USER MANUAL

Pharmacy Plus - Laboratory Plus - Pharmacy Connect - Neonatal Operating Instructions

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The Experts in
Medical Refrigeration

Contents

1: Models

Range	Vol L	SKU No	Model
Pharmacy Plus - Neonatal	158	444411308	PPSR158BT-UK
		444411311	PPSR158BT-EU
		444411387	PPSR158BT-DWP
		444411389	PPSR158BT-DLK
		444411377	NSR158BT-UK
		444411309	PPGR158BT-UK
		444411310	PPGR158BT-LHH-UK
		444411312	PPGR158BT-EU
		444411388	PPGR158BT-DWP
		444411390	PPGR158BT-DLK
	310	444411313	PPSR310BT
		444411394	PPSR310BT-DWP
		444411391	PPSR310BT-DLK
		444411314	PPGR310BT
		444411315	PPGR310BT-LHH
		444411393	PPGR310BT-DWP
		444411392	PPGR310BT-DLK
	400	444411317	PPSR400BT
		444411398	PPSR400BT-DWP
		444411396	PPSR400BT-DLK
		444411316	PPGR400BT
		444411318	PPGR400BT-LHH
		444411397	PPGR400BT-DWP
		444411395	PPGR400BT-DLK
Pharmacy Connect	158	444411319	PCSR158CT-UK
		444411321	PCSR158CT-EU
		444411323	PCSR158CT-DWP-UK
		444411326	PCSR158CT-DLK-UK
		444411320	PCGR158CT-UK
		444411322	PCGR158CT-EU
		444411324	PCGR158CT-DWP-UK
		444411327	PCGR158CT-DLK-UK
	310	444411328	PCSR310CT
		444411330	PCSR310CT-DLK
		444411332	PCSR310CT-DWP
		444411329	PCGR310CT
		444411331	PCGR310CT-DLK
		444411333	PCGR310CT-DWP
	400	444411335	PCSR400CT
		444411337	PCSR400CT-DLK
		444411339	PCSR400CT-DWP
		444411334	PCGR400CT
		444411336	PCGR400CT-DLK
		444411338	PCGR400CT-DWP

Table 1:1

Models cont.

Range	Vol L	SKU No	Model
Pharmacy Plus Neonatal	47	444411305	PPSR47BT-UK
		444411307	PPSR47BT-EU
		444411306	PPGR47BT-UK
		444411376	NSR47BT-UK
		444411305	PPSR47BT-UK
		444411307	PPSR47BT-EU
		444411306	PPGR47BT-UK
Table 1:2			

Range	Vol L	SKU No	Model
Laboratory Plus	158	444411358	LSFSR158BT-UK
		444411359	LSFSR158BT-EU
	310	444411360	LSFSR310BT-UK
		444411361	LSFSR310BT-UK-ATEX
	400	444411364	LSFSR400BT
		444411365	LSFSR400BT-ATEX
	98	444411352	LSFSF98BT-UK
		444411353	LSFSF98BT-EU
	242	444411362	LSFSF242BT-UK
		444411363	LSFSF242BT-UK-ATEX
	312	444411366	LSFSF312BT
		444411367	LSFSF312BT-ATEX
	280	444411369	LSFSC280BT
		444411370	LSFSC280BT-ATEX
Table 1:3			

2: Safety Instructions

In this manual, the following symbols and conventions are used: -

This symbol when used alone indicates important operating instructions which reduce the risk of injury or poor performance of the unit.

WARNING: A situation which if not avoided, could result in serious injury or death.

CAUTION: A situation which, if not avoided, may result in minor or moderate injury, impaired performance, or damage to the equipment.

CAUTION: Before installing, using, or maintaining this product, please be sure to read this manual and product warning labels carefully. Failure to follow these instructions may cause this product to malfunction, which could result in injury or damage.

WARNING: Potential danger of electric shock which, if not avoided, could result in serious injury or death.

WARNING: These units are charged with hydrocarbon refrigerant. Only qualified service personnel should service these units.

The snowflake symbol indicates extreme low temperatures and high risk of frostbite. Do not touch bare metal or samples with unprotected body parts.

WARNING: This symbol indicates a need to use gloves during the indicated procedures. If performing decontamination procedures, use chemically resistant gloves. Use insulated gloves for handling samples to avoid potential frostbite.

3: General Recommendations

Intended Use and Special Warning

This equipment is tested in compliance with established regulations and then shipped ready for use. This equipment is intended for cold storage and is not to be used in the presence of explosive gases or mixtures and/or close to sources with high magnetic or electric fields/

WARNING: These units are not medical devices and have not been registered with a medical device regulatory body (e.g., MDD/MDR). These products have not been evaluated for the storage of samples for diagnostic use, nor for samples to be re-introduced into the body.

WARNING: Do not damage the refrigeration circuit

WARNING: Do not use electrical equipment inside the storage unless they are of the type recommended by the manufacturer.

WARNING: Keep ventilation openings, in the equipment enclosure or in the built-in structure, clear of obstruction.

WARNING: Do not use mechanical devices or other means to accelerate the defrosting process, other than those recommended by the manufacturer

Energy Saving Tips

This equipment uses energy efficient R600a refrigerant.

To keep running costs as low as possible always:

- Position the equipment away from heat sources.

- Make sure the air can circulate freely around the equipment, do not block the ventilation grid.

- Ensure that products being stored are below room temperature upon entry.

- Make sure the door is opened as little as possible while in use and closed as quickly as possible to prevent unnecessary temperature fluctuations.

Important Information

The refrigerator contains environment-friendly, non-ozone depleting refrigerant R600a. As R600a is a flammable gas, it is important to avoid damage to the refrigeration circuit during transport and installation. If the refrigeration circuit is damaged, avoid using a naked flame in the vicinity of the refrigerator and connecting power to the refrigerator. Also make sure there is good ventilation in the room. If you are in doubt, please contact your supplier.

R600a

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory, mental capabilities if they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
Children must not play with the appliance
Children must not carry out cleaning or user maintenance under any circumstances.

4: Product Specifications

This range of LEC refrigerators and freezers have been designed and built with the intention of the product being used within pharmacies, hospitals, and laboratories.

Please see below for specific product information.

SKU No	Model	Height (mm)	Width (mm)	Depth Inc Handle (mm)	Weight (Kg)	Rating (Amp)	Power (W)	Temperature Range	Ambient Temperature	Refrigerant
\multicolumn{11}{c}{**Pharmacy Plus and Neonatal Range Refrigerators**}
444411305	PPSR47BT-UK	565	475	500	17.5	0.60	70	2°C to 8°C	16°C to 32°C	R600a
444411307	PPSR47BT-EU	565	475	500	17.5	0.60	70	2°C to 8°C	16°C to 32°C	R600a
444411306	PPGR47BT-UK	565	475	500	18.5	0.60	70	2°C to 8°C	16°C to 32°C	R600a
444411376	NSR47BT-UK	565	475	500	17.5	0.60	70	2°C to 4°C	25°C to 32°C	R600a
444411308	PPSR158BT-UK	850	595	660	33.3	0.78	101	2°C to 8°C	16°C to 32°C	R600a
444411311	PPSR158BT-EU	850	595	660	33.3	0.78	101	2°C to 8°C	16°C to 32°C	R600a
444411387	PPSR158BT-DWP	850	595	660	38.3	0.78	101	2°C to 8°C	16°C to 32°C	R600a
444411389	PPSR158BT-DLK	850	595	660	33.3	0.78	101	2°C to 8°C	16°C to 32°C	R600a
444411377	NSR158BT-UK	850	595	660	38.3	0.78	101	2°C to 4°C	25°C to 32°C	R600a
444411309	PPGR158BT-UK	850	595	645	36.3	0.78	101	2°C to 8°C	16°C to 32°C	R600a
444411310	PPGR158BT-LHH-UK	850	595	645	36.3	0.78	101	2°C to 8°C	16°C to 32°C	R600a
444411312	PPGR158BT-EU	850	595	645	36.3	0.78	101	2°C to 8°C	16°C to 32°C	R600a
444411388	PPGR158BT-DWP	850	595	645	39.3	0.78	101	2°C to 8°C	16°C to 32°C	R600a
444411390	PPGR158BT-DLK	850	595	645	36.3	0.78	101	2°C to 8°C	16°C to 32°C	R600a
444411313	PPSR310BT	1560	595	660	50.0	0.65	88	2°C to 8°C	16°C to 32°C	R600a
444411394	PPSR310BT-DWP	1560	595	660	58.0	0.65	88	2°C to 8°C	16°C to 32°C	R600a
444411391	PPSR310BT-DLK	1560	595	660	50.0	0.65	88	2°C to 8°C	16°C to 32°C	R600a
444411314	PPGR310BT	1560	595	645	60.0	0.65	88	2°C to 8°C	16°C to 32°C	R600a
444411315	PPGR310BT-LHH	1560	595	645	50.0	0.65	88	2°C to 8°C	16°C to 32°C	R600a
444411393	PPGR310BT-DWP	1560	595	645	68.6	0.65	88	2°C to 8°C	16°C to 32°C	R600a
444411392	PPGR310BT-DLK	1560	595	645	50.0	0.65	88	2°C to 8°C	16°C to 32°C	R600a
444411317	PPSR400BT	1925	595	660	61.8	0.65	88	2°C to 8°C	16°C to 32°C	R600a
444411398	PPSR400BT-DWP	1925	595	660	74.8	0.65	88	2°C to 8°C	16°C to 32°C	R600a
444411396	PPSR400BT-DLK	1925	595	660	61.8	0.65	88	2°C to 8°C	16°C to 32°C	R600a
444411316	PPGR400BT	1925	595	645	69.6	0.65	88	2°C to 8°C	16°C to 32°C	R600a
444411318	PPGR400BT-LHH	1925	595	645	61.8	0.65	88	2°C to 8°C	16°C to 32°C	R600a
444411397	PPGR400BT-DWP	1925	595	645	82.6	0.65	88	2°C to 8°C	16°C to 32°C	R600a
444411395	PPGR400BT-DLK	1925	595	645	61.8	0.65	88	2°C to 8°C	16°C to 32°C	R600a

Table 4:1

Product Specifications cont.

Pharmacy Connect Range Refrigerators										
SKU No	**Model**	**Height (mm)**	**Width (mm)**	**Depth Inc Handle (mm)**	**Weight (Kg)**	**Rating (Amp)**	**Power (W)**	**Temperature Range**	**Ambient Temperature**	**Refrigerant**
444411319	PCSR158CT-UK	850	595	660	18.5	0.78	101	2°C to 8°C	16°C to 32°C	R600a
444411321	PCSR158CT-EU	850	595	660	18.5	0.78	101	2°C to 8°C	16°C to 32°C	R600a
444411323	PCSR158CT-DWP-UK	850	595	660	39.3	0.78	101	2°C to 8°C	16°C to 32°C	R600a
444411326	PCSR158CT-DLK-UK	850	595	660	18.5	0.78	101	2°C to 8°C	16°C to 32°C	R600a
444411320	PCGR158CT-UK	850	595	645	37.3	0.78	101	2°C to 8°C	16°C to 32°C	R600a
444411322	PCGR158CT-EU	850	595	645	37.3	0.78	101	2°C to 8°C	16°C to 32°C	R600a
444411324	PCGR158CT-DWP-UK	850	595	645	40.3	0.78	101	2°C to 8°C	16°C to 32°C	R600a
444411327	PCGR158CT-DLK-UK	850	595	645	37.3	0.78	101	2°C to 8°C	16°C to 32°C	R600a
444411328	PCSR310CT	1560	595	660	51.0	0.65	88	2°C to 8°C	16°C to 32°C	R600a
444411330	PCSR310CT-DLK	1560	595	660	51.0	0.65	88	2°C to 8°C	16°C to 32°C	R600a
444411332	PCSR310CT-DWP	1560	595	660	59.0	0.65	88	2°C to 8°C	16°C to 32°C	R600a
444411329	PCGR310CT	1560	595	645	61.0	0.65	88	2°C to 8°C	16°C to 32°C	R600a
444411331	PCGR310CT-DLK	1560	595	645	61.0	0.65	88	2°C to 8°C	16°C to 32°C	R600a
444411333	PCGR310CT-DWP	1560	595	645	69.6	0.65	88	2°C to 8°C	16°C to 32°C	R600a
444411335	PCSR400CT	1925	595	660	62.8	0.65	88	2°C to 8°C	16°C to 32°C	R600a
444411337	PCSR400CT-DLK	1925	595	660	62.8	0.65	88	2°C to 8°C	16°C to 32°C	R600a
444411339	PCSR400CT-DWP	1925	595	660	75.8	0.65	88	2°C to 8°C	16°C to 32°C	R600a
444411334	PCGR400CT	1925	595	645	70.6	0.65	88	2°C to 8°C	16°C to 32°C	R600a
444411336	PCGR400CT-DLK	1925	595	645	70.6	0.65	88	2°C to 8°C	16°C to 32°C	R600a
Table 4:2										

Laboratory Plus Refrigerators										
SKU No	**Model**	**Height (mm)**	**Width (mm)**	**Depth Inc Handle (mm)**	**Weight (Kg)**	**Rating (Amp)**	**Power (W)**	**Temperature Range**	**Ambient Temperature**	**Refrigerant**
444411358	LSFSR158BT-UK	850	595	660	17.9	0.78	101	2°C to 10°C	16°C to 32°C	R600a
444411359	LSFSR158BT-EU	850	595	660	17.9	0.78	101	2°C to 10°C	16°C to 32°C	R600a
444411360	LSFSR310BT-UK	1560	595	660	49.0	0.47	60	2°C to 10°C	16°C to 32°C	R600a
444411361	LSFSR310BT-UK-ATEX	1560	595	660	49.0	0.47	60	2°C to 10°C	16°C to 32°C	R600a
444411364	LSFSR400BT	1925	595	660	66.0	0.49	66	2°C to 10°C	16°C to 32°C	R600a
444411365	LSFSR400BT-ATEX	1925	595	660	66.0	0.49	66	2°C to 10°C	16°C to 32°C	R600a
Table 4:3										

Laboratory Plus Freezers										
SKU No	**Model**	**Height (mm)**	**Width (mm)**	**Depth Inc Handle (mm)**	**Weight (Kg)**	**Rating (Amp)**	**Power (W)**	**Temperature Range**	**Ambient Temperature**	**Refrigerant**
444411352	LSFSF98BT-UK	850	595	660	42.0	0.62	80	-18°C to -25°C	16°C to 32°C	R600a
444411353	LSFSF98BT-EU	850	595	660	42.0	0.62	80	-18°C to -25°C	16°C to 32°C	R600a
444411362	LSFSF242BT-UK	1560	595	660	65.0	0.86	88	-18°C to -25°C	16°C to 32°C	R600a
444411363	LSFSF242BT-UK-ATEX	1560	595	660	65.0	0.86	88	-18°C to -25°C	16°C to 32°C	R600a
444411366	LSFSF312BT	1925	595	660	84.1	1.35	130	-18°C to -25°C	16°C to 32°C	R600a
444411367	LSFSF312BT-ATEX	1925	595	660	84.1	1.35	130	-18°C to -25°C	16°C to 32°C	R600a
Table 4:4										

Product Specifications cont.

Laboratory Plus Fridge/Freezer Combi										
SKU No	Model	Height (mm)	Width (mm)	Depth Inc Handle (mm)	Weight (Kg)	Rating (Amp)	Power (W)	Temperature Range	Ambient Temperature	Refrigerant
444411352	LSFSF280BT-UK	TBC	595	660	TBC	TBC	TBC	Fr +2°C to +10°C Fz -18°C to -25°C	16°C to 32°C	R600a
444411353	LSFSF280BT-EU	TBC	595	660	TBC	TBC	TBC	Fr +2°C to +10°C Fz -18°C to -25°C	16°C to 32°C	R600a
Table 4:5										

Flammable Material Storage Units FMS (Lab products only)

Conventional refrigerators are not suitable for storing flammable materials. Such units have components in their electrical and refrigeration systems that can trigger explosions of flammable air-vapor mixtures inside the unit.
FMS refrigerators/freezers are designed for use in locations which are not classified as hazardous by the Authority Having Jurisdiction (AHJ). Under normal operating conditions, the build-up or presence of
flammable vapours will not occur in the environment outside the unit.

Flammable Materials Storage (FMS) refrigerators/freezers are designed for use in general laboratory locations.

FMS units are NOT designed for use in Class I, Zone 0, or Zone1 applications, which require an Explosion-Proof Refrigerator/Freezer. FMS units are designed, evaluated and comply with the ATEX Directive 2014/34/EU Annex VIII. These units have an intrinsically safe (IS) barrier installed in the temperature probe circuit with no other internal electrical components that could trigger an explosion or fire of flammable materials inside the unit. The internal wall construction has been reviewed and is not a source for electrostatic build up due to the materials used in construction.

The units bear the following ATEX marking.

C E ⟨Ex⟩ II 3 G Ex h ic IIB T6 X

These units are ideal for storing ethyl ether, acetone, alcohol, benzene, butane, gasoline, hexane, lacquer solvent,
and naphtha along with many other potentially flammable materials.

Refrigerators, Freezers and Fridge Freezers for use in potentially explosive atmospheres, the internal refrigeration chamber is classed as Zone 2, category 3 when the door is closed.
The external parts of the refrigerator are classed as safe area and as such do not need to comply with requirements of the directive.

5: Product Details

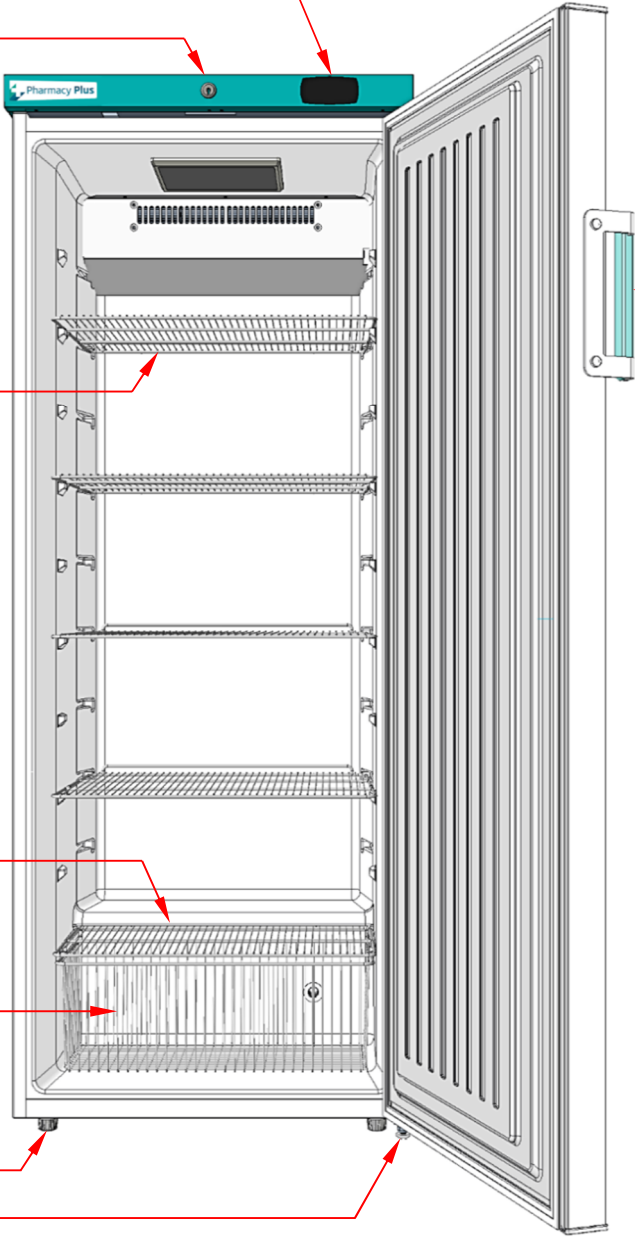## 5:1 Pharmacy Plus/Connect Refrigerators – UC and FS

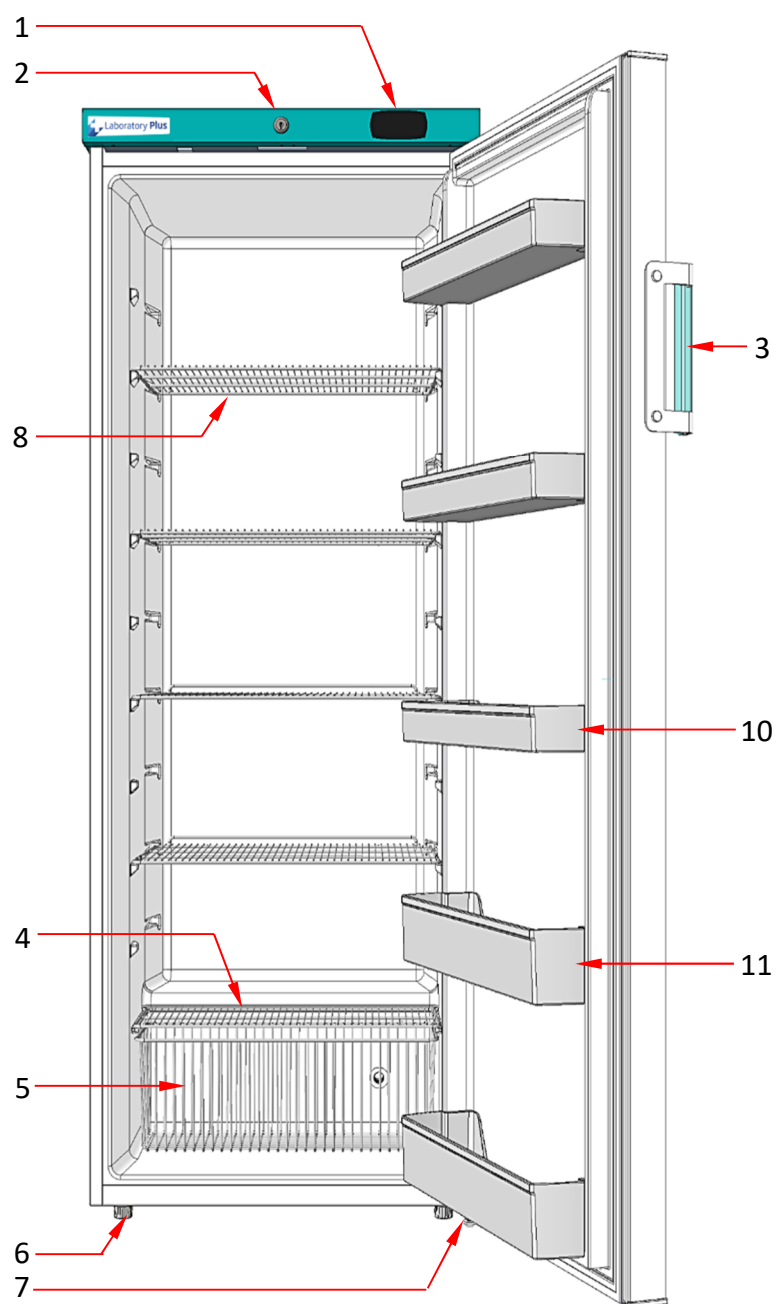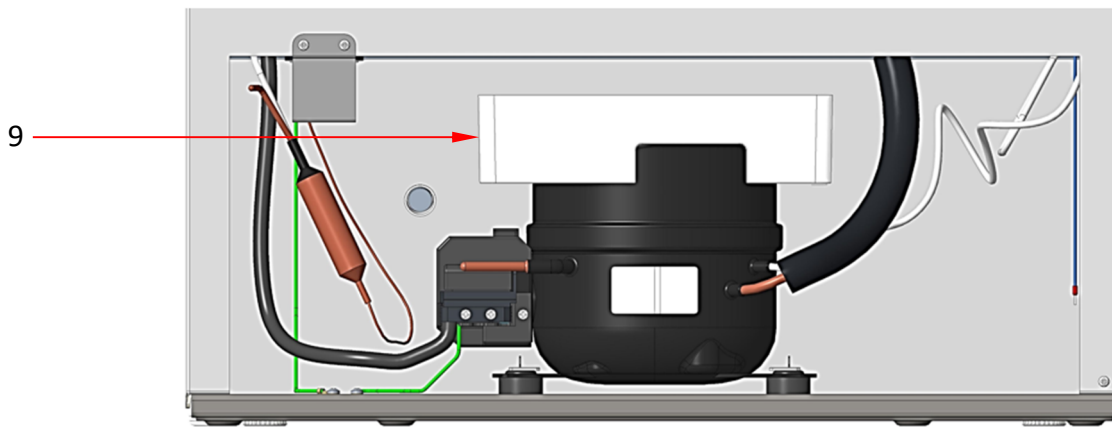| Details for Families 158L, 310L, 400L	
1	Bluetooth enabled controller
2	Key lock or digital lock
3	Antimicrobial handle
4	Fixed wire shelf - qty 1
5	Wire Basket
6	Adjustable feet 2 at front
7	Door support foot not on 158L
Details Family Specific	
8	Movable shelves - 158L qty 3
8	Movable shelves - 310L qty 4
8	Movable shelves - 400L qty 6
8	Fixed drawers - 158L qty 3
Details Range Specific	
9	Drip tray - all ranges
10	Battery Cover
11	6V Battery
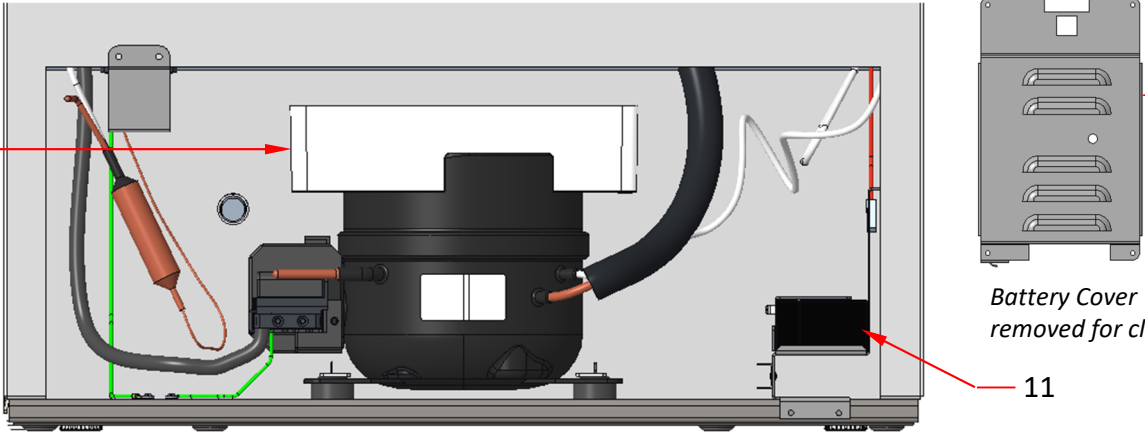
Battery Cover removed for clarity

Compressor housing Pharmacy Plus and Pharmacy Connect (Refrigerator)

Table 5:1

Product Details cont.

5:2 Laboratory Plus Refrigerators – UC and FS

Details Families 158L, 310L, 400L	
1	Bluetooth enabled controller
2	Key lock
3	Antimicrobial handle
4	Fixed wire shelf - qty 1
5	Wire Basket
6	Adjustable feet two at front
7	Door support foot not on 158L
Details Family Specific	
8	Movable wire shelves - 158L qty 3
8	Movable wire shelves - 310L qty 4
8	Movable wire shelves - 400L qty 6
10	Door tray shallow – 158L qty 2
10	Door tray shallow – 310L qty 3
10	Door tray shallow – 400L qty 4
11	Door tray deep – 158L qty 1
11	Door tray deep – 310L qty 2
11	Door tray deep – 400L qty 3
Details Range Specific	
9	Drip tray - all ranges

Compressor housing Laboratory Plus (Refrigerator)

Table 5:2

5:3 Laboratory Plus Freezers - UC and FS

Details Families 98L, 242L, 312L	
1	Bluetooth enabled controller
2	Key lock
3	Antimicrobial handle
5	Freezer Tray Small
6	Adjustable feet 2 at front
7	Door support foot not on 98L
Details Family Specific	
4	Freezer Tray Large 98L – Qty 2
4	Freezer Tray Large 242L – Qty 5
4	Freezer Tray Large 312L – Qty 7
Details Range Specific	
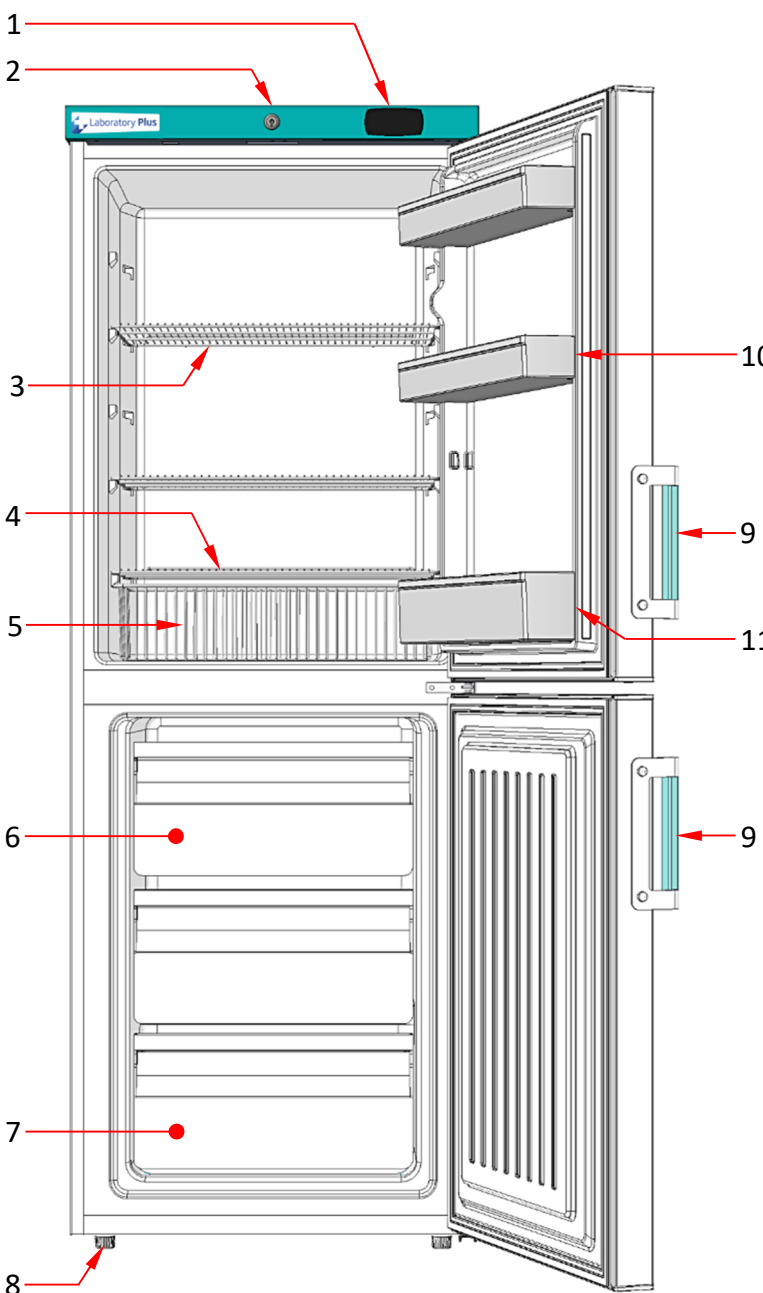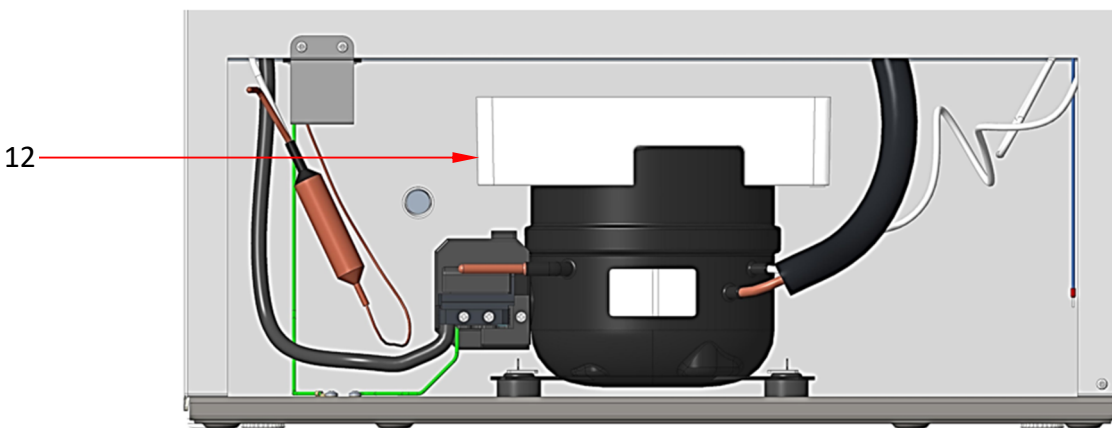
Compressor housing Laboratory Plus (Freezer)

Table 5:3
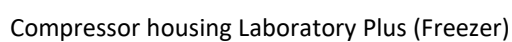
Product Details cont.

5:4 Laboratory Plus Refrigerator/Freezer Combi – FS

Details Families 280L	
1	Bluetooth enabled controller
2	Key lock
3	Movable wire shelves - qty 3
4	Fixed wire shelf - qty 1
5	Wire basket
6	Freezer tray large – qty 2
7	Freezer tray small – qty 2
8	Adjustable feet two at front
9	Antimicrobial handle
10	Door tray shallow – qty 2
11	Door tray deep – qty 1
12	Drip tray

Compressor housing Laboratory Plus (Freezer)

Table 5:4

Product Details cont.

5:5 Pharmacy Plus Refrigerators – CT

	Details for 47L Pharmacy Plus
1	Bluetooth enabled controller
2	Key lock
3	Antimicrobial handle
4	Movable wire shelf
5	Wire Basket
6	Adjustable feet 2 at front
7	Drip tray
8	Battery Cover
9	6V Battery

Battery Cover removed for clarity

Compressor housing Pharmacy Plus (Refrigerator)

Table 5:5

Product Details cont.

5:6 Neonatal Refrigerators – UC

Details for 158L Neonatal	
1	Bluetooth enabled controller
2	Digital lock
3	Antimicrobial handle
4	Fixed position drawers - qty 3
5	Drawer dividers
6	Wire Basket
7	Adjustable feet 2 at front
8	Drip tray
9	Battery cover
10	6V Back-battery

Battery Cover removed for clarity

Compressor housing Neonatal (Refrigerator)

Table 5:6

Product Details cont.

5:7 Neonatal Refrigerators – CT

	Details for 47L Neonatal
1	Bluetooth enabled controller
2	Key lock
3	Antimicrobial handle
4	Movable divided wire shelf
5	Divided 2 tier bottom wire shelf
6	Adjustable feet 2 at front
7	Drip tray
8	Battery Cover
9	6V Battery

Battery Cover removed for clarity

Compressor housing Neonatal (Refrigerator)

Table 5:7

6: Installation

Positioning and using the refrigerator safely

⚠️ **WARNING:** To reduce the risk of the unit falling over, do not tip beyond 10 degrees

- Make sure the equipment is placed in a dry, well-ventilated site, away from heat sources and not in direct sunlight.

- The equipment must be placed on a level surface. If necessary, adjust the feet on the product so the equipment remains level during operation. See Section 7.

- The equipment should have enough clearance around it to provide adequate ventilation – 10cm at each side, 6cm at the rear and 2.5cm at the top.

- When positioning the appliance, ensure the supply cord is not trapped or damaged.

- If the main power supply cord is damaged, it should be replaced by a qualified service engineer.

- Before ANY maintenance activity, pull the plug out of the socket by gripping the plug, DO NOT pull on the plug cord.

- DO NOT use extension cords.

- DO NOT locate multiple portable sockets-outlets or portable power supplies at the rear of the appliance

- If the main power supply cord is damaged, it should be replaced by a qualified service engineer.

- DO NOT attempt any repairs to the equipment yourself (apart from those highlighted in the Maintenance and Service Section). Repairs carried out by someone without the relevant training are putting their personal safety at risk and will invalidate your warranty.

- Only ATEX units can be used for the storage of substances such as aerosol cans with a flammable propellant.

⚠️ **WARNING:** This equipment is only to be operated by authorized personnel or personnel who have correct knowledge on how the equipment operates.

- Use this product only in the way described in the product literature and in this manual. Before using it, verify that this product is suitable for its intended use. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

- DO NOT modify system components, especially the controller. Use LEC Medical exact replacement equipment or parts. Before use, confirm that the product has not been altered in anyway

- Your unit must be properly grounded in conformity with national and local electrical codes. Never connect the unit to overloaded power sources.

- Disconnect the unit from all power sources before cleaning, troubleshooting, or performing other maintenance on the product or its controls.

Transporting and Moving the Refrigerator

The refrigerator must always be moved in the vertical position. The cabinet must not be tilted any more than 40°. If the cabinet is tilted more than 40°, the power supply must not be connected until the equipment has stood upright for at least 24 hours. Necessary equipment to move the product is to be arranged by the user.

Electrical Connection

The equipment is intended for connection to alternating current. The connection values for voltage (V) and frequency (Hz) are declared on the name plate in the cabinet. Power must be connected via a wall socket with a switch. It is strongly recommended that the wall socket is easily accessible. All earthing requirements stipulated by the local electricity authority. The cabinet plug and wall socket should give correct earthing. If in doubt, contact your local supplier or an authorized electrician.

⚠️ **THIS EQUIPMENT MUST BE EARTHED.**

If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons to avoid a hazard.
The flexible cord (mains lead) fitted to this equipment has three cores for use with a 3-pin 13-amp plug. If a BS 1363 (13-amp) fused plug is used it should be fitted with a 13-amp fuse. The cores in the mains lead are coloured in accordance with the following code:
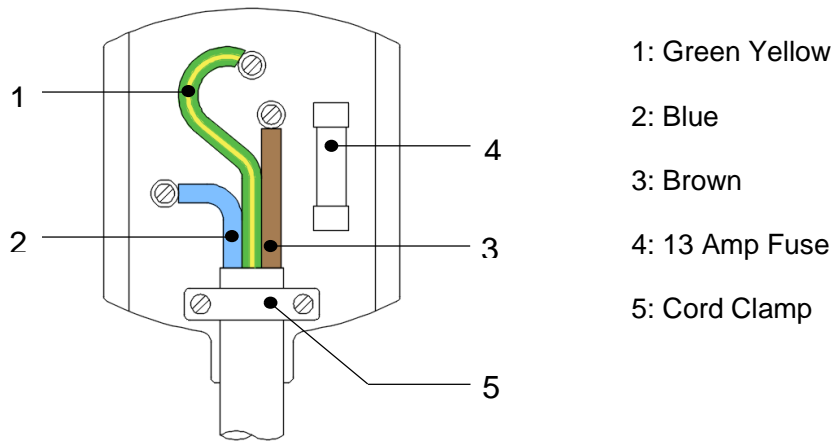
GREEN AND YELLOW: EARTH

BLUE: NEUTRAL

BROWN: LIVE

These colours might not correspond with the colour markings identifying the terminals in your plug.

Electrical Connections

1: Green Yellow

2: Blue

3: Brown

4: 13 Amp Fuse

5: Cord Clamp

Note:

First Connection to the mains.

The equipment provides information about the higher temperature (Hi alarm) till the moment of cooling.

The alarm is signalized by a sound signal and "Hi" caption on the display.

To mute the alarm touch anywhere on the front surface of the controller.

Until the moment of cooling, the alarm is repeated every 10 minutes. Such an operating mode is normal until the required temperature settings are reached.

7: Before Switching On

Thank you for purchasing this LEC Pharmacy/Laboratory Refrigerator
Before you first use this pharmacy refrigerator, please carry out the following actions: -

- Check that the refrigerator has not been damaged in any way during transportation.

- If any damage is found it must be reported to your local dealer immediately.

- Ensure all packaging has been removed, including cardboard, polystyrene and any tape used to hold shelves in place for transportation.

- The refrigerator has been cleaned prior to dispatch; however, we advise that it should be cleaned using lukewarm water containing a mild detergent and a soft cloth prior to switching on.

- Ensure the fridge/freezer is level by adjusting the two feet at the front of the unit.
  For the larger volume units 310L, 400L, 242L, 312L ensure the third foot is fully up before levelling the unit.
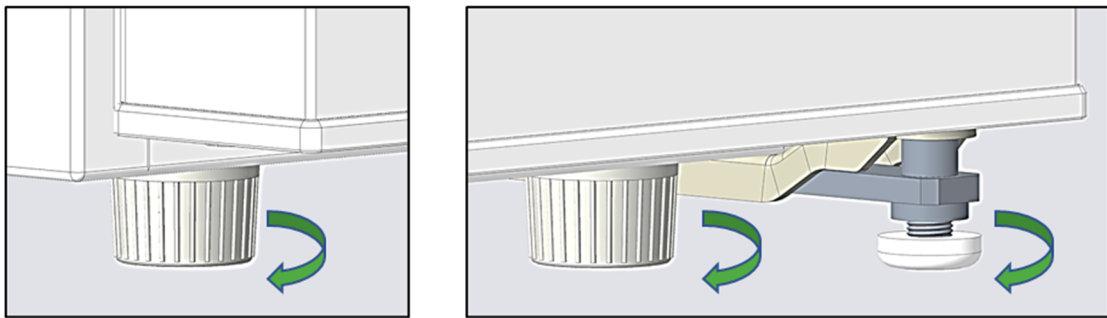
When the unit is level adjust the third foot, so it touches the floor.

- To activate the battery backup, install the fuse as shown here. There are two fuses in the documents bag.
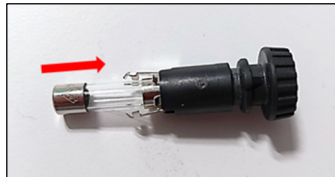
- If replacing the fuse, please observe the fuse rating as shown on the rear of the appliance.

- The appliance should be supplied with the battery partially charged, approx. 30%. After switching the appliance on for the first time the battery will be fully charged within 24hrs. No action is needed the controller will monitor the battery condition and charge accordingly.

- We recommend that the refrigerator should be left in an upright position preferably in the place where it will be used for 24 hours prior to switching on for the first time.

8: Digital Locks

LEC Medical pharmacy refrigerators and neonatal fridges/freezers are offered with optional digital locks.

8:1 Keypad Digital Lock

Products with an all-numeric serial number e.g. 30400142444411377 have a keypad digital lock.

Default Code
Unlock code as supplied – 2244
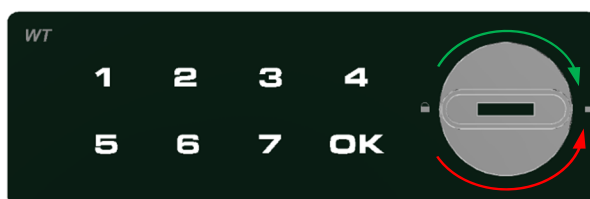
8:1:1 Unlocking the refrigerator/freezer

1: Key in the unlock code (2244+# if opening for the first time) and turn the knob clockwise.
2: To relock turn the knob anticlockwise.

8:1:2 Changing the user code

Press # + OLD USER CODE + 02 + NEW USER CODE + NEW USER CODE again.

8:2 Touch Pad Digital Lock

Products with an alpha-numeric serial number e.g. 411K0143444411377 have a touch pad digital lock.

Default code
Unlock code as supplied – 1234 + OK

8:2:1 Unlocking the refrigerator/freezer

1: To wake up the digital lock swipe across the keypad.
2: Key in the unlock code (1234+OK if opening for the first time) and turn the knob clockwise.
3: To relock turn the knob anticlockwise.

8:2:2 Changing the user code
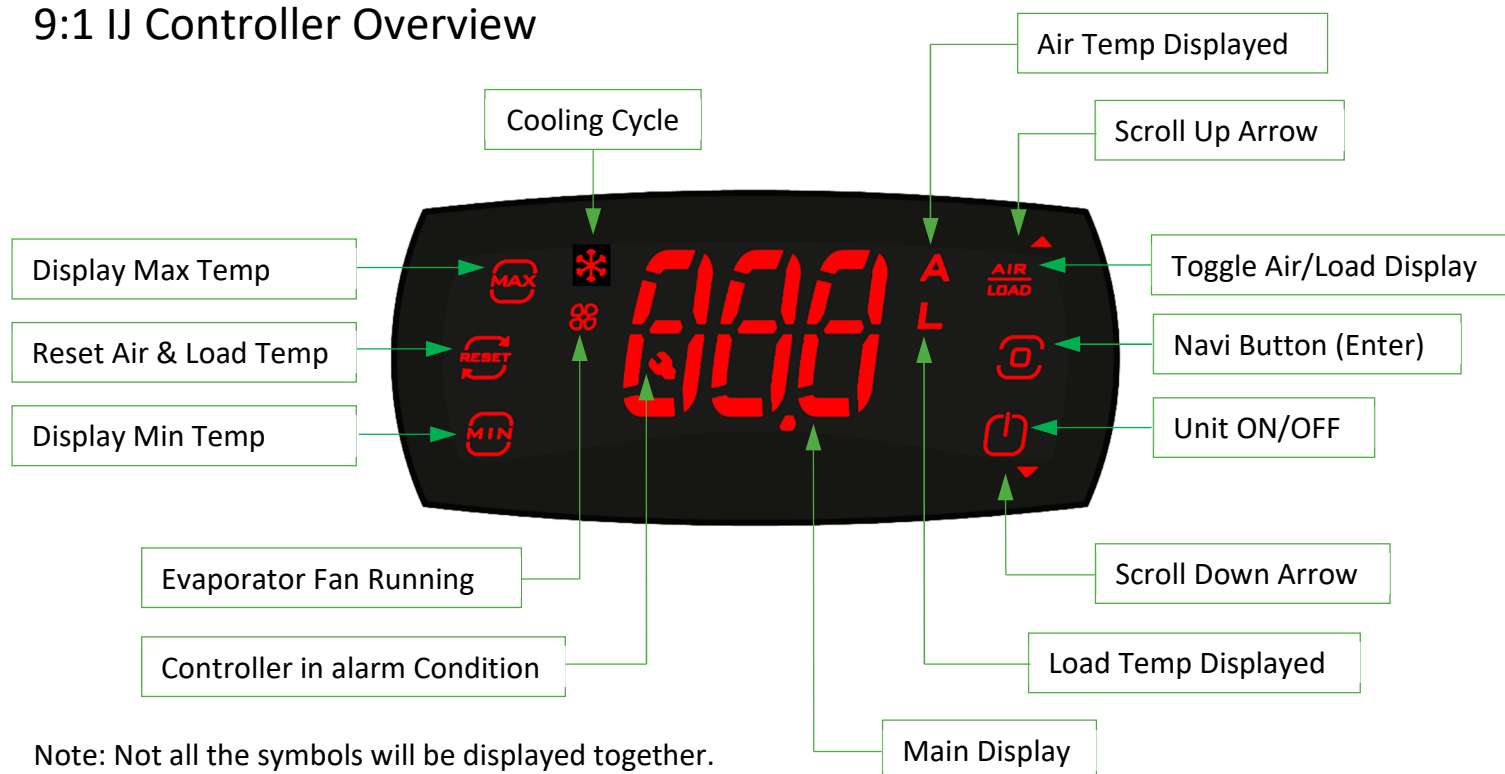
1: Enter OLD USER CODE + OK.
2: Press OK again until there is an audible "Beep".
3: Enter NEW USER CODE + OK.

8:3 Emergency Opening

In case of emergency such as battery failure or electronic failure both types of digital locks can be opened using the keys supplied with the refrigerator/freezer.

9: Operation

9:1 IJ Controller Overview

Note: Not all the symbols will be displayed together.

Symbol	Description	Function
A	Air Temperature Displayed	Indicates that the AIR temperature is being displayed as selected by the AIR/LOAD Button.
▲	Scroll Up Arrow	Button to scroll up through menus and values.
AIR/LOAD	Toggle Air/Load Display	Switches between Air and Load temperatures.
⊙	Navi Button (Enter)	Used to confirm actions and input values and to unlock the controller by keeping pressed for 3 seconds.
⏻	Unit ON/OFF	Press for 3 seconds the unit will swich off. The controller will flash between current selected temperature A or L and "OFF".
▼	Scroll Down Arrow	Button to scroll down through menus and values.
L	Load Temperature Displayed	Indicates that the LOAD temperature is being displayed as selected by the AIR/LOAD Button.
888	Main Display	Temperatures, alarms, menus, parameter values are displayed here.
🔧	Controller in Alarm Condition	If this symbol is displayed the controller is in an alarm condition. It will clear when the alarm/fault is cleared.
🞝	Evaporator Fan Running	Indicates when the evaporator fan is running under the intelligent fan control system.
MIN	Display Minimum Temperature	After unlocking the controller, pressing this button will display the minimum recorded temperature since the last reset.
RESET	Reset Air & Load Temperature	Used to access the reset minimum and maximum temperature function. Both Air and Load Temperatures will be reset.
MAX	Display Maximum Temperature	After unlocking the controller, pressing this button will display the maximum recorded temperature since the last reset.
❄	Cooling Cycle	Indicates when the appliance is in cooling cycle. Will flash if the controller is waiting to run the cooling cycle.
	Table 9:1	

9:2 IJ Controller Default Operating Displays

9:2:1 IJ controller displaying Air Temperature no system faults or alarms.

Press Navigator button once to display compressor and fan status.

Press and hold for 3 seconds to unlock the controller Section 11:1

9:2:2 IJ controller displaying Load Temperature no system faults or alarms.

To switch between **Air** and **Load** temperatures see Section 11:2:1

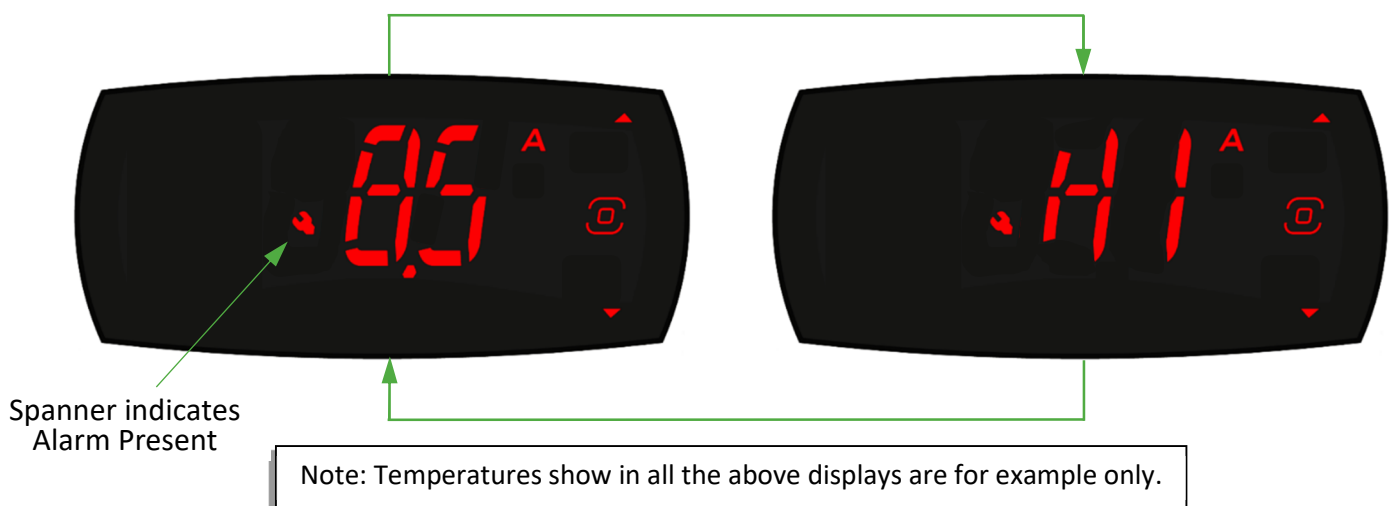## 9:2:3 IJ controller displaying Air Temperature no system faults or alarms and displaying compressor and fan status.

Cooling Cycle On

Fan Running
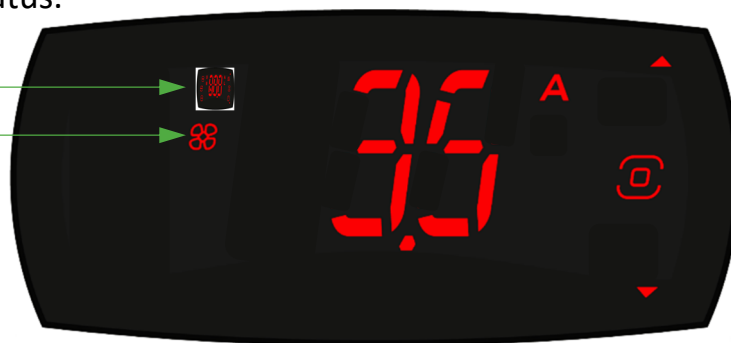
9:2:4 IJ controller alternating the current Air Temperature and the alarm status *HI* – High Air Temperature. (*HI* used only as an example, for a full list of alarms see section 12).

Spanner indicates Alarm Present

Note: Temperatures show in all the above displays are for example only.

10: Basic Operations using the LEC Medical App

10:1 Download and install the LEC Medical App

LEC Medical recommends using the dedicated LEC Medical App to access the data recorded in the controller, scan the appropriate QR code to Download the **LEC Medical App.**

LEC-medical   *LEC-medical*

Alternatively open the App Store/Play Store and search for Lec Medical.

Install and open the app connect to the appliance.

10:2 Connecting to an appliance

Open the app the first window will list of all available appliances, for a first-time connection this will be the controller serial number. connect to the appliance controller by pressing Bluetooth

Select the required appliance - when connected the home page will display as shown on the next page.
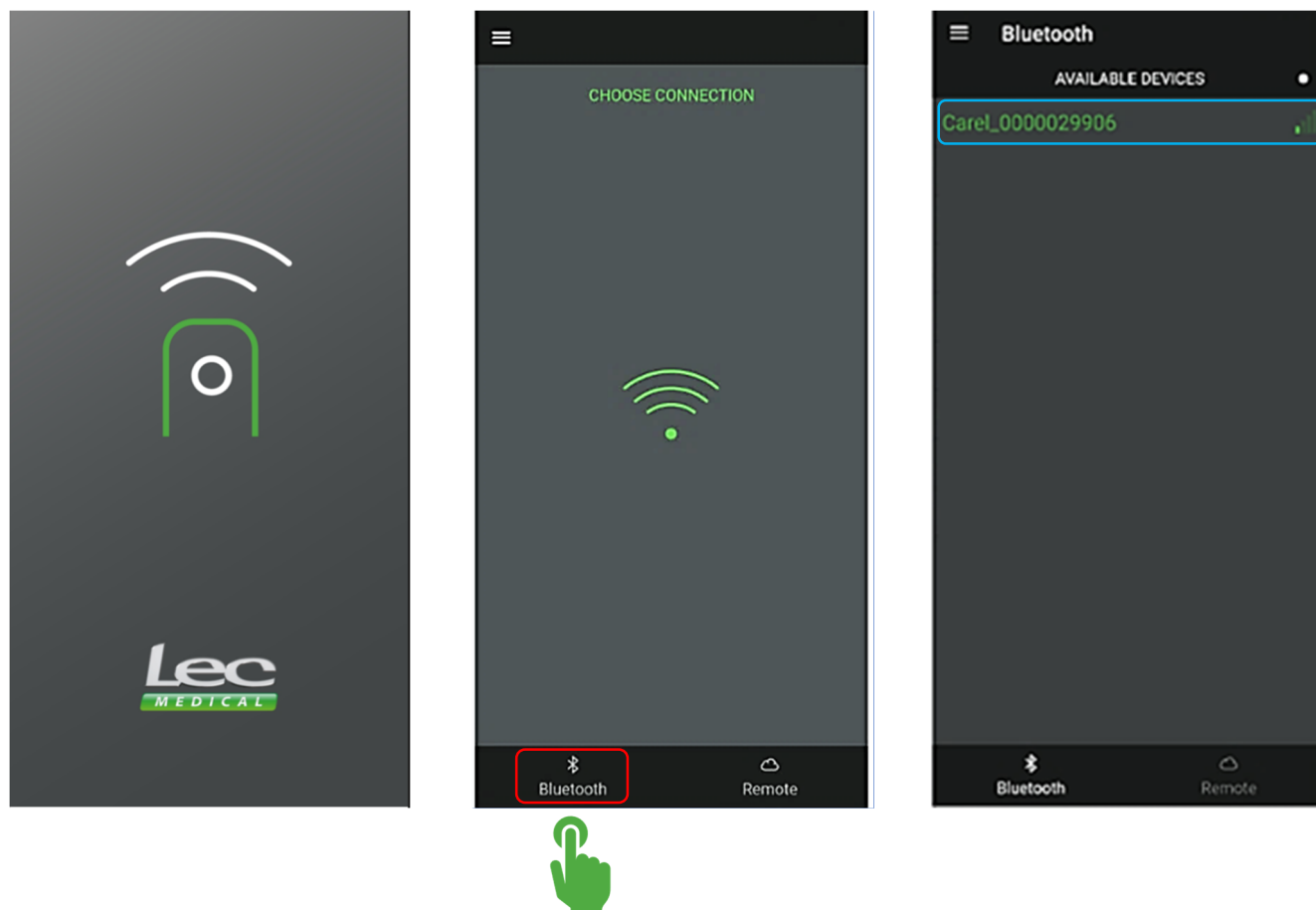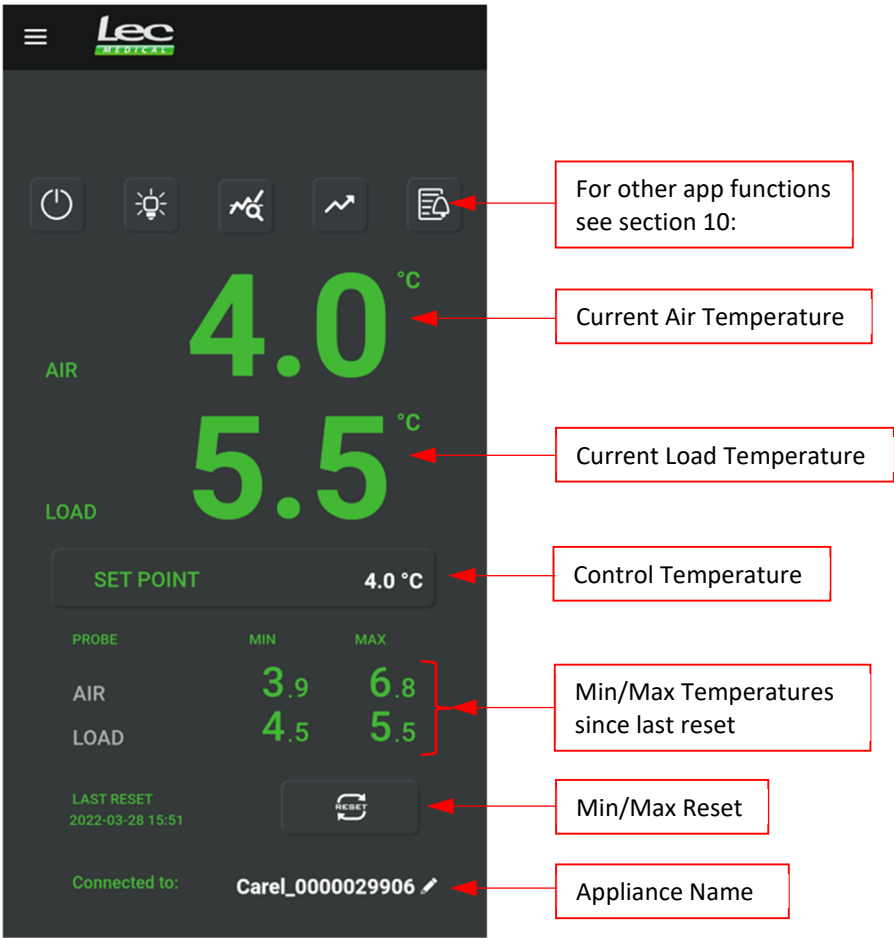
10:3 App Home Page

APP Home Page and controller displays as shown below, we recommend changing the Connected to: Carel_00000***** to a name of your choice see page **.

Controller will flash *bLE* when connected to the LEC Medical App

For other app functions see section 10:

Current Air Temperature

Current Load Temperature

Control Temperature

Min/Max Temperatures since last reset

Min/Max Reset

Appliance Name

10:4 Accessing Min/Max temperatures

The Min/Max temperatures displayed are the highest and lowest recorded Air and Load temperatures since the LAST RESET, the date and time of the last reset is displayed below LAST RESET, after RESET the current Air and Load temperatures will be displayed.
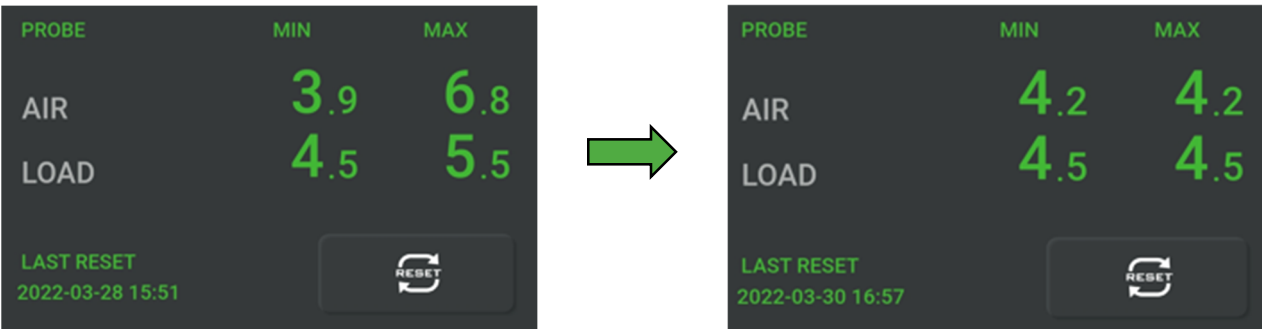
NOTE: After pressing RESET the Min/Max temperatures are stored in the controller for up to 3 months on FIFO bases. They can be retrieved and downloaded at any time.

10:5 Re-Setting Min/Max Temperatures using the APP

To re-set the Min/Max Temperatures simply press the Reset Button.

Both Air and Load Temperatures will be reset as a shown here.

10:6 Re-Naming the Appliance

**LEC Medical** highly recommends renaming the appliance to a name of your choice, particularly if more the one LEC Medical Bluetooth enabled appliance is present.

To rename the Appliance press the WHITE TEXT button next to "Connected to:" this is usually the controller serial number then enter the appliance name (Customer choice).

Press OK and the App will display the Appliance name as shown.
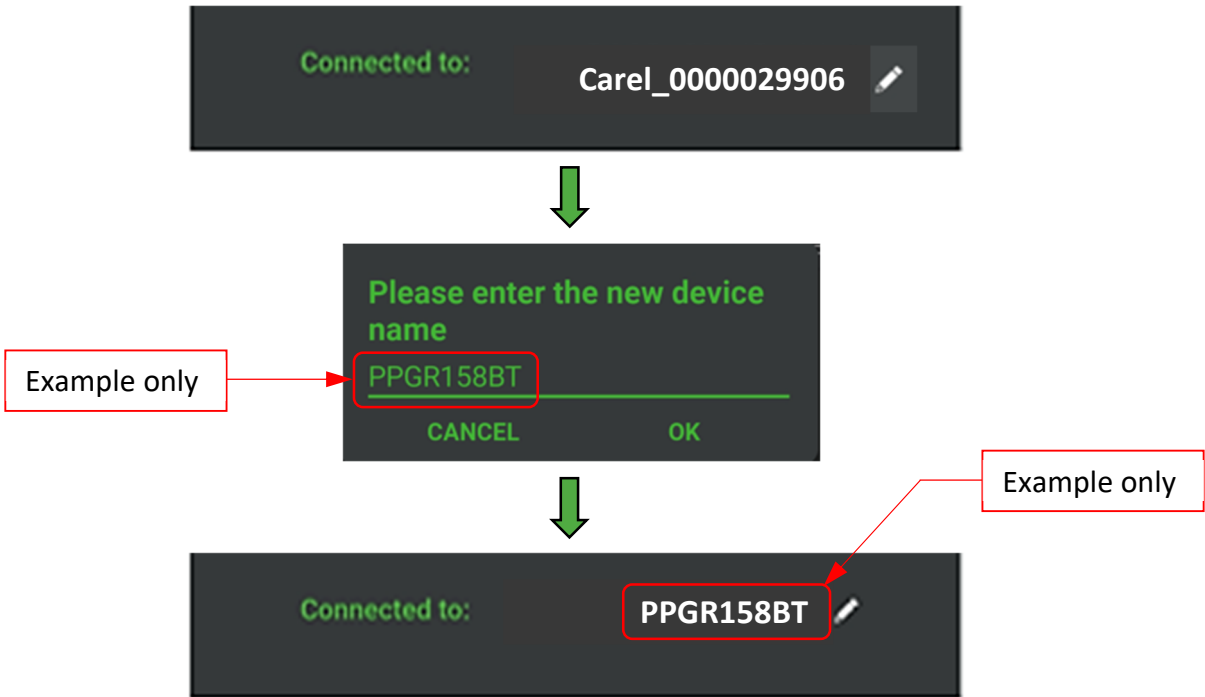
10:7 Changing the Set Point

The factory set point will maintain the air temperature of the refrigerator and the load temperature. In some extreme ambient temperatures, it may be necessary to adjust the set point. Using the **LEC Medical** App this a very simple procedure.

1: Open the **LEC Medical** App and connect to the required appliance. (Section 9:2)
2: When connected the home screen will be displayed as shown below.
3: To change the SET POINT press the current SET POINT temperature displayed in white.
4: The SET POINT window will be displayed.
5: Key in the required SET POINT within the factory preset limits and press OK.
6: The Home screen will now display the new SET POINT.

Factory pre-set limits

New SET POINT
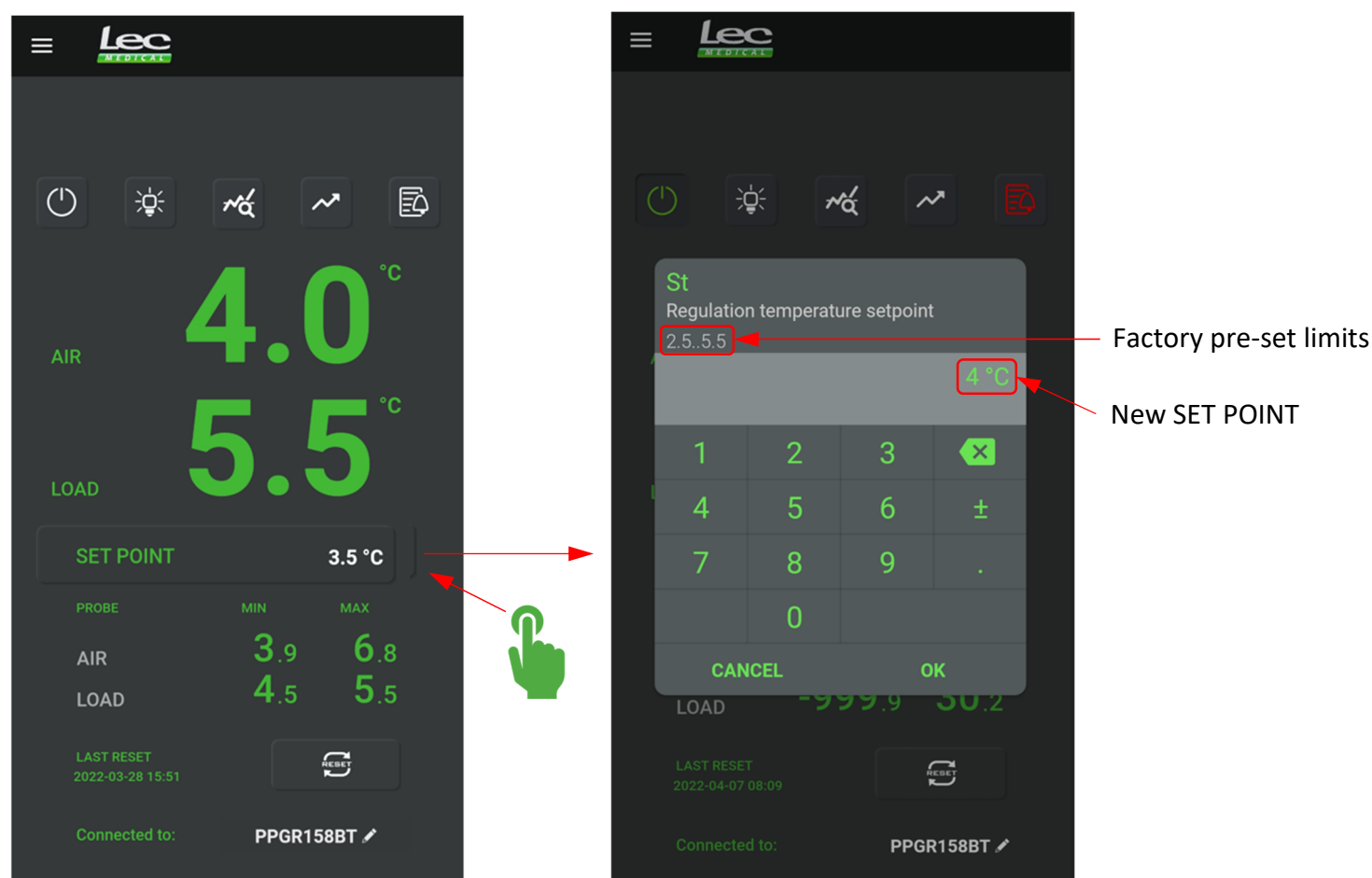
10:8 Operating the internal light

The internal light where fitted will switch on whenever the door is opened, the light can also be activated by pressing the light symbol as shown here.

10:9 Switching the appliance on and off

Control of the appliance can be switched on and off via the app by pressing on/off symbol as shown here.

WARNING! This switch acts as a toggle switch, for example

> If the appliance is ON at the time of pressing the on/off symbol, control of the appliance will be switched OFF.

> If the appliance is OFF at the time of pressing the on/off symbol, control of the appliance will be switched ON.

NOTE: After disconnecting the app, the control status of the controller ON/OFF will be as it was at the point of disconnection.

If the status of controller is OFF, the controller will display alternating *OFF* and the current *AIR/LOAD* temperature.
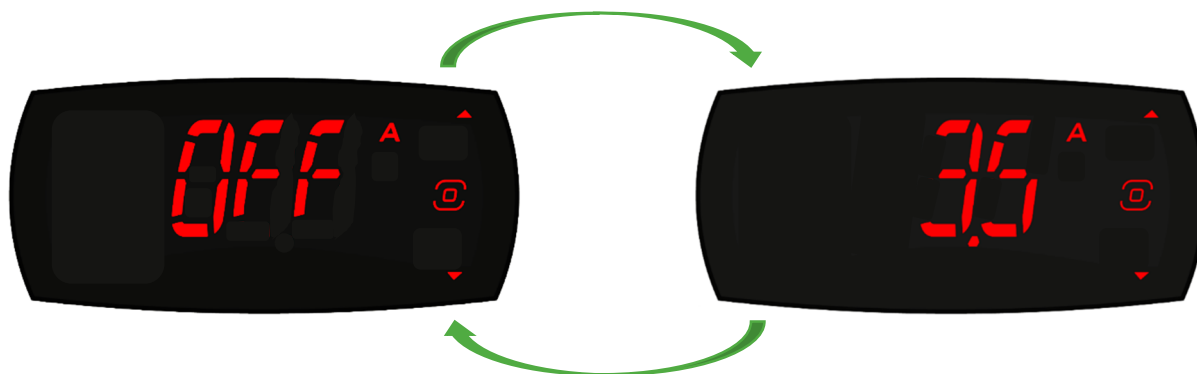
If the status of controller is ON, the controller will display the current *AIR/LOAD* temperature.

11: Advanced Operations using the LEC Medical App

12: Operations using the controller touch screen

12:1 Unlocking the controller

3 Secs

12:2 Viewing and re-Setting Min/Max Temperatures on the controller

Air Temp Displayed

Scroll Up Arrow

Max Temp Displayed

Toggle Air/Load Display

Reset Air & Load Temp

Navi Button (Enter)

Min Temp Displayed

Scroll Down Arrow

Load Temp Displayed
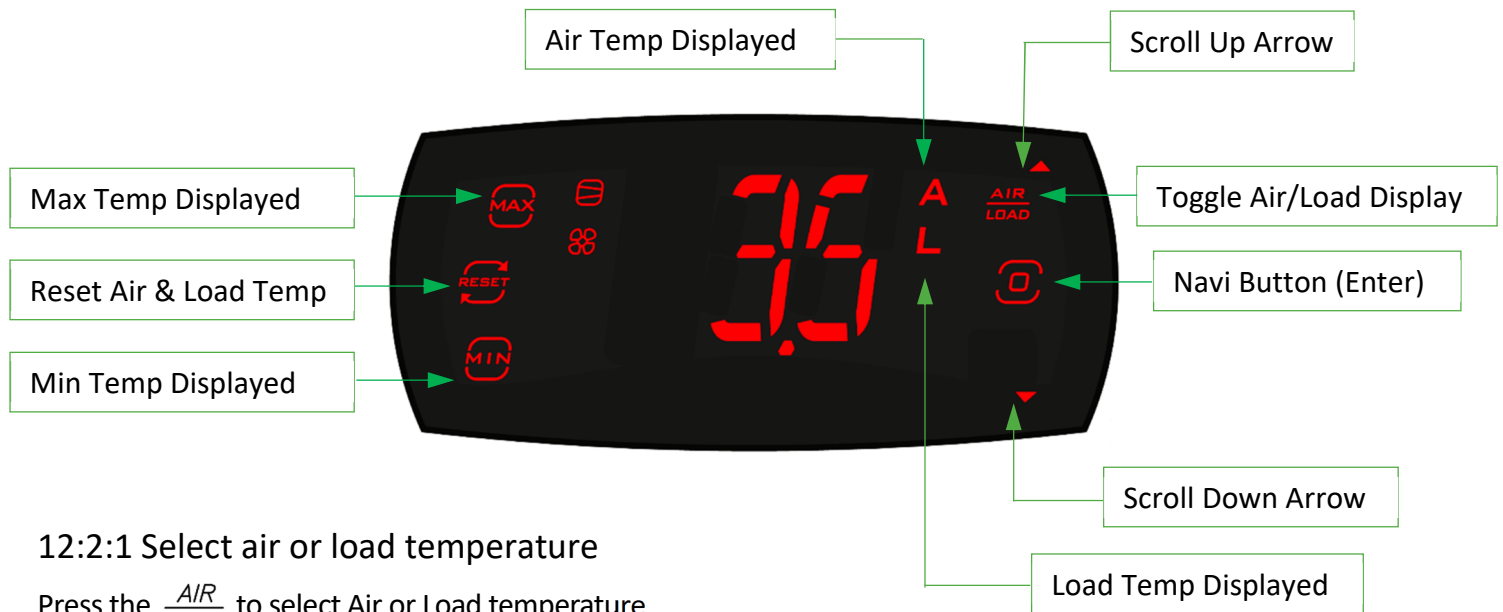
12:2:1 Select air or load temperature

Press the $\frac{AIR}{LOAD}$ to select Air or Load temperature

The controller will display **A** or **L** depending on the $\frac{AIR}{LOAD}$ selection

12:2:2 To View the max and min temperature

Press MAX to display the max temperature, press again to return to current temperature.

Press MIN to display the min temperature, press again to return to current temperature.

Max temperature displayed

Min temperature displayed

If no buttons are pressed for 30 seconds controller returns to *LOC*

12:2:3 To reset max and min temperatures

Unlock the controller 11:1

Press ⟲RESET to display reset option.

Press ◻ Navi button to confirm "NO RESET". (Controller returns to *LOC* Status)

Press ▼ or ▲ to display reset option *YES*

Press ◻ Navi button to confirm "RESET". (Controller returns to *LOC* Status)

Both air and load maximum and minimum temperatures will be "RESET"

> Please note: The Minimum and Maximum temperatures are stored in the controller for approximately 3 months on a FIFO bases. Use the LEC Medical app to retrieve the temperatures. (Sections 11: *)

> If at any stage no buttons are pressed for 30 seconds controller returns to *LOC* status

12:3 Changing the Set Point

Unlock the controller see section 11:1

Press 🔲 Navi button → Press 🔲 Navi button

Press 🔲 Navi button ← Press ▼ or ▲ to enter USER PASSWORD "11"

Press 🔲 Navi button → Press 🔲 Navi button

Press 🔲 Navi button ← Press ▼ or ▲ to change to set point

Press ▲ → Press 🔲 Navi button

Press 🔲 Navi button returns to *LOC* Status
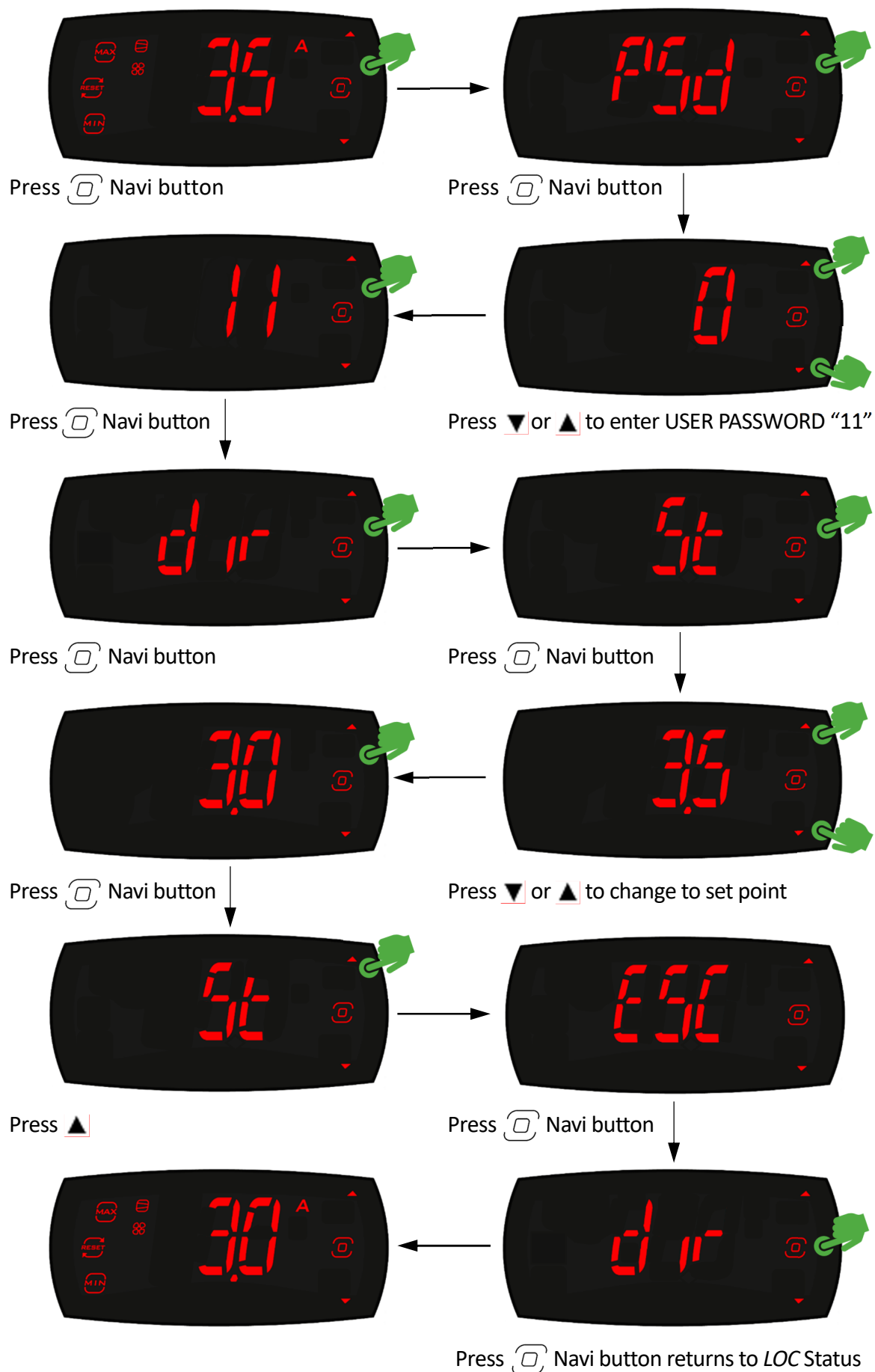
If at any stage no buttons are pressed for 30 seconds controller returns to **LOC** status

12:4 Initiating manual defrost

Unlock the controller see section 11:1

Press ⊙ Navi button

Press ⊙ Navi button

PSd

Press ⊙ Navi button

11

0

Press ▼ or ▲ to enter USER PASSWORD "11"

Press ⊙ Navi button

d ir

St

Press ⊙ Navi button

Press ▼ or ▲ to display *dFn*

OFF A

dFn

Press ▼ or ▲ on/off

Press ⊙ Navi button

On A

dFn

Press ⊙ Navi button

Press ▼ or ▲ to display *ESC*

d ir

ESC

Press ▼ or ▲ to display *ESC*

Press ⊙ Navi button

ESC

35 A

Press ⊙ Navi button returns to LOC Status
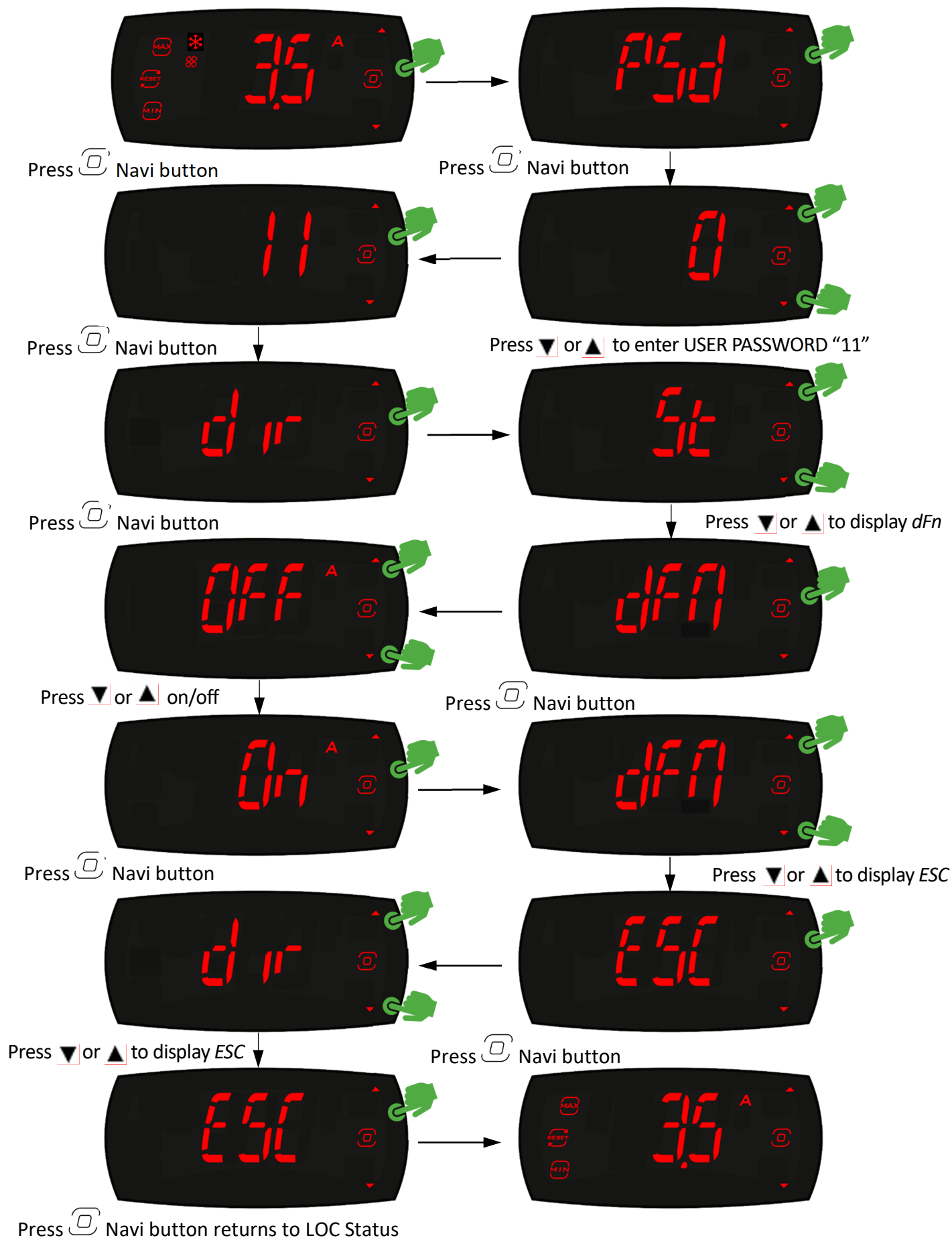
> If at any stage no buttons are pressed for 30 seconds controller returns to **LOC** status
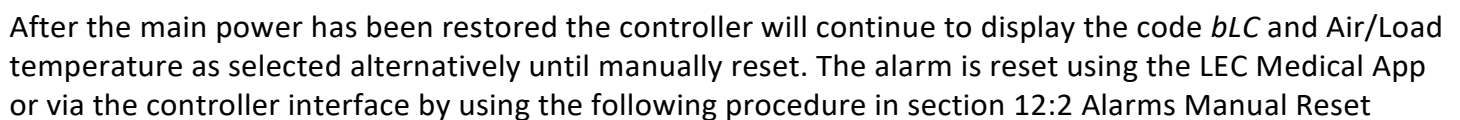
13: Alarm and signal Status

13:1 Alarm Table

Display Code	Description	Icon 🔔 Display	Remote Alarm	Buzzer	Reset
dA	**Delayed alarm activation**. The controller monitors the external alarm input continually, the alarm will be activated immediately or after the alarm delay time. (*See table ** for factory default settings*).	YES	YES	YES	Automatic
dor	**Door Open**. The door has been open for longer than is recommend to keep the appliance air temperature below the high temperature threshold.	YES	YES	YES	Automatic
E1	**Air temperature probe error**. The air temperature probe and/or associated wiring has failed. This will result in the appliance being inoperable. *(Contact After Sales Services as soon as possible).*	YES	YES	YES	Automatic
E2	**Load temperature probe error**. The load temperature probe and/or associated wiring has failed. The appliance will work, load temperature not monitored. *(Contact After Sales Services as soon as possible).*	NO	NO	NO	Automatic
Etc	**Internal Clock Error**. The real time clock is no longer synchronised with the process. The appliance will run normally but connection to app may not be possible. *(This is very unlikely, contact After Sales Services).*	NO	NO	NO	Manual
HI	**High temperature alarm**. The appliance air temperature has been above high temperature threshold for more than the allotted time. (*See table ** for factory default settings*).	YES	YES	YES	Automatic
LO	**Low temperature alarm**. The appliance air temperature has been below the low temperature threshold for more than the allotted time. (*See table ** for factory default settings*).	YES	YES	YES	Automatic
rsF	**Refrigeration system failure**. The air temperature is not reducing at the expected rate. *(This is a rare occurrence, contact After Sales Services as soon as possible).*	YES	YES	YES	Manual
rE	**Control probe fault**. This indicates that the probe being used as the control probe (E1) by the controller has failed. The controller display's as shown 12:1:1. *(Contact After Sales Services as soon as possible).*	YES	YES	YES	Automatic
bAt	**Battery faulty or not connected**. This indicates a fault with the battery connections, faulty battery, or battery charging circuit, fuse not fitted or blown. Wiring fault.	YES	YES	YES	Automatic
bLC	**Power failure**. This indicates that there has been a mains power supply failure. Refer to section 12:1:1 <u>Power Failure Alarm</u> and follow the trouble shooting guide "Appliance is not working" item 5	YES	NO	YES	Manual
	Table 13:1				

Alarm and signal Status cont.

13:1:2 Control Probe Fault *(rE)*

In the event of a Control Probe Fault *(rE)* the controller will display three screens alternatively as shown here.

13:1:1 Power Failure Alarm *(bLC)*

In the event of a mains power failure the controller will display two screens alternatively as shown here initially with the Navi Button flashing and audible alarm.

Initial display after mains power failure

Press ⟨O⟩ Navi Button to mute

Display after audible mute until reset

After the main power has been restored the controller will continue to display the code *bLC* and Air/Load temperature as selected alternatively until manually reset. The alarm is reset using the LEC Medical App or via the controller interface by using the following procedure in section 12:2 Alarms Manual Reset

13:2 Alarms Manual Reset

For all alarms requiring a manual reset use the LEC Medical App or follow procedure show here.

Unlock the controller see section 11:1

Press ⬜ Navi Button

Press ⬜ Navi Button

Press ⬜ Navi Button

Press ▼ or ▲ to enter PASSWORD "*11*"

Press ▼ or ▲ to display *ALn*

Press ⬜ Navi Button

Press ⬜ Navi Button

Press ▼ or ▲ to display *rSA*

Press ▼ or ▲ to enter *1*

Press ⬜ Navi Button

Spanner symbol OFF, All alarms reset

Press ⬜ Navi Button

Press ▼ or ▲ to display *ESC*

Press ▼ or ▲ to display *ESC*

Press ⬜ Navi Button

After 30 secs controller returns to *LOC* status

Controller returns to *Unlocked* status

35

13:3 Display Signals

Display Code	Description
bLE	This display indicates that the appliance is connected to the LEC Medical app via Bluetooth. Also, any other Carel app that is suitable to communicate with the controller.
Loc	This display indicates the controller is locked; follow the procedure Section 11:1 to unlock the controller, function of the appliance is not affected.
Off	This display indicates the appliance control is switched OFF – the display will alternate with current Air/Load temperature. Control can be switch off via the LEC Medical app of directly from the controller.
bLC	This display indicates that there is a power failure, the controller will continue to record data for approx. 48 hrs. If mains power is not restored within 48 hrs the controller will no longer record data but will retain all data up until battery becomes exhausted.
Table 13:2	

14: Trouble Shooting

Problem	Solution/Action
Appliance is not working	**1:** Check the appliance is plugged in and the socket is switched on. **2:** Check the mains lead is plugged into to appliance and is secure. **3:** Check/replace the fuse in the mains plug **4:** Check the voltage is correct for the appliance. **5:** Check the socket is working, plug in a known working device. If the working device works, contact customers services immediately **6:** Check for a power cut. **7:** During a power cut, appliances with battery backup will display as shown in 12:1:1. **8:** Check the appliance is not in manual defrost see Section 11:4.
Backup battery not charging	**1:** Check/replace the fuse as shown in section 7, observe fuse rating. **2:** If the fuse is proven to be sound the battery and/or the controller are likely to be faulty, contact customers services immediately.
Appliance not maintaining specified temperature, min/max temperatures out of range.	**1:** Check door is fully closed and sealed. If the door seal appears to be damaged contact customers services for a replacement. **2:** Check the access port is sealed correctly. **3:** Check the appliance is suitable for the ambient temperature it is located in. All LEC Medical appliances are designed to work in ambient temperatures between 16°C and 32°C except the Neonatal range where the ambient temperatures are between 25°C and 32°C. **4:** Check the appliance has sufficient air flow around it as specified in Section 6. **5:** Check the appliance is in a suitable location. Avoid locating the appliance in constant direct sunlight (especially the glass door appliances) or close to other heat sources such as a radiator. **6:** Check the appliance is not overloaded, maintain sufficient spacing of the products to allow sufficient air circulation. **7:** Door opened too often and/or for too long. The door open alarm "dor" is pre-set at 15 secs for the 47L family of appliances and 30 secs for all other appliances families. Should it be necessary to keep the door open for longer periods of time and the "*HI*" temperature alarm has been activated, it is recommended that when to door is closed the temperature is allowed to stabilize before carrying out a min/max reset. This is in line with recommendations in the DH Green Book. **8:** Check the internal fan is running correctly, this can be done by observing the fan when opening the door. The fan will continue to run for a few seconds without power *(i.e. door open)*. If the fan has already stopped this could be an indication it is not running correctly, if there is any doubt the fan is not running correctly, please call customer services immediately. **9:** In some cases, it may be necessary to decrease or increase the "Set Point" It is strongly recommended to use the LEC Medical app to change the set point see Section 9:7 or Section 11:3. Please note the "Set Point" can only be set with in the factory pre-set limits. If in the unlikely event the "Set Point" needs to be changed outside of the limits, please call customer services.
	Table 14:1

14: Trouble Shooting cont.

|	
Ice in the fridge	**1:** A small accumulation of frost and/or ice on the rear internal wall is normal, the system is designed to allow for a short defrost during the time the cooling cycle is not running. In extreme cases such as during periods of very high humidity (>70%) manual defrost may be necessary. To initiate a manual defrost see Section 11:4
Water in the fridge	**1:** During the defrost cycle the frost/ice melts and into the drain hole in the centre of the rear wall just above the basket. Check this is clear so water can exit the appliance.
Condensation on glass door appliances	**1:** During the period the door is open condensation will form, it will clear after closing the door usually within 2 minutes depending on ambient temperature, humidity and appliance volume. **2:** A small amount of condensation may also form with door closed if the ambient temperature and/or humidity is particularly high (>65%RH) or the fridge is over full. **3:** This is a normal part of the refrigeration cycle and is nothing to be concerned about. All LEC Medical appliances are designed to operate at 16°C to 32°C at up to 60%RH.
Sides of the appliance are hot	**1:** All LEC pharmacy and lab fridges and freezers have the condenser in the side walls, during normal operation the side walls will give out heat, this it will be more intense during the cooling cycle and is nothing to be concerned about.
Appliance is noisy	**1:** A gurgling sound will be made by the refrigeration system; this is perfectly normal. **2:** In a particularly quite location the internal fan may be heard when running; this is perfectly normal. **3:** Appliance not level and/or stable. See Section 7.
Appliance is rocking	**1:** For the appliance to work efficiently it must be level and stable. Please ensure the levelling process in Section 7 is carried preferably before switching the appliance on.
Secondary temperature monitoring shows different temperature than the controller.	**1:** The temperature displayed by the controller is calculated based on data from the air probe, the set point is set to maintain the temperature as evenly as possible from top to bottom of the appliance, however an independent thermometer placed in different parts of the refrigerator may read slightly different to the display. **2:** The controller that monitors and controls the appliance temperature is extremely accurate; however the DH Green book now recommends that pharmacy appliances are calibrated annual.
Alarms do not react immediately	**1:** Alarms are monitored and activated by the controller; various delays are built into the activation of some alarms. For example, the HI and LO alarms are delayed for 10 minutes this delay allows the appliance to stabilize below/above the alarm thresholds because in 10 minutes it is unlikely that the load temperature will have gone above/below the minimum/maximum temperature.
Table 14:1	

15: Best Practices

15:1 Using the access port.

All LEC Medical refrigerator and freezers are equipped with an access port, the purpose of the access port is to allow the using of secondary monitoring equipment without compromising the door seal.

It is located either in the bottom left or right-hand side viewed from the front of the unit as shown below.
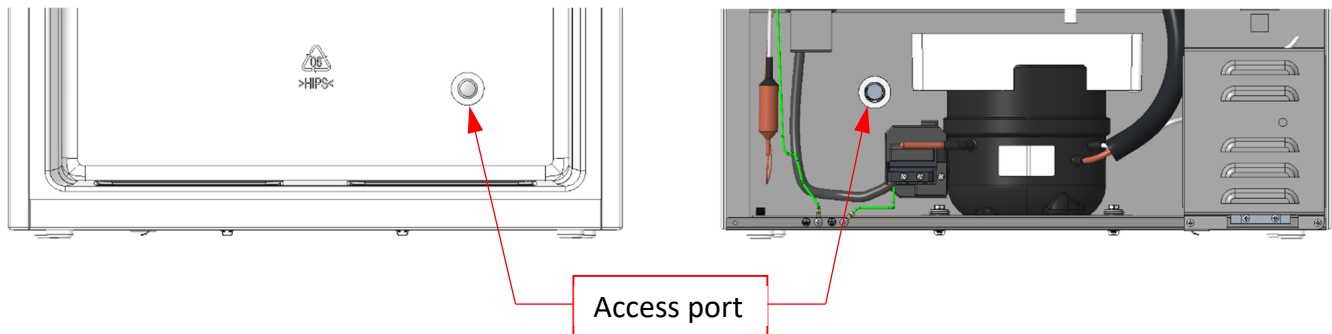
Access port

15:1:1 Setting up the Access Port

15:2 Neonatal Refrigerator Cleaning

15:2:1 General cleaning all models

1: All external surfaces can be cleaned at any time in line with local infection control protocol.
2: It is recommended to use a food safe sterilization fluid such as Milton® Sterilising Fluid.

15:2:2 Specific Cleaning of the NSR47BT Countertop Refrigerator

1: In addition to the general cleaning all internal surfaces including the door can be cleaned at any time.
2: It is recommended to remove the wire shelves for before cleaning the side walls and the shelves.
3: It is not recommended to leave the door open for more than 1 minute in every 10 minutes if the fridge contains expressed milk. Please check the displayed (L) temperature on the fridge or the LEC Medical App during and after cleaning.

15:2:3 Specific Cleaning of the NSR158BT Undercounter Refrigerator

1: In addition to the general cleaning all internal surfaces including the door can be cleaned at any time.
2: It is recommended to remove the drawers and the basket for before cleaning the side walls, drawers and the basket.
3: It is not recommended to leave the door open for more than 1 minute in every 10 minutes if the fridge contains expressed milk. Please check the displayed (L) temperature on the fridge or the LEC Medical App during and after cleaning.

16: Reference

16:1 List of Tables

16:2 Revision Record

Revision Record			
Rev	Description	Date	By
0.10	First Issue	04/12/24	CB
0.11	Neonatal and digital lock products added	02/05/25	CB
Table 16:2			

17: Disposal of your refrigerator

WEEE: Disposal at end of life.

WARNING: This appliance contains insulation, gases and refrigerant and must be disposed of in the appropriate manner. Please ensure the appliance is disconnected, emptied, and clearly labelled by an authorized person.

When the appliance is being disposed of in an EU Member State, it is subject to the Waste Electrical and Electronic Equipment Regulations (WEEE). It must be recycled and disposed of in accordance with EU directive 2002/96/EC as applied in local laws of that State at the time of disposal.

As this item is designed for medical use, before presenting for collection and disposal it will be necessary for the user to provide documentary evidence of decontamination and/or that it is entirely safe to handle and dismantle outside of a controlled environment. Goods that cannot be so certified fall outside the scope of the Directive and remain the user's responsibility to dispose of.

A relevant label has been placed on the appliances packaging (see below). The product has been manufactured of recyclable materials.

If in doubt with any of the above information, please contact the manufacturer or your local authority for advice on how best to dispose of this product.

18: Contact Information

Sales Enquiries:

Email: sales@gdpa.co.uk
Tel: 0344 815 3742
Fax: 0844 815 3748

Marketing Enquiries:

Email: marketing@gdpa.co.uk
Tel: 0344 815 3742

Spares and After Sales Service:

Email: info@gdha.com
Tel: 0344 815 3742
Fax: 0844 248 4123

Address:

Lec Medical
Stoney Lane
Prescot
Merseyside, L35 2XW

Warranty

For details on the warranty of this appliance and any other information please visit: -

https://www.lec-medical.co.uk