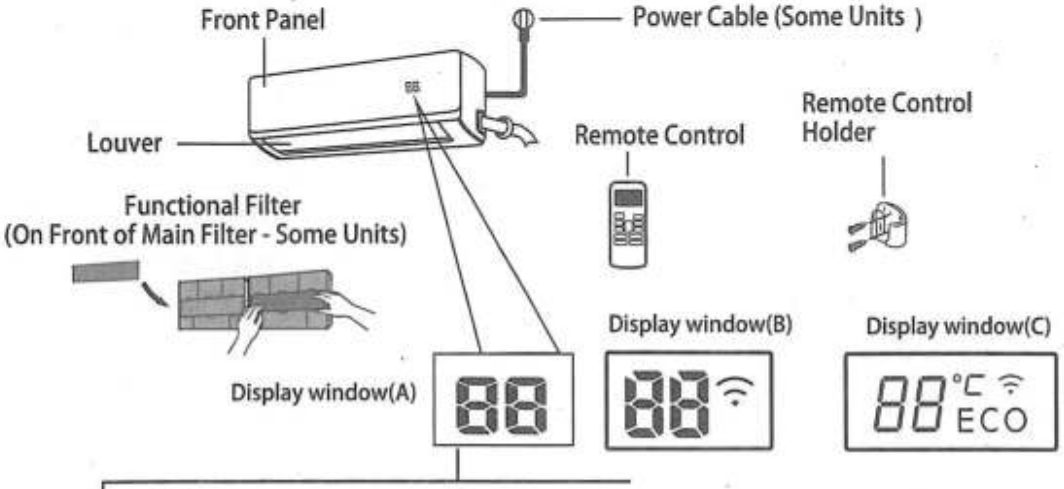
- If the air conditioner is used together with burners or other heating devices, thoroughly ventilate the room to avoid oxygen deficiency.
- Turn off the air conditioner and unplug the unit if you are not going to use it for a long time.
- Turn off and unplug the unit during storms.
- Make sure that water condensation can drain unhindered from the unit.
- Do not operate the air conditioner with wet hands. This may cause electric shock.
- Do not use device for any other purpose than its intended use.
- Do not climb onto or place objects on top of the outdoor unit.
- Do not allow the air conditioner to operate for long periods of time with doors or windows open, or if the humidity is very high.

Explanation of symbols displayed on the indoor unit or outdoor unit:

	WARNING	This symbol shows that this appliance used a flammable refrigerant. If the refrigerant is leaked and exposed to an external ignition source, there is a risk of fire.
	CAUTION	This symbol shows that the operation manual should be read carefully.
	CAUTION	This symbol shows that a service personnel should be handling this equipment with reference to the installation manual.
	CAUTION	
	CAUTION	This symbol shows that information is available such as the operating manual or installation manual.

Unit Specifications and Features 1

Unit Parts



Display Code Meanings

- **'On'** for 3 seconds when:
  - TIMER ON is set
  - FRESH, SWING, TURBO, or SILENCE features are turned on
- **'OF'** for 3 seconds when:
  - TIMER OFF is set
  - FRESH, SWING, TURBO, or SILENCE features are turned off
- **'cF'** when anti-cold air feature is turned on
- **'dF'** when defrosting
- **'SC'** when unit is self-cleaning
- **'FP'** when freeze protection is turned on
- **'88'** When ECO function(some units) is activated, the '88' illuminates gradually one by one as -- --set temperature ..... in one second interval.
- **'wifi'** when Wireless Control feature is activated(some units)
- **'ECO'** when ECO function is activated(some units)
- **'°C'** Lights up in different colour according to the operation mode(some units):
  Under COOL and DRY mode, it displays as cool colour.
  Under HEAT mode, it displays as warm colour.

In Fan mode, the unit will display the room temperature.
In other modes, the unit will display your temperature setting.

NOTE: A guide on using the infrared remote is not included in this literature package.

Achieving Optimal Performance

Optimal performance for the COOL, HEAT, and DRY modes can be achieved in the following temperature ranges. When your air conditioner is used outside of these ranges, certain safety protection features will activate and cause the unit to perform less than optimally.

Inverter Split Type

	COOL mode	HEAT mode	DRY mode
Room Temperature	17°C - 32°C (63°F - 90°F)	0°C - 30°C (32°F - 86°F)	10°C - 32°C (50°F - 90°F)
Outdoor Temperature	0°C - 50°C (32°F - 122°F)	-15°C - 30°C (5°F - 86°F)	0°C - 50°C (32°F - 122°F)
	-15°C - 50°C (5°F - 122°F) (For models with low temp. cooling systems.)		

FOR OUTDOOR UNITS WITH AUXILIARY ELECTRIC HEATER

When outside temperature is below 0°C (32°F), we strongly recommend keeping the unit plugged in at all time to ensure smooth ongoing performance.

Fixed-speed Type

	COOL mode	HEAT mode	DRY mode
Room Temperature	17°-32°C (63°-90°F)	0°-30°C (32°-86°F)	10°-32°C (50°-90°F)
Outdoor Temperature	18°-43°C (64°-109°F)	-7°-24°C (19°-75°F)	11°-43°C (52°-109°F)
	-7°-43°C (19°-109°F) (For models with low-temp cooling systems)		18°-43°C (64°-109°F)

To further optimize the performance of your unit, do the following:

- Keep doors and windows closed.
- Limit energy usage by using TIMER ON and TIMER OFF functions.
- Do not block air inlets or outlets.
- Regularly inspect and clean air filters.

For a detailed explanation of each function, refer to the Remote Control Manual.

Other Features

- Auto-Restart
  If the unit loses power, it will automatically restart with the prior settings once power has been restored.

- Anti-mildew (some units)
  When turning off the unit from COOL, AUTO (COOL), or DRY modes, the air conditioner will continue operate at very low power to dry up condensed water and prevent mildew growth.

- Wireless Control (some units)
  Wireless control allows you to control your air conditioner using your mobile phone and a wireless connection.
  For the USB device access, replacement, maintenance operations must be carried out by professional staff.

- Louver Angle Memory(some units)
  When turning on your unit, the louver will automatically resume its former angle.

-

  units)
  The indoor unit will automatically display "EC" when it detects refrigerant leakage.

  For a detailed explanation of your unit's advanced functionality (such as TURBO mode and its self-cleaning functions), refer to the Remote Control Manual.

NOTE ON ILLUSTRATIONS

Illustrations in this manual are for explanatory purposes. The actual shape of your indoor unit may be slightly different. The actual shape shall prevail.

Setting Angle of Air Flow

Setting vertical angle of air flow

While the unit is on, use the SWING/DIRECT button to set the direction (vertical angle) of airflow.

1. Press the SWING/DIRECT button once to activate the louver. Each time you press the button, it will adjust the louver by 6°. Press the button until the direction you prefer is reached.
2. To make the louver swing up and down continuously, press and hold the SWING/ DIRECT button for 3 seconds. Press it again to stop the automatic function.

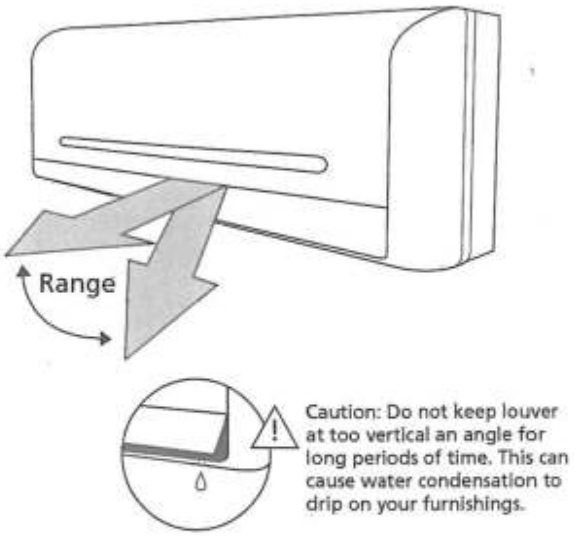


Fig. A

Setting horizontal angle of air flow

The horizontal angle of the airflow must be set manually. Grip the deflector rod (See Fig.B) and manually adjust it to your preferred direction. For some units, the horizontal angle of the airflow can be set by remote control. please refer to the Remote Control Manual.

NOTE ON LOUVER ANGLES

When using COOL or DRY mode, do not set louver at too vertical an angle for long periods of time. This can cause water to condense on the louver blade, which will drop on your floor or furnishings. (See Fig.A)

When using COOL or HEAT mode, setting the louver at too vertical an angle can reduce the performance of the unit due to restricted air flow.

Do not move louver by hand. This will cause the louver to become out of sync. If this occurs, turn off the unit and unplug it for a few seconds, then restart the unit. This will reset the louver.

CAUTION

Do not put your fingers in or near the blower and suction side of the unit. The high-speed fan inside the unit may cause injury.

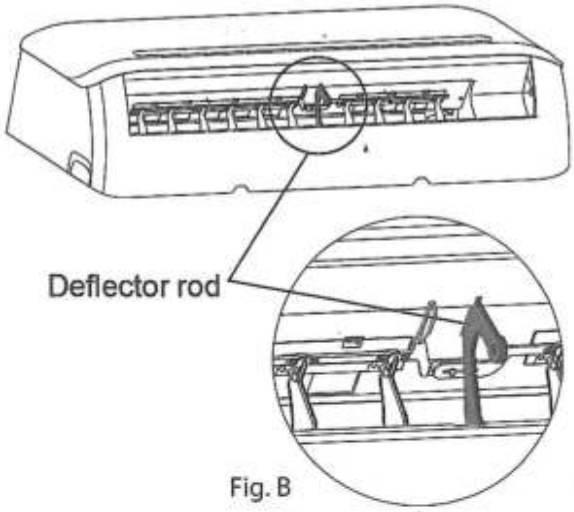


Fig. B

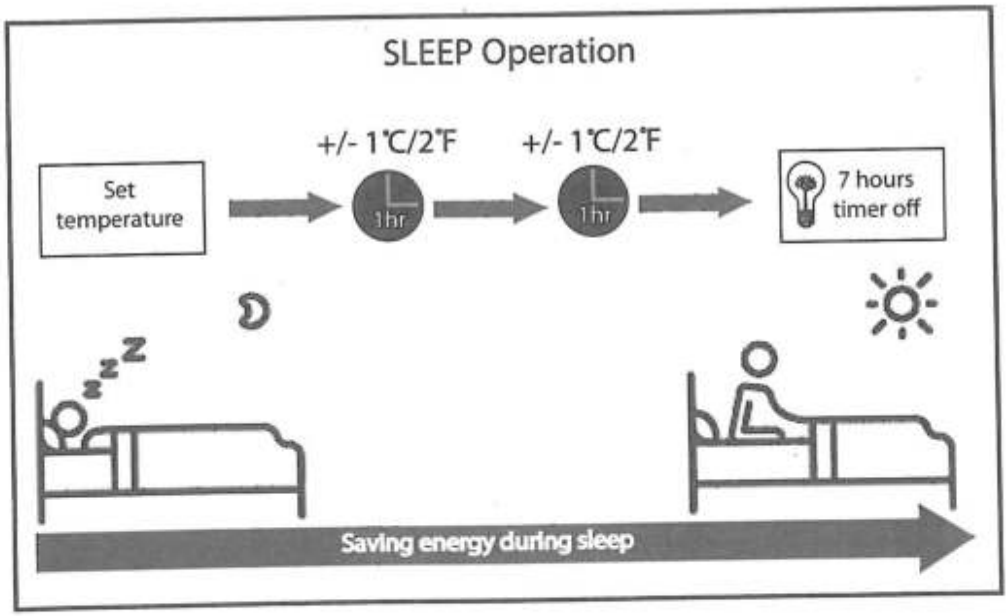
Sleep Operation

The SLEEP function is used to decrease energy use while you sleep (and don't need the same temperature settings to stay comfortable). This function can only be activated via remote control.

Press the SLEEP button when you are ready to go to sleep. When in COOL mode, the unit will increase the temperature by 1°C (2°F) after 1 hour, and will increase an additional 1°C (2°F) after another hour. When in HEAT mode, the unit will decrease the temperature by 1°C (2°F) after 1 hour, and will decrease an additional 1°C (2°F) after another hour.

It will hold the new temperature for 5 hours, then the unit will turn off automatically.

Note: The SLEEP function is not available in FAN or DRY mode.



Manual Operation (Without Remote) 2

How to operate your unit without the remote control

In the event that your remote control fails to work, your unit can be operated manually with the MANUAL CONTROL button located on the indoor unit. Note that manual operation is not a long-term solution, and that operating the unit with your remote control is strongly recommended.

BEFORE MANUAL OPERATION

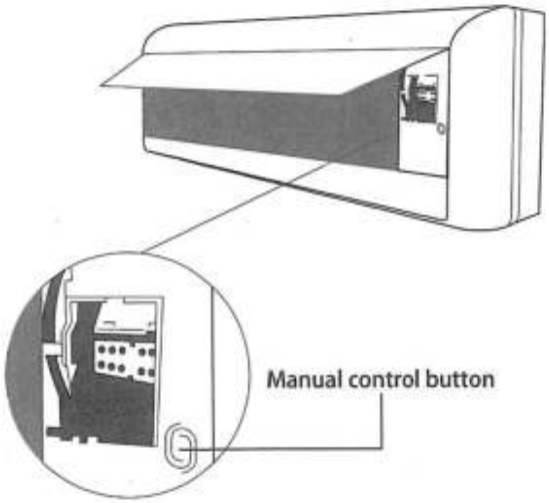
Unit must be turned off before manual operation.

To operate your unit manually:

1. Open the front panel of the indoor unit.
2. Locate the MANUAL CONTROL button on the right-hand side of the unit.
3. Press the MANUAL CONTROL button one time to activate FORCED AUTO mode.
4. Press the MANUAL CONTROL button again to activate FORCED COOLING mode.
5. Press the MANUAL CONTROL button a third time to turn the unit off.
6. Close the front panel.

CAUTION

The manual button is intended for testing purposes and emergency operation only. Please do not use this function unless the remote control is lost and it is absolutely necessary. To restore regular operation, use the remote control to activate the unit.



Care and Maintenance 3

Cleaning Your Indoor Unit

⚠ BEFORE CLEANING OR MAINTENANCE

ALWAYS TURN OFF YOUR AIR CONDITIONER SYSTEM AND DISCONNECT ITS POWER SUPPLY BEFORE CLEANING OR MAINTENANCE.

! CAUTION

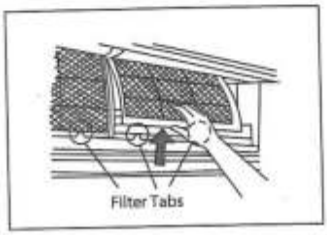
Only use a soft, dry cloth to wipe the unit clean. If the unit is especially dirty, you can use a cloth soaked in warm water to wipe it clean.

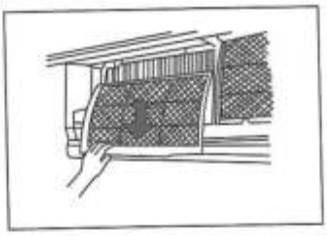
- Do not use chemicals or chemically treated cloths to clean the unit
- Do not use benzene, paint thinner, polishing powder or other solvents to clean the unit. They can cause the plastic surface to crack or deform.
- Do not use water hotter than 40°C (104°F) to clean the front panel. This can cause the panel to deform or become discolored.

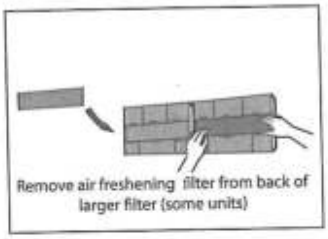
Cleaning Your Air Filter

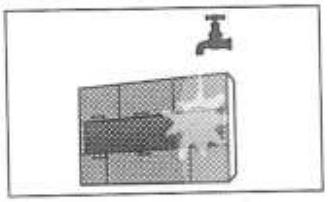
A clogged air conditioner can reduce the cooling efficiency of your unit, and can also be bad for your health. Make sure to clean the filter once every two weeks.

1. Lift the front panel of the indoor unit.
2. Grip the tab on the end of the filter, lift it up,then pull it towards yourself.
3. Now pull the filter out.
4. If your filter has a small air freshening filter, unclip it from the larger filter. Clean this air freshening filter with a hand-held vacuum.
5. Clean the large air filter with warm, soapy water. Be sure to use a mild detergent.
6. Rinse the filter with fresh water, then shake off excess water.
7. Dry it in a cool, dry place, and refrain from exposing it to direct sunlight.
8. When dry, re-clip the air freshening filter to the larger filter, then slide it back into the indoor unit.
9. Close the front panel of the indoor unit.









! CAUTION

Do not touch air freshening (Plasma) filter for at least 10 minutes after turning off the unit.

CAUTION

- Before changing the filter or cleaning, turn off the unit and disconnect its power supply.
- When removing filter, do not touch metal parts in the unit. The sharp metal edges can cut you.
- Do not use water to clean the inside of the indoor unit. This can destroy insulation and cause electrical shock.
- Do not expose filter to direct sunlight when drying. This can shrink the filter.

Air Filter Reminders (Optional)

Air Filter Cleaning Reminder

After 240 hours of use, the display window on the indoor unit will flash "CL." This is a reminder to clean your filter. After 15 seconds, the unit will revert to its previous display.

To reset the reminder, press the LED button on your remote control 4 times, or press the MANUAL CONTROL button 3 times. If you don't reset the reminder, the "CL" indicator will flash again when you restart the unit.

Air Filter Replacement Reminder

After 2,880 hours of use, the display window on the indoor unit will flash "nF." This is a reminder to replace your filter. After 15 seconds, the unit will revert to its previous display.

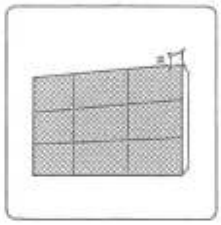
To reset the reminder, press the LED button on your remote control 4 times, or press the MANUAL CONTROL button 3 times. If you don't reset the reminder, the "nF" indicator will flash again when you restart the unit.

CAUTION

- Any maintenance and cleaning of outdoor unit should be performed by an authorized dealer or a licensed service provider.
- Any unit repairs should be performed by an authorized dealer or a licensed service provider.

Maintenance – Long Periods of Non-Use

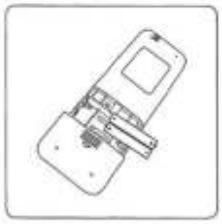
If you plan not to use your air conditioner for an extended period of time, do the following:



Clean all filters

Turn on FAN function until unit dries out completely

Turn off the unit and disconnect the power

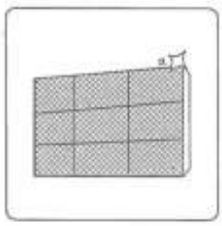


Remove batteries from remote control

Maintenance – Pre-Season Inspection

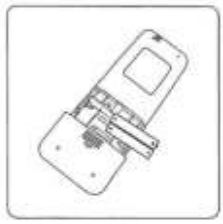
After long periods of non-use, or before periods of frequent use, do the following:

Check for damaged wires



Clean all filters

Check for leaks



Replace batteries

Make sure nothing is blocking all air inlets and outlets

Troubleshooting 4

SAFETY PRECAUTIONS

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

- The power cord is damaged or abnormally warm
- You smell a burning odor
- The unit emits loud or abnormal sounds
- A power fuse blows or the circuit breaker frequently trips
- Water or other objects fall into or out of the unit

DO NOT ATTEMPT TO FIX THESE YOURSELF! CONTACT AN AUTHORIZED SERVICE PROVIDER IMMEDIATELY!

Common Issues

The following problems are not a malfunction and in most situations will not require repairs.

Issue	Possible Causes
Unit does not turn on when pressing ON/OFF button	The Unit has a 3-minute protection feature that prevents the unit from overloading. The unit cannot be restarted within three minutes of being turned off.
The unit changes from COOL/HEAT mode to FAN mode	The unit may change its setting to prevent frost from forming on the unit. Once the temperature increases, the unit will start operating in the previously selected mode again.
	The set temperature has been reached, at which point the unit turns off the compressor. The unit will continue operating when the temperature fluctuates again.
The indoor unit emits white mist	In humid regions, a large temperature difference between the room's air and the conditioned air can cause white mist.
Both the indoor and outdoor units emit white mist	When the unit restarts in HEAT mode after defrosting, white mist may be emitted due to moisture generated from the defrosting process.

Issue	Possible Causes
The indoor unit makes noises	A rushing air sound may occur when the louver resets its position.
	A squeaking sound may occur after running the unit in HEAT mode due to expansion and contraction of the unit's plastic parts.
Both the indoor unit and outdoor unit make noises	Low hissing sound during operation: This is normal and is caused by refrigerant gas flowing through both indoor and outdoor units.
	Low hissing sound when the system starts, has just stopped running, or is defrosting: This noise is normal and is caused by the refrigerant gas stopping or changing direction.
	Squeaking sound: Normal expansion and contraction of plastic and metal parts caused by temperature changes during operation can cause squeaking noises.
The outdoor unit makes noises	The unit will make different sounds based on its current operating mode.
Dust is emitted from either the indoor or outdoor unit	The unit may accumulate dust during extended periods of non-use, which will be emitted when the unit is turned on. This can be mitigated by covering the unit during long periods of inactivity.
The unit emits a bad odor	The unit may absorb odors from the environment (such as furniture, cooking, cigarettes, etc.) which will be emitted during operations.
	The unit's filters have become moldy and should be cleaned.
The fan of the outdoor unit does not operate	During operation, the fan speed is controlled to optimize product operation.
Operation is erratic, unpredictable, or unit is unresponsive	Interference from cell phone towers and remote boosters may cause the unit to malfunction. In this case, try the following: • Disconnect the power, then reconnect. • Press ON/OFF button on remote control to restart operation.

NOTE: If problem persists, contact a local dealer or your nearest customer service center. Provide them with a detailed description of the unit malfunction as well as your model number.

Troubleshooting

When troubles occur, please check the following points before contacting a repair company.

Problem	Possible Causes	Solution
Poor Cooling Performance	Temperature setting may be higher than ambient room temperature	Lower the temperature setting
	The heat exchanger on the indoor or outdoor unit is dirty	Clean the affected heat exchanger
	The air filter is dirty	Remove the filter and clean it according to instructions
	The air inlet or outlet of either unit is blocked	Turn the unit off, remove the obstruction and turn it back on
	Doors and windows are open	Make sure that all doors and windows are closed while operating the unit
	Excessive heat is generated by sunlight	Close windows and curtains during periods of high heat or bright sunshine
	Too many sources of heat in the room (people, computers, electronics, etc.)	Reduce amount of heat sources
	Low refrigerant due to leak or long-term use	Check for leaks, re-seal if necessary and top off refrigerant
	SILENCE function is activated(optional function)	SILENCE function can lower product performance by reducing operating frequency. Turn off SILENCE function.

Problem	Possible Causes	Solution
The unit is not working	Power failure	Wait for the power to be restored
	The power is turned off	Turn on the power
	The fuse is burned out	Replace the fuse
	Remote control batteries are dead	Replace batteries
	The Unit's 3-minute protection has been activated	Wait three minutes after restarting the unit
	Timer is activated	Turn timer off
The unit starts and stops frequently	There's too much or too little refrigerant in the system	Check for leaks and recharge the system with refrigerant.
	Incompressible gas or moisture has entered the system.	Evacuate and recharge the system with refrigerant
	The compressor is broken	Replace the compressor
	The voltage is too high or too low	Install a manostat to regulate the voltage
Poor heating performance	The outdoor temperature is extremely low	Use auxiliary heating device
	Cold air is entering through doors and windows	Make sure that all doors and windows are closed during use
	Low refrigerant due to leak or long-term use	Check for leaks, re-seal if necessary and top off refrigerant
Indicator lamps continue flashing	The unit may stop operation or continue to run safely. If the indicator lamps continue to flash or error codes appear, wait for about 10 minutes. The problem may resolve itself. If not, disconnect the power, then connect it again. Turn the unit on. If the problem persists, disconnect the power and contact your nearest customer service center.	
Error code appears in the window display of indoor unit: • E0, E1, E2... • P1, P2, P3... • F1, F2, F3...		

NOTE: If your problem persists after performing the checks and diagnostics above, turn off your unit immediately and contact an authorized service center.

■ Handling the remote controller

Location of the remote controller.

- Use the remote controller within a distance of 8 meters from the appliance, pointing it towards the receiver. Reception is confirmed by a beep.

⚠ CAUTIONS

- *The air conditioner will not operate if curtains, doors or other materials block the signals from the remote controller to the indoor unit.*
- *Prevent any liquid from falling into the remote controller. Do not expose the remote controller to direct sunlight or heat.*
- *If the infrared signal receiver on the indoor unit is exposed to direct sunlight, the air conditioner may not function properly. Use curtains to prevent the sunlight from falling on the receiver.*
- *If other electrical appliances react to the remote controller, either move these appliances or consult your local dealer.*
- *Do not drop the remote controller. Handle with care.*
- *Do not place heavy objects on the remote controller, or step on it.*

Using the remote controller holder (optional)

- *The remote controller can be attached to a wall or pillar by using a remote controller holder (not supplied, purchased separately).*
- *Before installing the remote controller, check that the air conditioner receives the signals properly.*
- *Install the remote controller with two screws.*
- *For installing or removing the remote controller, move it up or down in the holder.*

Replacing batteries

The following cases signify exhausted batteries.

Replace old batteries with new ones.

Receiving beep is not emitted when a signal is transmitted.

Indicator fades away.

The remote controller is powered by two dry batteries (R03/LR03X2) housed in the back rear part and protected by a cover.

(1) Remove the cover in the rear part of the remote controller.

(2) Remove the old batteries and insert the new batteries, placing the (+) and (-) ends correctly.

(3) Install the cover back on.

NOTE: *When the batteries are removed, the remote controller erases all programming. After inserting new batteries, the remote controller must be reprogrammed.*

⚠ CAUTIONS

- *Do not mix old and new batteries or batteries of different types.*
- *Do not leave the batteries in the remote controller if they are not going to be used for 2 or 3 months.*
- *Do not dispose batteries as unsorted municipal waste. Collection of such waste separately for special treatment is necessary.*

■ Remote control specifications

Models	3.0V(Dry batteries R03/LR03×2)
Rated voltage	3.0 V (alkaline dry batteries R03/LR03 X 2)
Reaching distance signal range	8 m
Environment	-5°C ~ 60°C

Note:

- Buttons design is based on typical model and might be slightly different from the actual one you purchased, the actual shape shall prevail.
- All the functions described are accomplished by the unit. If the unit has no this feature, there is no corresponding operation happened when press the relative button on the remote controller.
- When there are wide differences between Remote controller Illustration and USER'S MANUAL on function description, the description of USER'S MANUAL shall prevail.

■ Introduction of function buttons on the remote controller

Before you begin using your new air conditioner, make sure to familiarize yourself with its remote control. The following is a brief introduction to the remote control itself. For instructions on how to operate your air conditioner, refer to the How to Use The Basic/Advance Functions section of this manual.

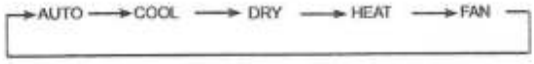
Note: Please do not select HEAT mode if the machine you purchased is cooling only type. Heat mode is not supported by the cooling only appliance.

❶ ON/OFF Button:

Push this button to start operation, push the button again to stop operation.

❷ MODE Select Button:

Each time you push the button, a mode is selected in a sequence as the following figure:



❸ FAN Button:

Used to select the Fan Speed in four steps- AUTO LOW MED or HIGH. Each time the button is pressed, the fan speed mode is shifted.

Note: Holding this button down for 2 seconds will activate Silence feature.

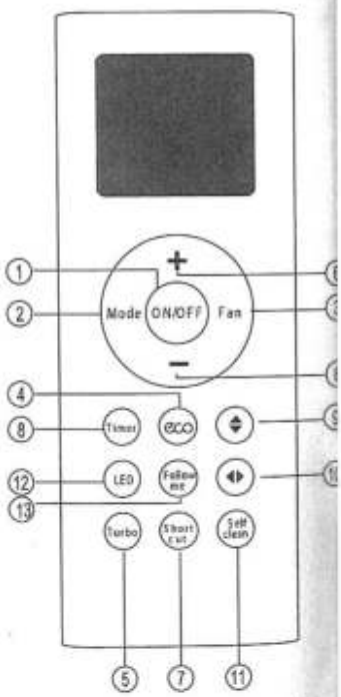
❹ ECO Button:

Press this button to go into the Energy-Saving operation mode. Press it again to cancel. This function is only can be used on COOL, HEAT and AUTO mode and maintain the most comfortable temperature for you.

❺ TURBO Button:

Enables unit to reach pre-set temperature in shortest possible time.

If hold down this button for more than 2 seconds, the Fresh feature is activated.



Warning: This remoter is universal, Some operations/functions may not be supported by all versions of the indoor unit models.

❻ TEMP + and TEMP - Button

These keys make it possible to set the desired ambient temperature. **TEMP +** the requested temperature is increased up to 30°C **TEMP -** the requested temperature is decreased down to 17°C. Every time the key is pressed the temperature is changed with 1°C.

❼ SHORTCUT Button

Sets and activates your favourite pre-settings.

Used to restore the current settings or resume previous settings.

⑧ TIMER Button

Sets timer to turn unit on and off (see How to Use Basic Functions for instructions).

⑨ SWING ◄► Button:

Used to stop or start vertical louver movement and set the desired left/right air flow direction. The vertical louver changes 6 degree in angle for each press. If keep pushing more than 2 seconds, the vertical louver auto swing feature is activated.

⑩ SWING ▲▼ Button:

Used to stop or start horizontal louver movement or set the desired up/down air flow direction. The louver changes 6 degree in angle for each press. If keep pushing more than 2 seconds, the louver will swing up and down automatically.

⑪ SELF CLEAN Button

Starts and stops the unit self clean feature.

⑫ LED Button:

Disable/Active indoor screen Display. When pushing the button, the indoor screen display is cleared, press it again to light the display.

⑬ FOLLOW ME

Temperature sensing and room temperature display button.

■ Indicators on remote controller display

Transmission Indicator

This transmission indicator lights when remote controller transmits signals to the indoor unit.

Mode display

AUTO, COOL, DRY, HEAT, FAN.

Displayed when data transmitted.

Appears when the unit is turned on, and disappears when the it is turned off.

LOCK feature display

ECO *Not available for this unit*

Displayed when TIMER ON time is set.

Displayed when TIMER OFF time is set.

Displays the set temperature by default, or timer setting when using TIMER ON/OFF functions.

- *Temperature range: 17-30°C*
- *Timer setting range: 0-24 hours*

This display is blank when operating in FAN mode.

Displays when ECO feature is activated.

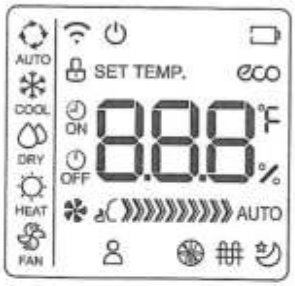
Follow me feature display.

Silence feature display

Not available for this unit

Not available for this unit

Sleep mode display



Note: *The above indicator diagram is only for reference. Please refer to the actual product for actual indicators and position.*

Fan speed indication

Low speed

Medium speed

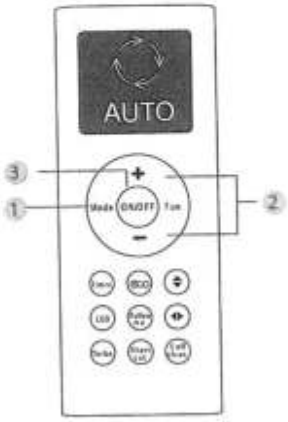
High speed

AUTO Auto fan speed

Battery display(low battery detection)

Note: *All indicators shown in the figure are for the purpose of clear presentation. But during the actual operation only the relative functional signs are shown on the display window.*

■ How To Use The Basic Functions



SETTING TEMPERATURE

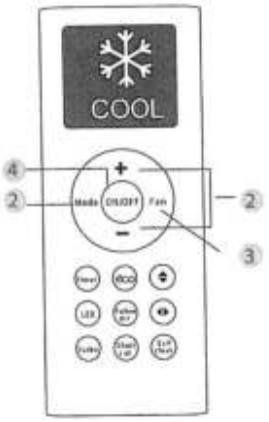
The operating temperature range for units is 17-30°C. You can increase or decrease the set temperature in 1°C increments.

Auto operation

In AUTO mode, the unit will automatically select the COOL, FAN, HEAT or DRY mode based on the set temperature.

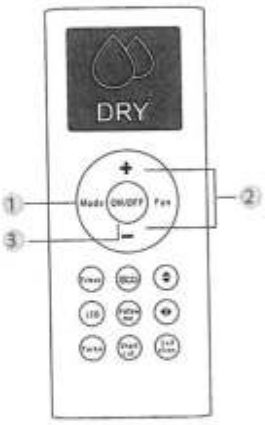
1. *Press the MODE button to select Auto mode.*
2. *Set your desired temperature using the* ***Temp +*** *or* ***Temp -*** *button.*
3. *Press the ON/OFF button to start the unit.*

Note: ***FAN SPEED*** *can't be set in Auto mode.*



COOL operation mode

1. *Press the* ***MODE*** *button to select* ***COOL*** *mode.*
2. *Set your desired temperature using the* ***Temp +**** *or* ***Temp -*** *button.*
3. *Press the* ***FAN*** *button to select the fan speed.*
4. *Press the* ***ON/OFF*** *button to start the unit.*



DRY operation (dehumidifying) mode

1. *Press the* ***MODE*** *button to select* ***DRY*** *mode.*
2. *Set your desired temperature using the* ***Temp +*** *or* ***Temp -*** *button.*
3. *Press the* ***ON/OFF*** *button to start the unit.*

Note: ***FAN SPEED*** *can't be changed in dry mode.*

HEAT operation mode

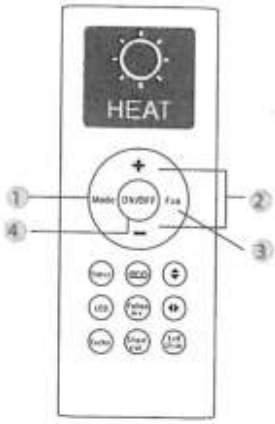
*1. Press the **MODE** button to select **HEAT** mode.*

*2. Set your desired temperature using the **Temp +** or **Temp -** button.*

*3. Press the **FAN** button to select the fan speed.*

*4. Press the **ON/OFF** button to start the unit.*

Note: As outdoor temperature drops, the performance of your unit s HEAT function may be affected. In such instances, we recommend using this air conditioner in conjunction with other heating appliance.



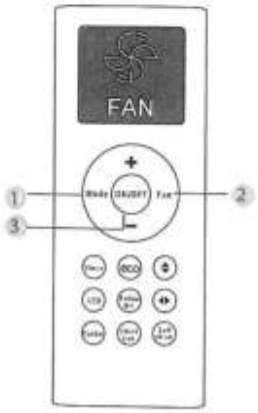
FAN operation mode

1. Press the MODE button to select FAN mode.

2. Press the FAN button to select the fan speed.

3. Press the ON/OFF button to start the unit.

***Note:** You can't set temperature in FAN mode. As a result, your remote control's LCD screen will not display temperature.*



Setting the TIMER function

Your air conditioning unit has two timer-related functions:

- *TIMER ON- sets the amount of timer after which the unit will automatically turn on.*
- *TIMER OFF- sets the amount of time after which the unit will automatically turn off.*

TIMER ON function

The TIMER ON function allows you to set a period of time after which the unit will automatically turn on, such as when you come home from work.

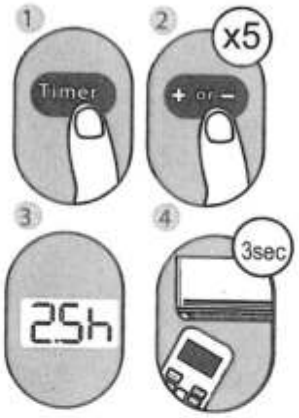
1. Press the Timer button, the Timer on indicator "ON" displays and flashes. By default, the last time period that you set and an "h" (indicating hours) will appear on the display.

Note: This number indicates the amount of time after the current time that you want the unit to turn on.

For example, if you set TIMER ON for 2.5 hours, will appear on the screen, and the unit will turn on after 2.5 hours.

*2. Press the **Temp +** or **Temp -** button repeatedly to set the time when you want the unit to turn on.*

3. Wait 3 seconds, then the TIMER ON function will be activated. The digital display on your remote control will then return to the temperature display. The "ON" indicator remains on and this function is activated.



***Example:** Setting unit to turn on after 2.5hours.*

Timer OFF function

The TIMER OFF function allows you to set a period of time after which the unit will automatically turn off, such as when you wake up.

1. Press the Timer button, the Timer off indicator "OFF" displays and flashes. By default, the last time period that you set and an "h" (indicating hours) will appear on the display.

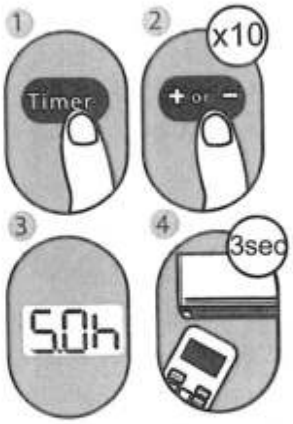
Note: This number indicates the amount of time after the current time that you want the unit to turn off.

For example, if you set TIMER OFF for 5 hours, will appear on the screen, and the unit will turn off after 5 hours.

*2. Press the **Temp +** or **Temp -** button repeatedly to set the time when you want the unit to turn off.*

*3. Wait 3 seconds, then the **TIMER OFF** function will be activated. The digital display on your remote control will then return to the temperature display. The "OFF" indicator remains on and this function is activated.*

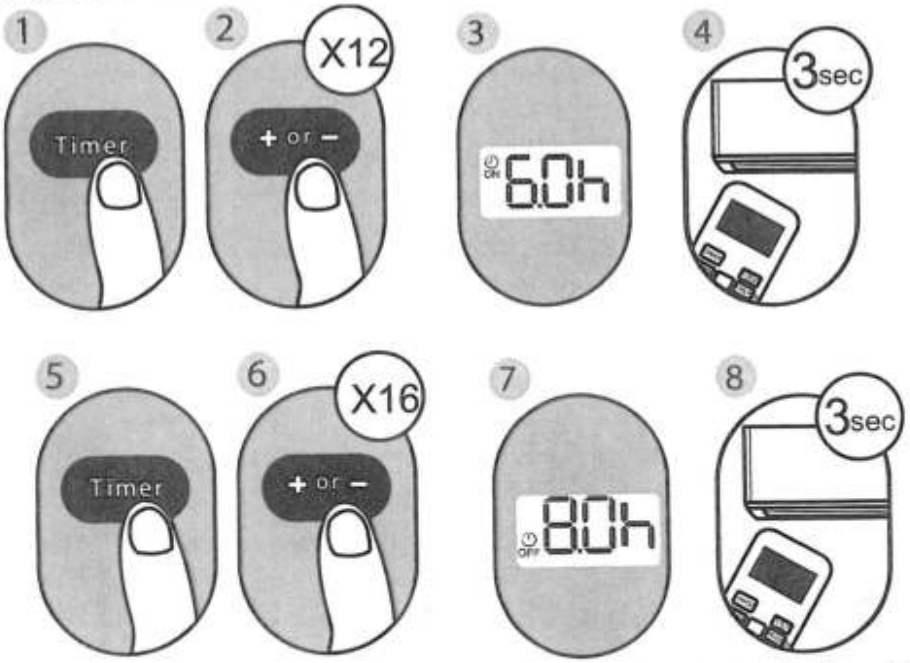
Note: When setting the TIMER ON or TIMER OFF functions, up to 10 hours, the time will increase in 30 minute increments with each press. After 10 hours and up to 24, it will increase in 1 hour increments. The timer will revert to zero after 24 hours. You can turn off either function by setting its timer to "0.0h".



***Example:** Setting unit to turn off after 5 hours.*

Setting both TIMER ON and TIMER OFF at the same time

Keep in mind that the time periods you set for both functions refer to hours after the current time. For example, say that the current time is 1:00 PM, and you want the unit to turn on automatically at 7:00 PM. You want it to operate for 2 hours, then automatically turn off at 9:00 PM



Example: Setting the unit to turn on after 6 hours, operate for 2 hours, then turn off (see the figure below)

TIMER OFF function

The TIMER OFF function allows you to set a period of time after which the unit will automatically turn off, such as when you wake up.

1. Press the Timer button, the Timer off indicator "OFF" displays and flashes. By default, the last time period that you set and an "h" (indicating hours)will appear on the display.

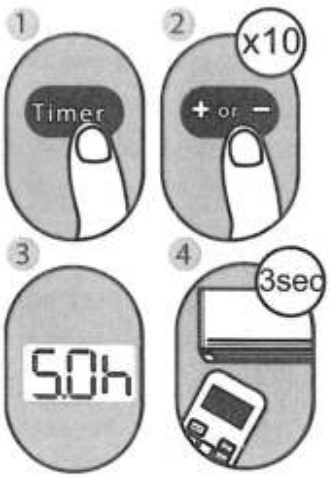
***Note:** This number indicates the amount of time after the current time that you want the unit to turn off.*

For example, if you set TIMER OFF for 5 hours, "5.0h" will appear on the screen, and the unit will turn off after 5 hours.

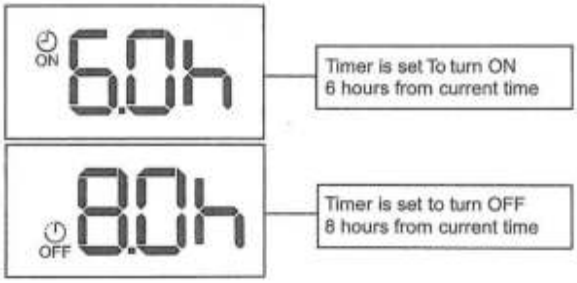
*2. Press the **Temp +** or **Temp -** button repeatedly to set the time when you want the unit to turn off.*

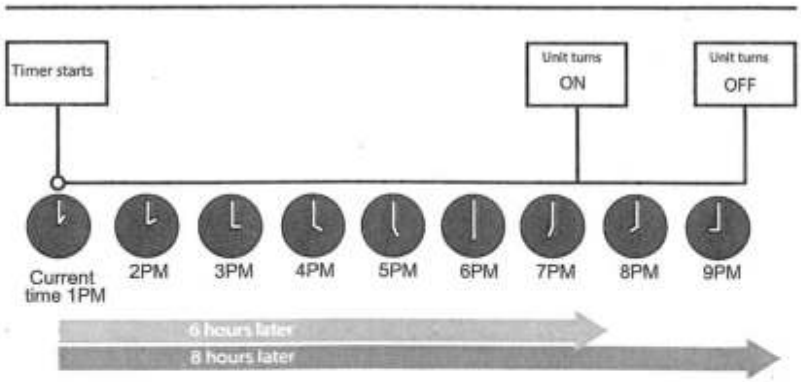
3. Wait 3 seconds, then the TIMER OFF function will be activated. The digital display on your remote control will then return to the temperature display. The "OFF" indicator remains on and this function is activated.

Note: When setting the TIMER ON or TIMER OFF functions, up to 10 hours, the time will increase in 30 minute increments with each press. After 10 hours and up to 24, it will increase in 1 hour increments. The timer will revert to zero after 24 hours. You can turn off either function by setting its timer to "0.0h".



***Example:** Setting unit to turn off after 5hours*





How To Use The Advanced Functions

ECO function

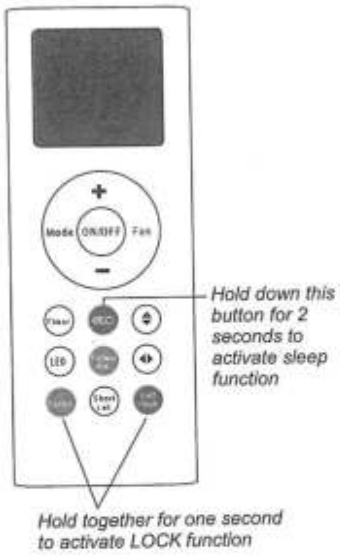
Note: *This function is only available under COOL mode.*

- *Used to enter the energy efficient mode.*
- *Under cooling mode, press this button, the remote controller will adjust the temperature automatically to 24°C, fan speed of Auto to save energy (but only if the set temperature is less than 24°C).*

If the set temperature is above 24°C, press the ECO button, the fan speed will change to Auto, the set temperature will remain unchanged.

Note:

- *Pressing the ECO button, or modifying the mode or adjusting the set temperature to less than 24°C will stop ECO operation.*
- *Under ECO operation, the set temperature should be 24°C or more. it may result in insufficient cooling. If you feel uncomfortable, just press the ECO button again to stop it.*



SLEEP Function

The SLEEP function is used to decrease energy use while you sleep (and don't need the same temperature settings to stay comfortable). This function can only be activated via remote control.

Follow me function

The Follow me function enables the remote control to measure the temperature at its current location and send this signal to the air conditioner every 3 minutes interval.

When using AUTO, COOL, or HEAT modes, measuring ambient temperature from the remote control (instead of from the indoor unit itself) will enable the air conditioner to optimize the temperature around you and ensure maximum comfort.

Self clean function

Airborne bacteria can grow in the moisture that condenses around heat exchanger in the unit. With regular use, most of this moisture is evaporated from the unit.

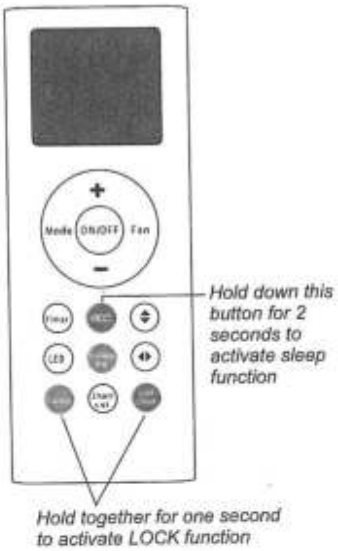
When the self clean feature is activated, your unit will clean itself automatically. After cleaning, unit will turn off automatically.

You can use self clean feature as often as you like.

Note: *You can only activate this function in COOL or DRY mode.*

LOCK function

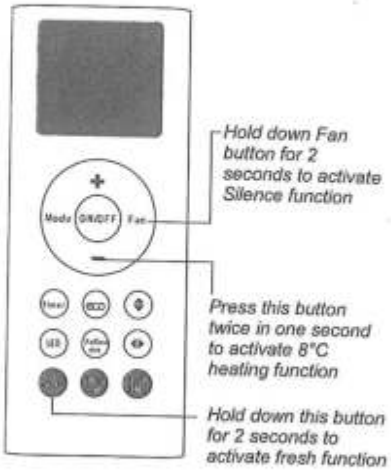
Press Turbo button and Self clean button simultaneously for one second to lock or unlock the keyboard.



TURBO function

The TURBO function makes the unit work extra hard to reach your present temperature in the shortest amount of time possible.

- *When you select TURBO feature in COOL mode, the unit will blow cool air with strongest wind setting to jump-start the cooling process.*
- *When you select TURBO feature in HEAT mode, for units with Electric heat elements, the Electric Heater will activate and jump-start the heating process.*
- *Hold down TURBO button for 2 seconds, the Ionizer/Plasma Dust Collector (depending on models) is energized and will help to remove pollen and impurities from the air.*



Silence function

Hold down Fan speed button for 2 seconds to activate/cancel Silent mode. Due to low frequency operation of compressor, it may result in insufficient cooling and heating capacity. (applicable to the air conditioner with Silent feature only)

8°C Heating Function

When the air conditioner operates under heating mode with the set temperature of 17°C, press Temp button twice in one second will activate 8°C heating function.

The unit will operate at a setting temperature of 8°C. The indoor unit display shows "FP".

SHORTCUT function

Used to restore the current settings or resume previous settings.

Push this button when remote controller is on, the system will automatically revert back to the previous settings including operating mode, setting temperature, fan speed level and sleep feature (if activated).

If pushing more than 2 seconds, the system will automatically restore the current operation settings including operating mode, setting temperature, fan speed level and sleep feature (if activated).

13.0 UPS

A 3KW, 230 VAC 50Hz single phase UPS is provided to allow continued operation of the PCU for a minimum of 1 hour in case of power loss. The UPS line is not connected to the Air Conditioning Unit.

Schneider Electric

User Manual Easy UPS On-Line SRVS Series 1000VA, 2000VA, 3000VA

Important Safety Information

Read the instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service or maintain it. The following special messages may appear throughout this document or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of this symbol to a Danger or Warning product safety label indicates that an electrical hazard exists that will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Safety and General Information

SAVE THESE INSTRUCTIONS

This manual contains important instructions that should be followed during installation and maintenance of the UPS and batteries.

Inspect the package contents upon receipt. Notify the carrier and dealer if there is any damages.

- This UPS is for indoor use only.
- Do not operate this UPS in direct sunlight, in contact with fluids, or where there is excessive dust or high humidity.
- Do not operate the UPS near open windows or doors.
- Be sure the air vents on the UPS are not blocked. Allow adequate space for proper ventilation.

  Note: Allow a minimum of 20 cm clearance on all four sides of the UPS.
- Environmental factors impact battery life. Elevated ambient temperatures, poor quality utility power, and frequent discharges will shorten battery life. Follow the battery manufacturer recommendations.
- Connect the UPS power cable directly to a wall outlet. Do not use surge protectors or extension cords.

Electrical Safety

- When grounding cannot be verified, disconnect the equipment from the utility power outlet before installing or connecting to other equipment. Reconnect the power cord only after all connections are made.
- Connection to the branch circuit (mains) must be performed by a qualified electrician.
- The protective earth conductor for the UPS carries the leakage current from the load devices (computer equipment). An insulated ground conductor is to be installed as part of the branch circuit that supplies the UPS. The conductor must have the same size and insulation material as the grounded and ungrounded branch circuit supply conductors. The conductor will be green and with or without a yellow stripe.
- The grounding conductor is to be grounded to earth at the service equipment, or if supplied by a separately derived system, at the supply transformer or motor generator set.

Battery Safety

⚠ CAUTION

RISK OF HYDROGEN SULPHIDE GAS AND EXCESSIVE SMOKE

- Replace the battery at least every 5 years.
- Replace the battery immediately when the UPS indicates battery replacement is necessary.
- Replace battery at the end of its service life.
- Replace batteries with the same number and type of batteries as originally installed in the equipment.
- Replace the battery immediately when the UPS indicates a battery over-temperature condition, or UPS internal over-temperature, or when there is evidence of electrolyte leakage. Power off the UPS, unplug it from the AC input, and disconnect the batteries. Do not operate the UPS until the batteries have been replaced.

Failure to follow these instructions can result in minor or moderate injury and equipment damage.

- Servicing of user replaceable batteries should be performed or supervised by personnel knowledgeable about batteries and required precautions. In this case, batteries is not user replace.
- Schneider Electric uses Maintenance-Free sealed Lead Acid batteries. Under normal use and handling, there is no contact with the internal components of the batteries. Over charging, over heating or other misuse of batteries can result in a discharge of battery electrolyte. Released electrolyte is toxic and may be harmful to the skin and eyes.
- Use tool with insulated handles;
- Wear rubber gloves and boots;
- Determine if battery is either intentionally or inadvertently grounded. Contact with any part of a grounded battery can result in electric shock and burns by high short-circuit current. The risk of such hazards can be reduced if grounds are removed during installation and maintenance by a skilled person.

Radio Frequency Warning

This is a category C2 UPS product. In a residential environment, this product may cause radio interference, in which case the user may be required to take additional measures.

Product Description

The Schneider Electric Easy UPS is a high performance, uninterruptible power supply (UPS). The UPS provides protection for electronic equipment from utility power blackouts, brownouts, sags, and surges and small utility fluctuations and large disturbances. The UPS also provides battery backup power for connected equipment until utility power returns to normal levels or the batteries are fully discharged.

This user manual is available on the enclosed Documentation CD and on the Schneider Electric website, www.schneider-electric.com.

Package Contents

Read the Safety Guide before installing the UPS.

The packaging is recyclable; save it for reuse or dispose of it properly.

(1)
UPS

(1)
User manual

(1)
Software, User documentation CD

(1)
USB cable

(1*)
Utility power cable

(1**)
Output cable

(1)
RS-232 cable

*: based on the local input plug to select. **: only for the models with IEC outlet (10A).

NOTE: The model and serial numbers are located on a small, top cover label.

Optional Accessories

For optional accessories, refer to the Schneider Electric Website at www.schneider-electric.com.

Specifications

Environment Specifications

NOTICE

RISK OF EQUIPMENT DAMAGE

- UPS must be used indoors only.
- The installation location should be sturdy to withstand the weight of the UPS.
- Do not operate UPS where there is excessive dust or where the temperature or humidity are outside specified limits.

Failure to follow these instructions can result in equipment damage.

Temperature	**Operating**	0° to 40°C at rated load. 40° to 50°C linearly derated to 80% of maximum load capacity.
	Storage	-20° to 50°C
Elevation	**Operating**	0 - 1,000 m: normal operation 1,000 - 3,000 m: The load reduces @ 1% at an increased height of every 100 m > 3,000 m: UPS will not work
	Storage	0 - 15,000 m
Humidity		0 to 95% relative humidity, non-condensing

This unit is intended for indoor use only. Select a location sturdy enough to handle the weight.
Do not operate UPS where there is excessive dust or where the temperature or humidity are outside specified limits.
Note: Charge the battery modules every six months during storage.

Physical Specifications

UPS model	SRVS 1000VA	SRVS 2000VA	SRVS 3000VA
Dimensions with package Width x Height x Depth	235 mm (9.25in) x 330 mm (12.99in) x 365 mm (14.37 in)	235 mm (9.25in) x 355 mm (13.98in) x 525 mm (20.67 in)	325 mm (12.8 in) x 465 mm (18.31 in) x 565 mm (22.24 in)
Dimensions without package Width x Height x Depth	145 mm (5.7 in) x 223 mm (8.78 in) x 288 mm (11.34 in)	145 mm (5.7 in) x 238mm (9.37in) x 400 mm (15.75 in)	190 mm (7.5 in) x 336 mm (13.2in) x 425 mm (16.7 in)
Weight with package	10.6kg	18.1kg	29kg
Weight without package	9.3kg	16.8kg	26.8kg
Lifting guidelines	< 18 kg (< 40 lb) 	18 - 32 kg (40 - 70lb) 	18 - 32 kg (40 - 70lb) 

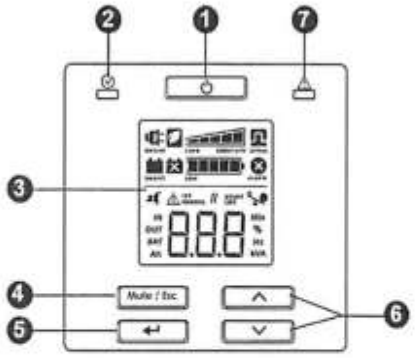
Input/Output Specifications

UPS Model		SRVS 1000VA	SRVS 2000VA	SRVS 3000VA
Input	Voltage	230 Vac Nominal		
	Frequency	40 – 70 Hz		
	Input Voltage Range (100% load)	160 Vac – 280 Vac		
	Input Voltage Range (50% load)	110 Vac – 285Vac		
	Input Power Factor (100% resistive load)	≥ 0.95		
	Input Protection	Input circuit breaker		
Output	UPS Capacity	1000 VA / 800 W	2000 VA / 1600 W	3000 VA / 2400 W
	Nominal Output Voltage	230 Vac		
	Other Programmable Voltage	220 Vac, 240 Vac		
	Efficiency at rated load	88% max.		
	Output Voltage Regulation	± 1% static		
	Output Voltage Distortion	• 3% max. for full linear load, • 6% max. for full RCD load (100% VA, 0.8 PF) • 15% for the last 60 seconds of the backup time (with full load only for the internal battery)		
	Frequency – On Battery	50 Hz ± 0.5% or 60 Hz ± 0.5%		
	Frequency – AC Mode	50 Hz ± 3 Hz or 60 Hz ± 3 Hz		
	Crest Factor	3:1		
	Waveform	Sinewave		
	Output Connection	Please refer to rear panel features		
	Bypass	Internal bypass		

Battery

UPS Model	SRVS 1000VA	SRVS 2000VA	SRVS 3000VA
Configuration	Internal battery		
Type	Sealed maintenance free (SMF) 12 V, 9 Ah		
Battery Bank Voltage	24 V	48 V	72 V

Front Panel Display

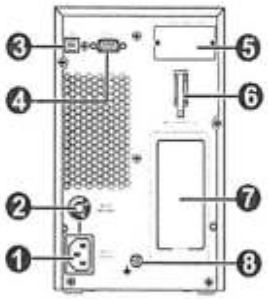


1. UPS Power On/Off button
2. Status LED
3. LCD Display
4. Mute/Esc button
5. Enter button
6. Up / Down button
7. Alarm LED

Rear Panel Features

SRVS 1000VA

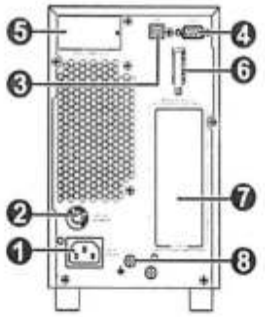
Model	Output type and quantity
SRVS1KI	x 3



❶	AC input	❺	Intelligent card slot
❷	Input circuit breaker	❻	Battery disconnector
❸	USB port	❼	Outlet Group (refer to outlet type and quantity in the left side)
❹	RS-232	❽	Ground Screw

SRVS 2000VA

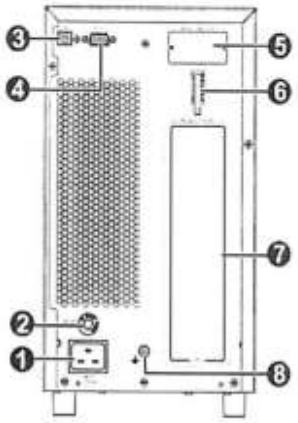
Model	Output type and quantity
SRVS2KI	x4



❶	AC input	❺	Intelligent card slot
❷	Input circuit breaker	❻	Battery disconnector
❸	USB port	❼	Outlet Group (refer to outlet type and quantity in the left side)
❹	RS-232	❽	Ground Screw

SRVS 3000VA

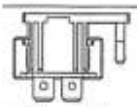
Model	Output type and quantity
SRVS3KI	x6
	x1



❶	AC input	❺	Intelligent card slot
❷	Input circuit breaker	❻	Battery disconnector
❸	USB port	❼	Outlet Group (refer to outlet type and quantity in the left side)
❹	RS-232	❽	Ground Screw

Basic Connectors

Power management software and interface kits can be used with the UPS.
Use only interface kits supplied or approved by Schneider Electric.

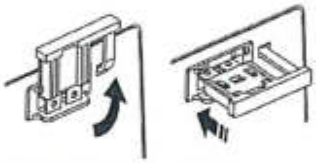


This UPS is equipped internal battery. For batteries without connecting when the UPS is shipped out from factory. Before turn on the UPS. Please connect the battery by pulling the handle up, and then pushing it into the unit.

Start Up Settings

Connect the battery

Connect the battery by pulling the battery handle up, and then pushing it into the unit.



Connect power and equipment to the UPS

⚠ CAUTION

HAZARD OF ELECTRIC SHOCK

- All electrical work must be performed by a qualified electrician.
- Turn off all power to this equipment before working on the equipment. Practice lockout/tagout procedures.
- Do not wear jewelry when working with electrical equipment.

Failure to follow these instructions can result in minor or moderate injury.

1. Connect equipment to the UPS. Avoid using extension cords.
2. Connect input utility power to the UPS.
3. Switch on the input utility power. Then, the UPS display panel will illuminate when utility power is available.

Start the UPS

Press the ⏻ button located on the front panel of the UPS.

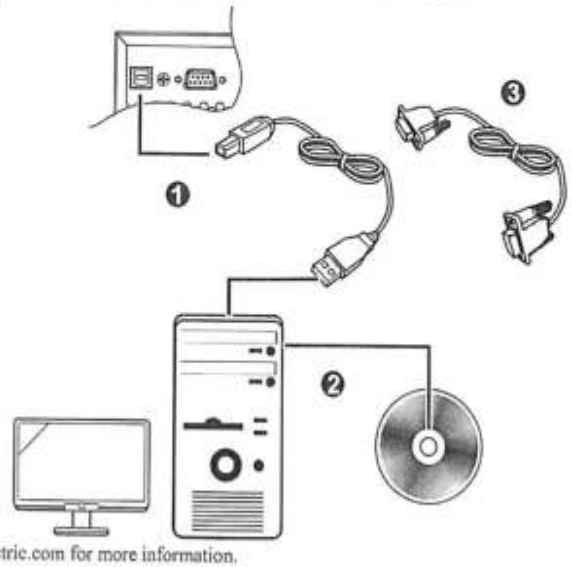
- The battery charges to 90% capacity during the first five hours of normal operation.
- ***Do not*** expect full battery run capability during this initial charge period.

Cold start the UPS

Use cold start feature to supply power to connected equipment from the UPS batteries. Press the ⏻ button. Then, the display panel will illuminate. Press the ⏻ button again to supply battery power to the connected equipment.

Connect and install management software

Easy UPS SRVS is provided with SchneiderUPS management software for unattended operating system shutdown, UPS monitoring, UPS control and energy reporting. The following diagram is a representation of a typical server installation.

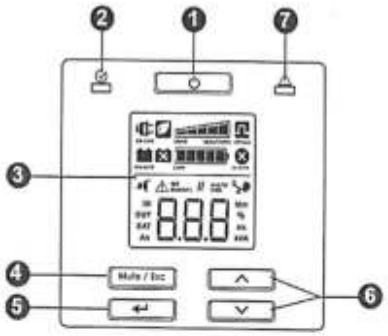


1. Connect the USB cable from the rear of the UPS to the protected device such as a server.
2. For a server or other device with an operating system, load the SchneiderUPS CD and follow the on-screen set-up instructions.
3. A built-in serial port is also available for additional communication options with serial cable.
4. Even more communication options are available via the built-in intelligent card slot. Refer to www.schneideer-electric.com for more information.

Operation

Using The Display

These Easy UPS models are equipped with an intuitive and configurable LCD display. This display complements the software interface as they convey similar information and either may be used to configure the UPS settings. The display consists of the following keys and indicators:



❶	UPS Power On/Off button	• Press this button to turn on the UPS. • Press and hold this button until a beep is heard to turn off the UPS. • Press this button to reset alarms.
❷	Status LED	The **Status LED** illuminates green when the power is on. This LED indicates two different states of output power: • **Output off**: LED blinks. Press Power On/Off button to turn the output power on. • **Output on**: LED illuminates green continuously.
❸	LCD Display	The display interface options are visible on this LCD screen. Press the ^ or v button to activate LCD, if the display is not illuminated.
❹	Mute/Esc button	• To acknowledge audible alarms and suppress them temporarily. • To exit a sub menu and return to the main menu.
❺	Enter button	Press this button to enter the menu or to select a menu item/ value during navigation.
❻	Up / Down button	Press these two buttons to scroll through the main menu options and display screens.
❼	Alarm LED	This Alarm **LED** illuminates red when the UPS detects an error and blinks red for UPS notifications. See " Alarms and Notifications" on page 11 in this manual.

LCD Display Icons

ON LINE	**On Line:** The UPS is drawing utility power and performing double conversion to supply power to the connected equipment.
ON BATT	**On Battery:** The UPS is supplying battery backup power to the connected equipment.
	Replace Battery: The battery is not connected securely or the battery is nearing the end of its service life and should be replaced.
BYPASS	**Bypass:** The UPS is in bypass mode, sending utility power directly to connected equipment. Bypass mode operation is the result of an internal UPS event or an overload condition. Battery operation is not available while the UPS is in bypass mode. See "Alarms and Notifications" on page 11 in this manual. This icon in combination with Green Mode icon, indicates that the UPS is in green mode operation.
ALARM	**System Alarms:** An internal fault is detected. See "Alarms and Notifications" on page 11 in this manual.
	Overload: The equipment connected to the UPS is drawing more power than rated.
LOW	**Battery Charge:** The battery charge level is indicated by the number of bar sections illuminated. When all five blocks are illuminated, the battery is fully charged. Each bar represents approximately 20% of the battery charge capacity.
LOAD SENSITIVITY	**Load Level:** The load percentage is indicated by the number of load bar sections illuminated. Each bar represents approximately 20% of the maximum load capacity.
	Mute: An illuminated line through the icon indicates that the audible alarm is disabled.

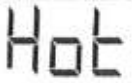
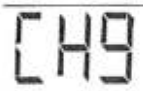
	**Green Mode**: An illuminated icon indicates that the unit is working in Green mode. The connected equipment is receiving the utility input directly as long as the input voltage and frequency are within the configured limits.
 SEE MANUAL	**Alarm or notification:** The UPS has detected an error or the UPS is in configuration mode. See "Alarms and Notifications" on page 11 in this manual.
EVENT LOG	**Event:** The icon is illuminated when the user is viewing the event log.

Alarms and System Errors

Status Indicators

Continuous beeps, every half second	**Low Battery State** - The battery is nearing its complete discharge state. The UPS is about to shut down.
	Overload condition - The equipment connected to the UPS is drawing more power than rated.
4 beeps every 30 sec (first beep starts after 4 sec on battery)	**On Battery State** - The UPS is supplying battery backup power to the connected equipment.
Beeper continuously on	**Alarm State** - UPS has detected an error. See "Alarms and Notifications" in this manual.
Short beep every 2.5 sec	Battery disconnected.
Continuous short beeps for every half second for 1 minute, repeats every 5 hours.	Bad battery (replace)
Two short beeps every 5 sec	**Event Bypass State** - UPS has detected an error. Connected equipment receives utility input power through the bypass relay.

Alarms

Display code	Description	Solution
	UPS has experienced a short circuit at the output. Unit will try to auto-recover from this condition.	Check if there is any short circuit at the UPS output. Remove the short circuit wait the unit auto-recover or Press ⏻ button to start the UPS. **Note:** The power supplied to the connected equipment is dropped when the UPS is in this condition.
	UPS is experiencing an overload condition.	Disconnect nonessential equipment from the UPS to eliminate the overload condition.
	The UPS has detected a DC voltage error. Unit will try to auto-recover from this condition.	If the UPS does not recover automatically, contact Schneider Electric.
	Temperature of the unit is rising above the set limits.	Disconnect nonessential equipment from the UPS to reduce the UPS load. Ensure that ambient temperature is within limits. Ensure that adequate clearance is maintained.
	UPS has detected a charger error.	Verify if there is any short circuit at the UPS battery terminal. Press ⏻ button to start the UPS.

Contact Schneider Electric for all other alarm codes.

Notifications

Display code	Description	Solution
	Battery is not connected.	Connect battery to the UPS. See "Start Up" on page 8 in this manual.

UPS Display Parameters

Operational data displayed in the display panel is given in the table.

Navigate using the ^ or v button.

Parameter	Units	Indicator Icons
Output voltage	Vac	OUT, V
Output frequency	Hz	OUT, Hz
Input voltage	Vac	IN, V
Input frequency	Hz	IN, Hz
Battery voltage	V DC	BAT, V
Ambient temperature	°C	NUMBER, C
State of battery charge	%	BAT, %
Load level in percentage (Maximum of Watts or VA)	%	OUT, %
Load level in kVA	kVA	OUT, kVA
Total Ah capacity of connected battery	Ah	BAT, Ah
Remaining On Battery runtime	Minutes	BAT, Min

Configuration

Configure UPS Parameters

Follow the steps to configure parameters in the UPS:

1. Press the ↵ button.
2. Press the ^ or v button to navigate to "Set".
3. Press the ↵ button.
4. Navigate through the parameters using the ^ or v button.
5. Press the ↵ button to edit a parameter. Icons start flashing to indicate the editing.
6. Press the ^ or v button to navigate between the options available for the selected parameter.
7. Press the ↵ button to select the option or Mute / Esc button to abort the editing of current parameter. Flashing of icons stops after this.
8. Press the ^ or v button to navigate between parameters.
9. Press the Mute / Esc button to exit menu navigation.

UPS Settings

Configure UPS settings using the display interface. See "Configure UPS parameters" section to edit the parameters.

Function	Factory Default	User Selectable Options	Description
Output voltage	230 Vac	220, 230, 240 Vac	Allows the user to select output voltage while the UPS is operating online.
Audible alarm	Enable	Enable, disable	UPS will mute audible alarms when setting to **disable** or when the display panel MUTE button is pressed.
Green mode/ high efficiency mode	Disabled	Enable/Disable	When this mode is enabled, connected equipment receives utility input power through the bypass relay as long as input voltage is within the range of ± 5% of configured output voltage and ± 3 Hz of configured output frequency. Inverter is turned off during this mode. If utility power input goes out of range, inverter is turned on. The load is transferred to online mode or battery mode. The power to the connected equipment may be interrupted up to 10 milliseconds.
Minimum battery capacity to restart setting	0%	0%, 15%,50%,90%,	UPS output will not be turned on until the battery is charged to a level such that it can provide the runtime configured by this setting. If configured to 0%, UPS output is turned on immediately after utility power returns.
Low battery state indication setting	2 min	2 min, 5 min, 7min, 10min,	The UPS will emit audible alarm when the actual run time reaches the limit set by the end user. The audible alarm will emit only when the UPS is working in battery mode.

Advance Display Navigation

There are five options in main menu and two sub-menu options in UPS display. Press the ↵ button from the Home Screen to access these menu options. Use the ^ or v button to navigate between the menu options.

Menu Option	Description
SEt	**Configure the UPS** Use this menu option to configure the UPS parameters. Press the ↵ button to see the configuration options. See "Configure UPS parameters" on page 13 for details. Press the Mute / Esc button to return to the Home Screen.
LOG	**Show Event Log** Use this menu option to see the UPS event log. The UPS records the last 10 events and displays the codes in this log. Press the ↵ button to see the log. Use the ^ or v button to see the logged events. The v button navigates towards old events and the ^ button navigates to new events. Every log entry has a numeric and textual event code. At the end of the log, the word "End" will be displayed. Press the Mute / Esc button to return to the Home Screen.
UPS	**Show UPS information** Use this menu option to see the UPS information. Press the ↵ button to see the rating of the UPS. Press the ^ button to see the UPS firmware version. Press the Mute / Esc button to return to the Home Screen.
byP	**User Command to bypass** Use this menu option to switch the UPS to bypass mode or bring the UPS to online mode from bypass mode. Press ↵ button: PUt — **Put:** Use to switch the UPS to bypass mode of operation. **Note:** Power to the connected equipment will drop, if the mains voltage is not within the threshold limits. OUt — **Out:** Bring the UPS out of bypass and restore clean power to the connected equipment.
tSt	**Execute Battery Self-Test** Use this menu option to conduct a self-test and determine the battery status. Press the ↵ button to initiate the test. If the test command is accepted, the UPS will initiate a self-test and will start a count down on the display. Display messages are shown at the end of the test. rFd — Test refused. The output is off or battery is not charged. FId — Test not passed PAS — Test passed Abt — Test is aborted due to internal reasons Press the Mute / Esc button to return to the Home Screen

Troubleshooting

Use the table below to solve minor installation and operation problems. Refer to the Schneider Electric website, www.schneider-electric.com for assistance with complex UPS problems.

Problem and/or Possible Cause	Solution
UPS will not turn on when utility input is available or there is no power output	
The UPS is not turned on.	Press the ⏻ button to turn on the UPS.
The UPS is not connected to utility power supply.	Check that the power cable from the UPS to the utility power supply is securely connected at both ends. See "Start Up" on page 8 in this manual.
Input thermal circuit breaker on the UPS is tripped.	Press the input thermal circuit breaker reset button in the rear panel.
The UPS is operating on battery, while connected to the input utility power	
There is high, low, or distorted input voltage or frequency.	Connect the UPS to a different outlet on a different circuit. Test the utility input power to ensure the unit is receiving input power. If display is on, navigate and check the input voltage and frequency.
UPS, when connected to battery, is not supplying power to the connected equipment	
The UPS is not turned on.	If the UPS has shutdown (the display is not on), follow the procedure "Cold start the UPS" on page 8.
The battery is not connected.	Connect battery to the UPS. See "Start Up" on page 8 in this manual.
Low battery cut off. UPS may have discharged the battery due to utility power outage andturned the output off due to low battery condition.	Wait for the utility power to return and charge the battery. To turn on the output power after utility power returns, press ⏻ button.
UPS emits an audible beeping sound at long intervals	
The UPS is operating normally when running on battery.	UPS has detected an error. See "Alarms and Notifications" on page 11 in this manual.
Alarm LED is illuminated. The UPS displays an alarm message and emits a constant beeping sound	
The UPS has detected an error.	See "Alarms and Notifications" on page 11 in this manual.
No audible sounds from UPS even when the Alert LED is illuminated.	
Audible alarm is disabled.	Change the UPS configuration to enable audible alarms.
UPS is not providing expected backup time.	
The UPS battery is discharged due to a recent power outage.	The batteries require recharging after extended outages. Batteries can wear faster when put into service without proper recharging or when operated at elevated temperatures.
The battery is near the end of its service life.	If the battery is near the end of its service life, consider replacing the battery, even if the replace battery indicator is not illuminated. See "Start Up" on page 8 in this manual.

Problem and/or Possible Cause	Solution
UPS is not turning off	
POWER OFF button not pressed properly	Press and hold the ⏻ button until the beep is heard to power off the UPS.
Utility input power is available.	UPS logic power can not be turned off if utility input power is available. To turn off the UPS, turn off utility input power and press ⏻ button. Release when a beep is heard.
UPS is in Bypass mode and the LED is not illuminated red.	
UPS is in green mode.	Disable green mode if not desired.
UPS is configured to stay in the bypass mode.	Change the configuration to exit bypass mode.
UPS is in bypass mode even after over temperature alarm is cleared.	Reduce the connected load to <90% to bring the UPS to online mode.
The UPS has experienced an overload condition and transferred to bypass.	Connected equipment exceeds the "maximum load" as defined in specifications on the Schneider Electric Website, www.schneider-electric.com. The alarms remain on until the overload condition is corrected. Disconnect nonessential equipment from the UPS to eliminate the overload condition. The UPS continues to supply power as long as it is in bypass mode and the circuit breaker does not trip. The UPS will not provide battery power in the event of a utility voltage interruption.
UPS detected an error and transferred to bypass.	See "Alarms and Notifications" on page 11 in this manual.

Transport

1. Shut down and disconnect all connected equipment.
2. Disconnect the unit from mains power.
3. Disconnect all internal and external batteries (if applicable).
4. Follow the shipping instructions outlined in the *Service* section of this manual.

Service

If the unit requires service, do not return it to the dealer. Follow these steps:

1. Review the *Troubleshooting* section of the manual to eliminate common problems.
2. If the problem persists, contact Schneider Electric Customer Support through the Schneider Electric website, **www.apc.com**.
   a. Note the model number and serial number and the date of purchase. The model and serial numbers are located on the rear panel of the unit and are available through the LCD display on select models.
   b. Call Customer Support. A technician will attempt to solve the problem over the phone. If this is not possible, the technician will issue a Returned Material Authorization Number (RMA#).
   c. If the unit is under warranty, the repairs are free.
   d. Service procedures and returns may vary internationally. For country specific instructions refer to the Schneider Electric website, **www.apc.com**.
3. Pack the unit properly to avoid damage in transit. Never use foam beads for packaging. Damage sustained in transit is not covered under warranty.
   Note: Before shipping, always disconnect battery modules in a UPS or external battery pack. The disconnected internal batteries may remain inside the UPS or external battery pack.
4. Write the RMA# provided by Customer Support on the outside of the package.
5. Return the unit by insured, prepaid carrier to the address provided by Customer Support.

Schneider Electric IT Worldwide Customer Support

Customer support for this or any other Schneider Electric product is available at no charge in any of the following ways:

- Visit the Schneider Electric website to access documents in the Schneider Electric Knowledge Base and to submit customer support requests.
  - **www.apc.com** (Corporate Headquarters)
    Connect to localized Schneider Electric websites for specific countries, each of which provides customer support information.
  - **www.apc.com/support/**
    Global support searching Schneider Electric Knowledge Base and using e-support.
- Contact the Schneider Electric IT (SEIT) Customer Support Center by telephone or e-mail.
  - Local, country specific centers: go to **www.apc.com/support/contact** for contact information.

For information on how to obtain local customer support, contact the Schneider Electric representative or other distributor from whom you purchased your Schneider Electric product.

EN 990-91091
01/2018

14.0 DRAWINGS AND SCHEMES

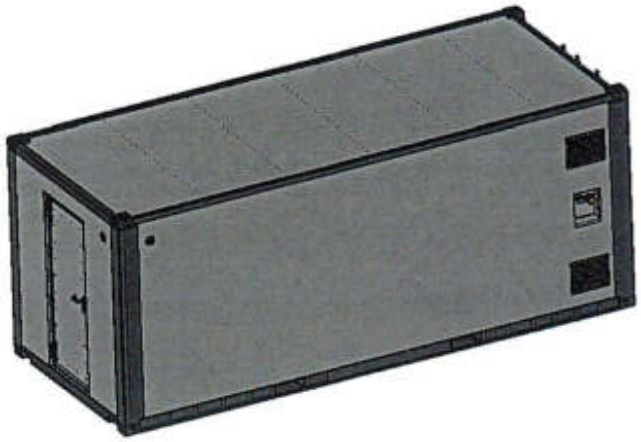
This chapter provides technical information/data on the PCU.

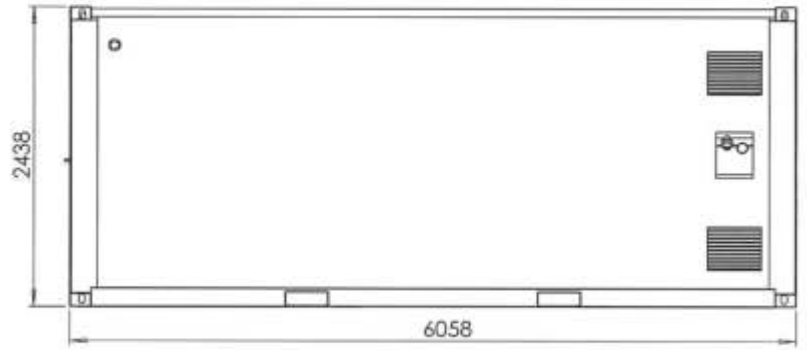
Supply and Delivery of Containerized Bunkers

Total views - External dimensions

Drawing N. 01

Container ISO 20' 1C
Scale 1:50

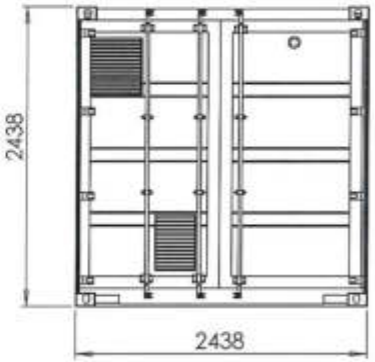




Side view
Scale 1:40

Top view
Scale 1:40

Front and rear view
Scale 1:40



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Local Branches

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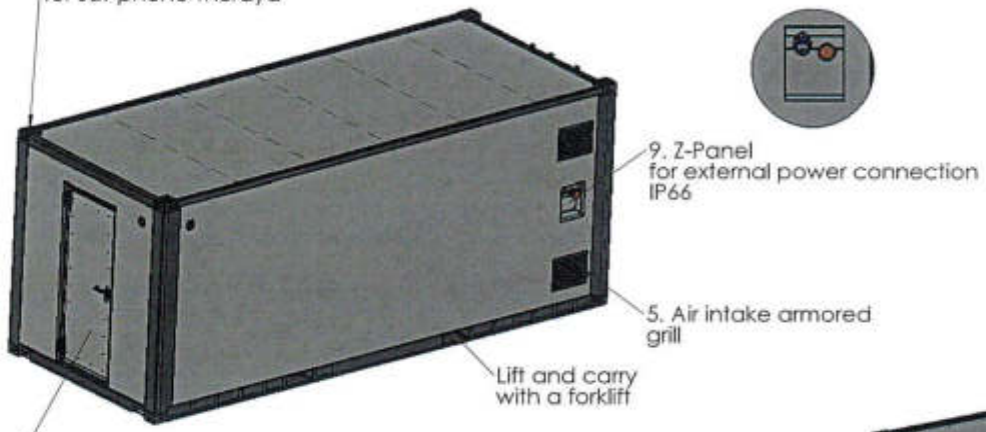
Lebanon

GROUP

Supply and Delivery of Containerized Bunkers

Side views - External details

Drawing N. 02



1. Walls, floor, roof, external doors compliant with ballistic resistance BR6NS standard and STANAG 2280 Class A2 C3 D3 standard

2. Walls, floor, roof, external doors compliant with F-120 -2 hours fire rating

3. Cladding to interior walls, roof lining and furniture in Class I rating regarding behavior in relation to fire, products will not contribute to the development stages of a fire or present a smoke or toxic hazard

4-hours force entry protection against hand, power tolls or hand granades

REI 120 2-hours fire rating

Detail 8

Side views
Scale 1:50

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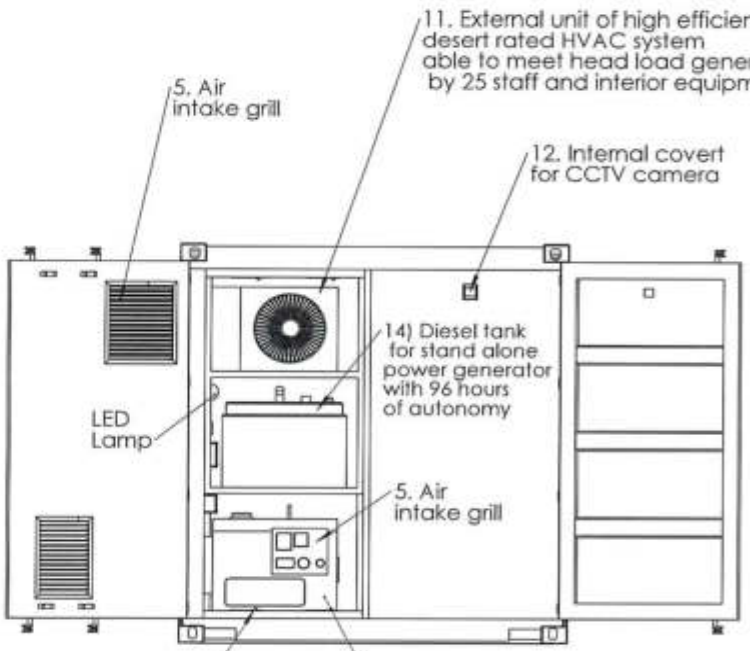
Supply and Delivery of Containerized Bunkers

Technical Compartment

Drawing N. 03



Rear view
Scale 1:30

Rear view
Scale 1:40

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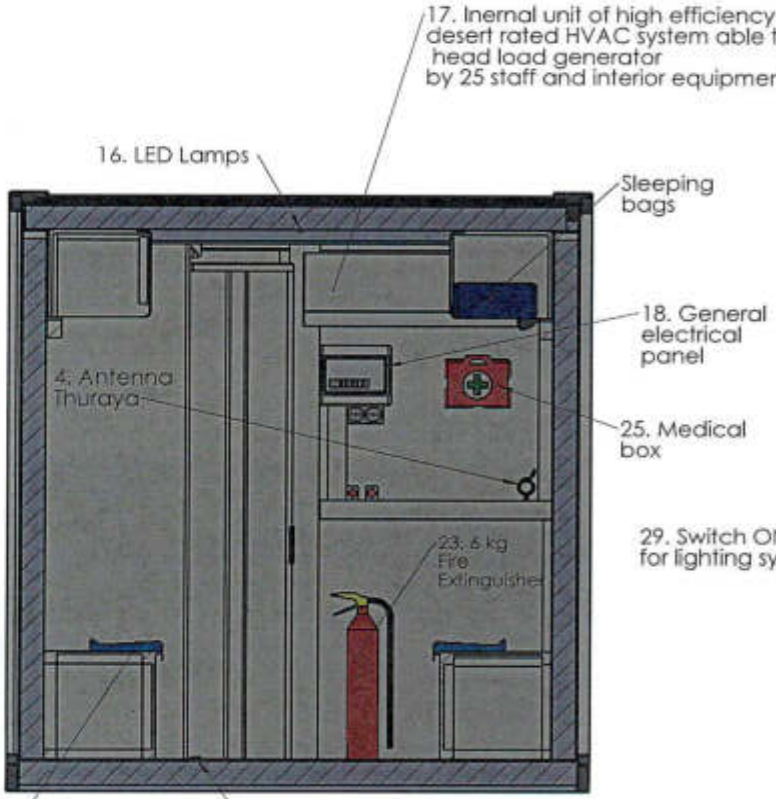
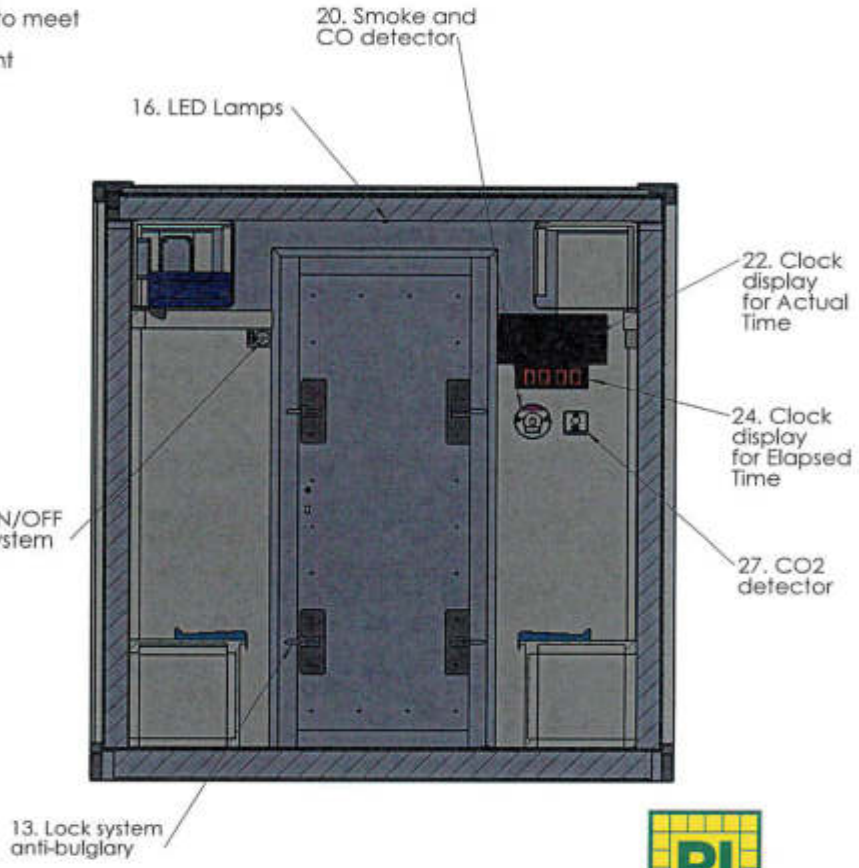
Supply and Delivery of Containerized Bunkers

Internal views

Drawing N.04



Section A-A



Section B-B

Section views
Scale 1:20

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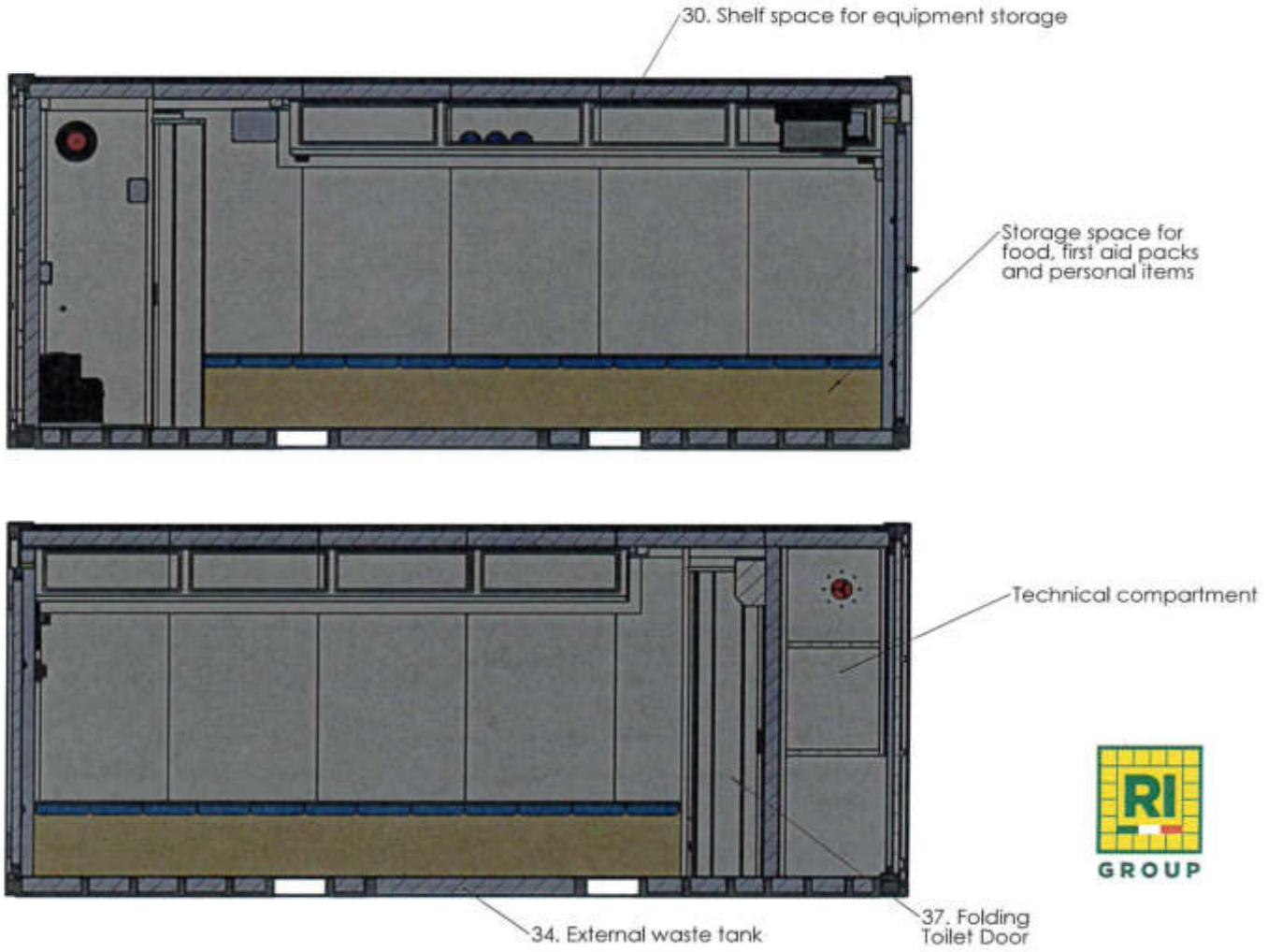
Supply and Delivery of Containerized Bunkers

Internal views

Drawing N. 5



Section A-A

Section B-B

Section views
Scale 1:30

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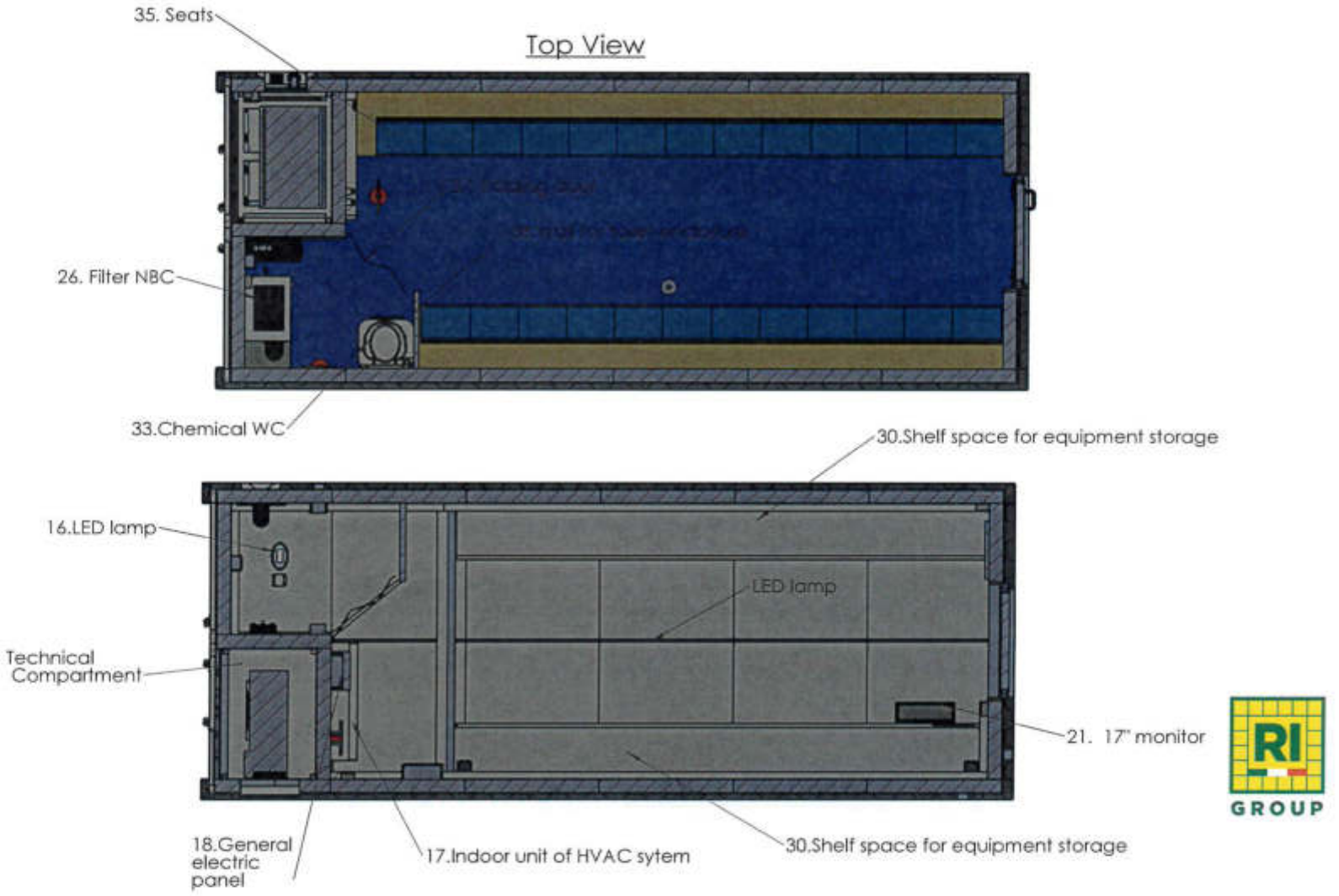
Supply and Delivery of Containerized Bunkers

Internal views

Drawing N. 06



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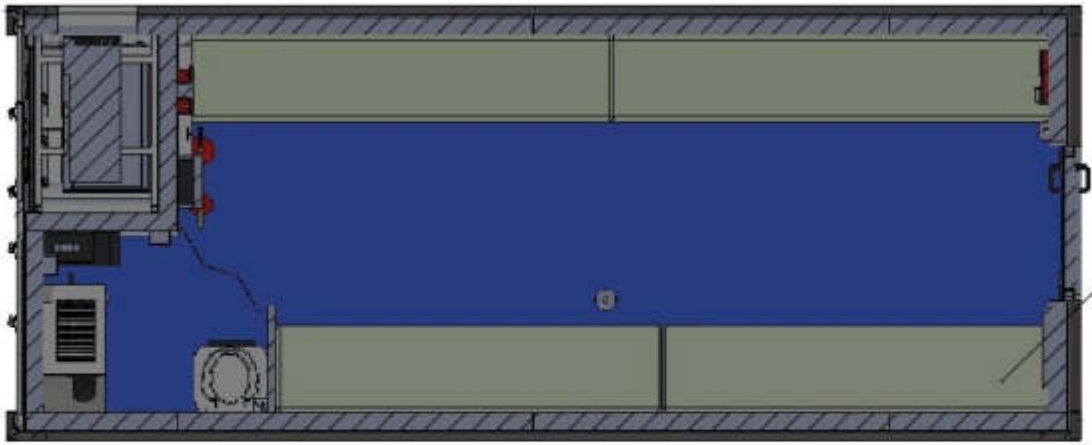
Supply and Delivery of Containerized Bunkers

Detail of internal seating

Drawing N. 07

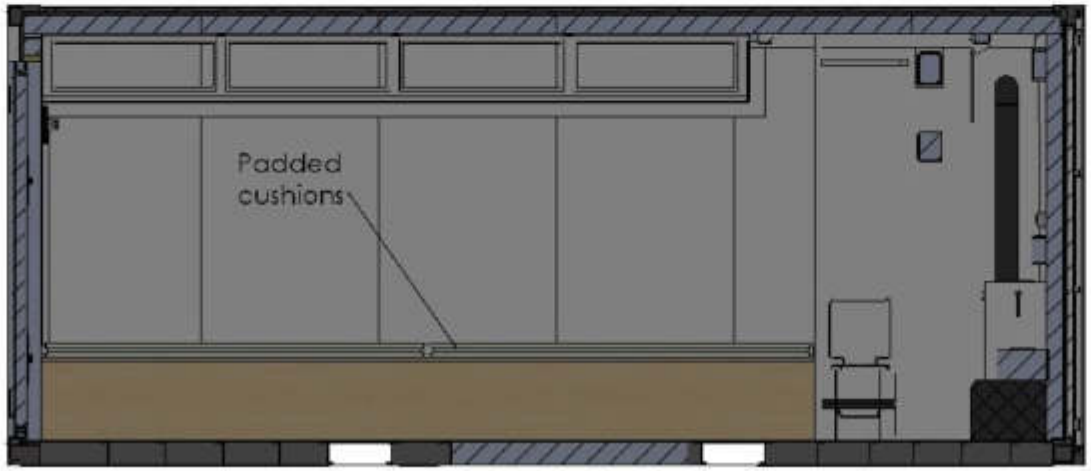
Internal views

Top View



The seats have been replaced by padded cushions to provide greater comfort where it is necessary to use individual equipment complete protections and weapons

Front View



Section views
Scale 1:30

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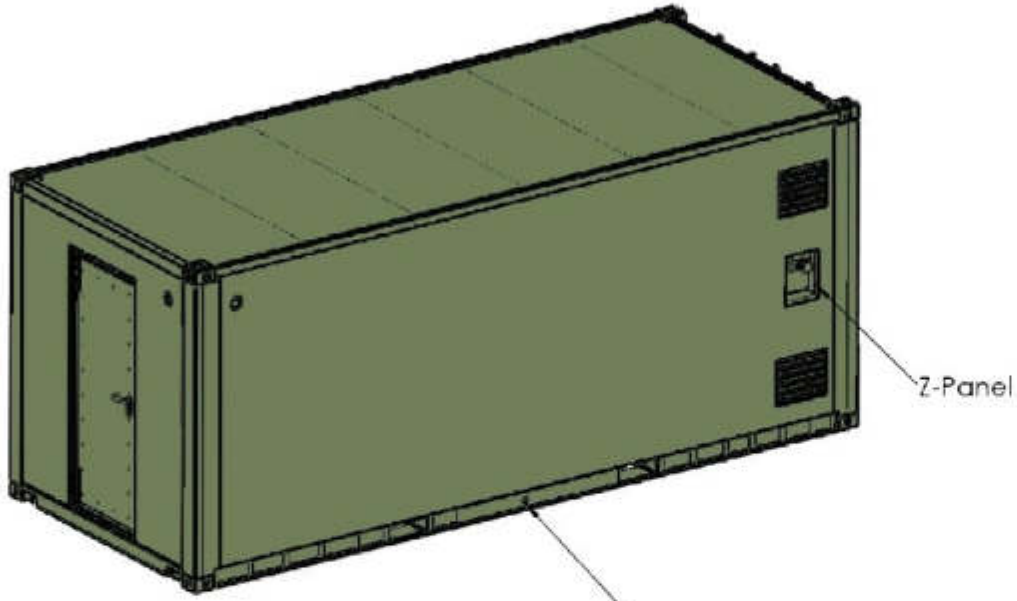
PAG. 113-I /118

Supply and Delivery of Containerized Bunkers

Detail of wastewater flushing system

Drawing N. 08



Scale 1:30

Equipment

- Closing plug 1.1 / 2"(Transport configuration)

- Ball valve 1.1/2"(insert before in order to emptying the tank)

PAG. 113-II /118

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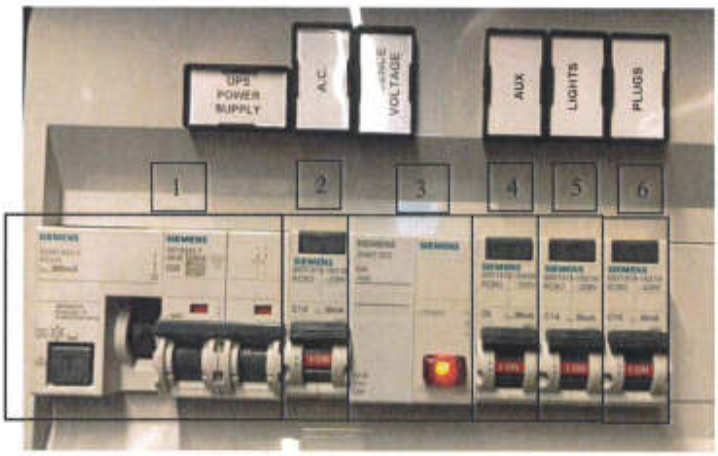
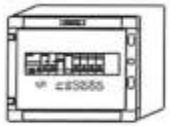
15.0 ELECTRICAL PANEL

The PCU is capable of being connected to an external source of single phase, 230 VAC 50Hz power line. The Electrical system is basically composed of an Input Power Line, a Main Electrical Panel, an Uninterrupted Power Supply (UPS), and a Power Generator Set. The Electrical System is also composed of an internal Electrical Power Distribution and Lighting System that routes electrical power from the Main Electrical Panel and through suitably located switches to the lighting elements, as well as to electrical power sockets.
All lighting elements and electrical power distribution sockets are wired to the Main Electrical Panel placed in the living room, which is connected to input power (230 VAC 50Hz Single Phase) from an external power line, the UPS an external Power Generator Set.



1) Residual Current Magnetothermic Circuit Breaker for UPS that powers Auxiliary circuits, Lights and plugs.
2) Residual Current Magnetothermic Circuit Breaker for Air Conditioning, the line is not covered under the UPS line
3) Light to indicate the presence of the Mains
4) Residual Current Magnetothermic Circuit Breaker for auxiliary circuit
5) Residual Current Magnetothermic Circuit Breaker for lights
6) Residual Current Magnetothermic Circuit Breaker for plugs



DATI IDENTIFICATIVI DEL QUADRO

TIPO DI QUADRO: CENTRALINO
NORMA DI RIFERIMENTO: CEI 23-49 23-49 23-51

TENSIONE NOMINALE (V):	400/230
CORRENTE NOMINALE SBARRE (A):	0
CORRENTE NOMINALE AMMISSIBILE DI BREVE DURATA (Icw) x 1s (kA):	10
CORRENTE NOMINALE AMMISSIBILE DI PICCO (Ipk) (kA):	17
ALTEZZA (mm):	200
LARGHEZZA (mm):	200
PROFONDITA' (mm):	140
GRADO DI PROTEZIONE:	IP65
FORMA COSTRUTTIVA:	VEDI DISEGNO
COLORE INVOLUCRO:	–
TIPO DI PORTA:	VEDI DISEGNO
ACCESSIBILITA':	ANTERIORE

RIFERIMENTI PORTATA SBARRE:
SB OS: Sbarre orizzontali superiori
SB OM: Sbarre orizzontali nel mezzo
SB VL: Sbarre verticali laterali
SB VP: Sbarre verticali posteriori

Nr	Data	Descrizione	Dis	Cont

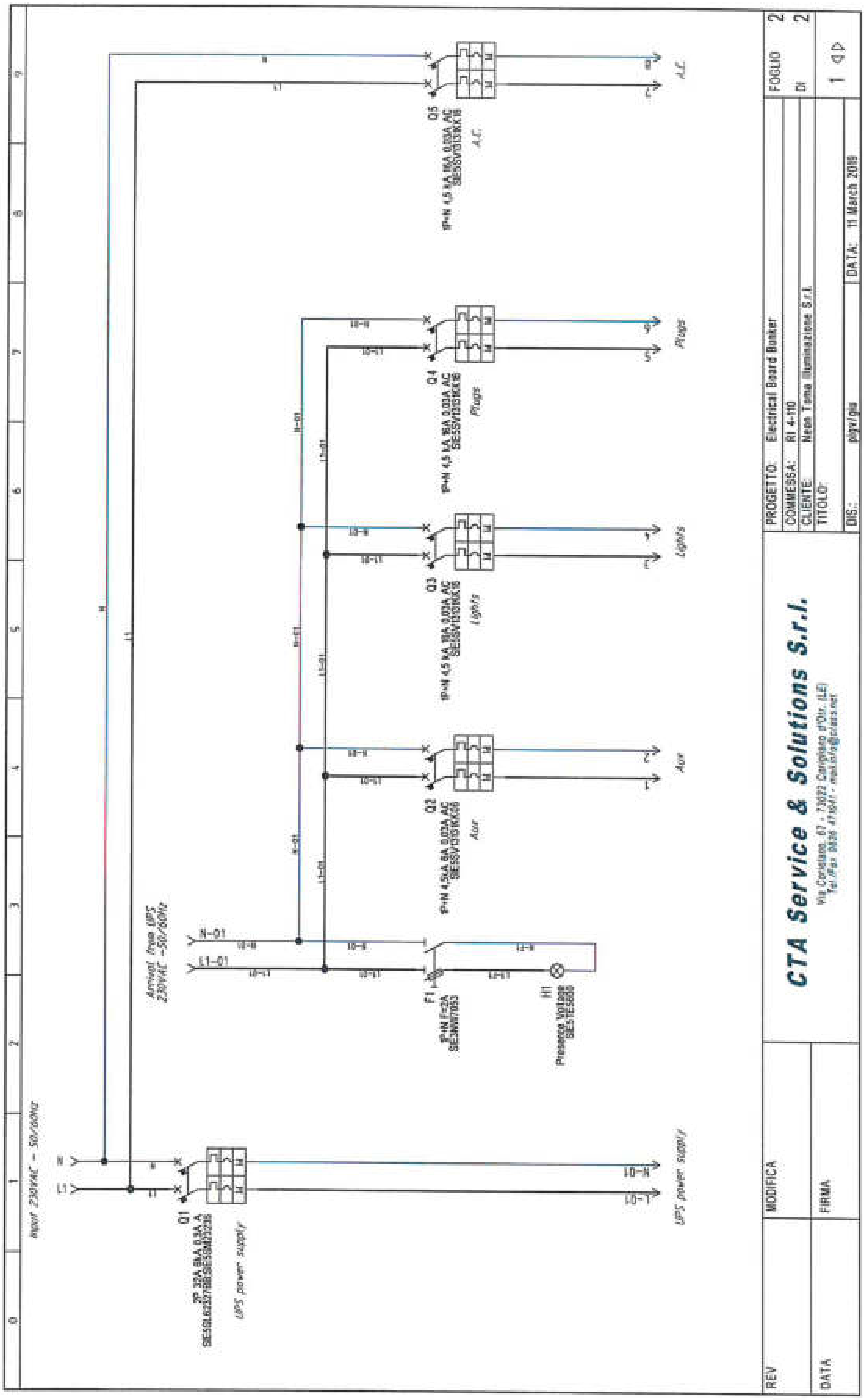
Data: 11/03/2019
Disegn.:
Cont.:
Visto:

Impianto:
Note:

SIEMENS S.p.A.

Electrical Board Bunker — 19/4433S

Nome File: Fronte quadroQ_QG_00001
Commessa:
Foglio: 1
Segue: -
Nr. Disegno:


Input 230VAC - 50/60Hz
N
L1
Q1
2P 32A 6kA 0,3A A
SE5SL6232... SE5SM3...
UPS power supply
N-01
L1-01
UPS power supply
Arrival from UPS
230VAC - 50/60Hz
N-01
L1-01
F1
1P+N F=2A
H1
Presence Voltage
Q2
1P+N 4,5kA 6A 0,03A AC
Aux
Aux
Q3
1P+N 4,5 kA 16A 0,03A AC
Lights
Lights
Q4
1P+N 4,5 kA 16A 0,03A AC
Plugs
Plugs
Q5
1P+N 4,5 kA 16A 0,03A AC
A.C.
A.C.
CTA Service & Solutions S.r.l.
PROGETTO: Electrical Board Bunker
COMMESSA: RI 4-110
CLIENTE: Neon Tomà Illuminazione S.r.l.
TITOLO:
DIS.: plgvr/gia
DATA: 11 March 2019
FOGLIO 2
DI 2
REV
MODIFICA
DATA
FIRMA

F

16.0 THURAYA SATELLITE ANTENNA

The antenna cable inside the living area has been laid to the technical compartment. In order to install the antenna it is necessary take the cable out of the PCU through the Air Conditioning air vent and then connect the antenna cable gland to the magnetic satellite antenna to be placed against the external wall (see image below). The Thuraya satellite antenna of marine grade has a strong magnetic base and is suitable to be placed outside.

17.0 SPARE PART LIST

Item	Description	M.U.
1	NBC Filter	Pcs
2	Prefiltering for NBC filter	Pcs
3	Generating set air filter	Pcs
4	Oil filter	Pcs
5	Fuel filter	Pcs
6	Door Handle	Pcs
7	Waste water tank cap	Pcs
8	Electrolock back door	Pcs
9	NBC system battery pack	Pcs
10	Beacon	Pcs
11	Internal unit HVAC	Kit
12	External unit HVAC	Kit
13	Drinking water tank	Pcs
14	Camera	Pcs
15	DVR recorder	Pcs
16	Monitor	Pcs
17	Satellite antenna	Pcs
18	Electrical sockets	Pcs
19	Usb sockets	Pcs
20	Cygarette lighter sockets	Pcs
21	UPS complete	Kit
22	Generating set complete	Kit
23	Led light	Pcs
24	WC chemical complete	Kit
25	Folding door	Kit
26	Digital timer	Pcs
27	Digital Clock	Pcs
28	CO2 Detector	Pcs
29	CO Detector	Pcs
30	Sleeping bag	Pcs
31	Plastic seat	Pcs
32	Chemical additive for waste of the chemical wc	Pcs
33	Lubricant for chemical WC flushing	Pcs
34	Main electrical panel	Pcs
35	Fuel tank	Pcs
36	External Electrical plug	Pcs
37	First aid box	Pcs
38	Fire extinguisher	Pcs