

INSTALLATION GUIDE

Delta UPS



www.deltamembranes.com



**THIS MANUAL SHOULD BE KEPT WITH
THE PRODUCT OR THE HOMEOWNER**

Contents

1.	Delta UPS overview.....	1
1.1	Delta UPS overview.....	1
1.2	Features.....	1
1.3	Specification.....	1
1.4	Associated products.....	1
1.5	Parts included.....	2
1.5.1	Parts included with Delta UPS V3.....	2
1.5.2	Parts included with Delta UPS V4/6.....	2
1.6	Technical information.....	2
2.	Installation and operation.....	3
2.1	Advisory.....	3
2.2	Intended use.....	3
2.3	Installation.....	3
2.3.1	Delta UPS V3 parts.....	4
2.3.2	Delta UPS V4/6 parts.....	5
2.3.3	Display panel.....	6
2.4	System setup.....	6
2.4.1	Delta UPS V3 parts.....	6
2.4.2	Delta UPS V4/6 parts.....	7
2.5	Switching on for the first time.....	8
2.6	Switching on from the mains.....	8
2.7	Switching on from the battery.....	8
2.8	Internal battery.....	8
2.9	Switching on from the UPS.....	8
2.10	Display panel messages.....	9
2.11	Display panel messages.....	10
2.12	Configuring the operating mode.....	11
2.12.1	How to proceed.....	11
2.12.2	Possible settings.....	11
2.12.2	Additional functions.....	12
2.13	UPS configuration.....	13
3.	Alarm codes.....	14
3.1	Faults.....	14
3.1.1	Anomalies.....	14
3.1.2	Alarms.....	14
3.1.3	Active commands.....	15
3.2	Lock.....	15
4.	Wiring.....	16
4.1	Delta UPS V3.....	16
4.2	Delta UPS V4/6.....	17
5.	Maintenance.....	18
6.	Health and safety.....	18
7.	Fault finding.....	19
8.	Declarations.....	21
9.	Warranty.....	22
10.	Commissioning details.....	23

1. Delta UPS overview



Delta UPS V3 (DMS E021)

Delta UPS V4/6 (DMS E022)

1.1 Delta UPS overview

The Delta UPS range of on-line double conversion uninterruptible power supplies is specifically designed for basement drainage systems (submersible pumps/sump pumps) when there is a loss of mains power. It will keep one Delta V3, Delta V4 or Delta V6 Submersible Pump running during a power outage, keeping basements dry.

A buzzer alerts the user when the pump is drawing power from the battery.

Simple to use and easy to install, the Delta UPS clearly displays its status and comprehensive fault codes.

There are two models in the range. The Delta UPS V3 can provide power to a Delta V3 pump for 30 minutes continuously, based on a 3.5 m head. This is equivalent to 30 hours protection, in accordance with PCA guidance of a minimum of three activations per hour.

The Delta UPS V4/6 is suitable for powering Delta V3, V4 or V6 pumps. It can provide power to a Delta V6 pump for 30 minutes continuously, based on a 3.5 m head, equivalent to 30 hours protection.

1.2 Features

- Capable of running one groundwater pump without mains power
- Industry leading backup power
- Quick charge to top-up the battery from empty to 80% in just 4 hours
- Digital display to show status and comprehensive fault codes
- Virtually inaudible
- Can be retrofitted

1.3 Specification

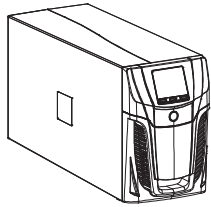
- L V 2014/35/EU low voltage
- EMC 2014/30/EU electromagnetic compatibility
- Safety IEC EN 62040-1
- EMC IEC EN 62040-2
- RoHS compliant

1.4 Associated products

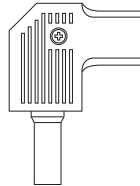
- Delta Dual V3
- Delta Dual V4
- Delta Dual V6
- Delta 800 Dual V3
- Delta 800 Dual V4
- Delta 800 Dual V6

1.5 Parts included

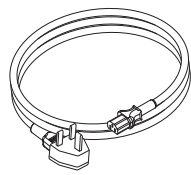
1.5.1 Parts included with Delta UPS V3



Delta UPS V3



10A pump connector plug

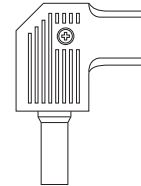


10A fused kettle lead

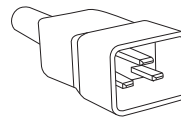
1.5.2 Parts included with Delta UPS V4/6



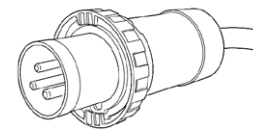
Delta UPS V3



10A pump connector plug



16A IEC kettle head plug.



16A 3-pin commando plug

1.6 Technical specifications

Model	Delta UPS V3	Delta UPS V4/6
Input		
Nominal voltage	220–240 VAC	220–240 VAC
Nominal frequency	50 Hz	50 Hz
Nominal current	9.7 A	14 A
Battery		
Usage (based on a 3.5m head)	Delta V3 pump, 30 mins continuous	Delta V3 pump, 60 mins continuous Delta V4 pump, 45 mins continuous Delta V6 pump, 30 mins continuous
Battery type	Maintenance-free lead based	Maintenance-free lead based
Recharge time	<4 hours for 80% of the load	<4 hours for 80% of the load
Output		
Nominal voltage	230 VAC	230 VAC
Frequency	50 Hz	50 Hz
Nominal power	2000 VA	3000 VA
Nominal power	1600 W	2700 W
Other		
Ambient temperature	0°C to +40°C	0°C to +40°C
Humidity	< 90% without condensation	< 90% without condensation
Protection devices	<ul style="list-style-type: none"> • excessively low batteries • overcurrent • short circuit • overvoltage • undervoltage • circuit breaker 	<ul style="list-style-type: none"> • excessively low batteries • overcurrent • short circuit • overvoltage • undervoltage • circuit breaker
Maximum distance to chamber	10 metres	10 metres
Dimensions (HxWxD)	250 mm x 160 mm x 450 mm	335 mm x 190 mm x 450 mm
Weight	19 kg	28 kg

2. Installation and operation

2.1 Advisory

All products are manufactured and developed to the highest standards and assembled with precision and care. Each product has been rigorously tested. We constantly strive to develop our products to provide you with the most innovative products possible.

Please read these installation and operating guidelines carefully prior to installation. These guidelines contain important information and hazard warnings, which will enable you to install and operate your product safely, economically, and reliably.

Only qualified personnel should carry out the installation in accordance with the latest IET wiring regulations BS7671. All works should be in line with the Health and Safety at Works Act 1974.

It is important to note that these guidelines are for guidance only and it is the installer's responsibility to satisfy themselves that the installation procedure is in accordance with good practice, this will then eliminate any potential damage to the product during or after installation.

If you are unsure on any point then contact Delta Membranes on 01992 523 523 between 8am and 5pm, Monday to Friday or by email at info@deltamembranes.com before proceeding.

2.2 Intended use

This Delta HLA is designed for use indoors only. Under no circumstances should the product be installed outdoors. Do not operate the UPS in direct sunlight, in contact with fluids, or where there is excessive dust or humidity.

Be sure the air vents on the UPS are not blocked. Allow adequate space for proper ventilation.

2.3 Installation

It is important to note that these instructions are for guidance only and it is the installer's responsibility to satisfy themselves that the installation procedure is in accordance with the site conditions and good building practice, to eliminate any potential damage to the system either during or after installation. The installer should also satisfy themselves that the system can be installed in conjunction with these guidelines, prior to work commencing.

Please read these instructions in full prior to commencement of the installation. If you are unsure on any point then contact Delta Membranes on 01992 523 523 between 8am and 5pm, Monday to Friday or by email at info@deltamembranes.com before proceeding.

The Delta UPS should be installed on a shelf a minimum of 500 mm above FFL.

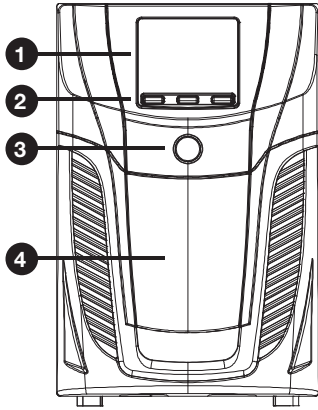
1. Remove all packaging and discard.
2. Wire female euro line socket to the Backup pump.
3. Plug Backup pump into UPS.
4. Connect mains power lead to the UPS.
5. Turn 240V power on at the mains connection, checking supply is present.
6. Turn on to the unit using the ON/OFF Button
7. Turn the unit on using the ON Button



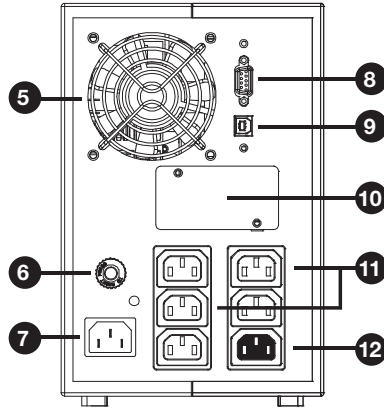
WARNING!

The maximum recommended distance of the UPS to the pump chamber is 10 metres..

2.3.1 Delta UPS V3 parts



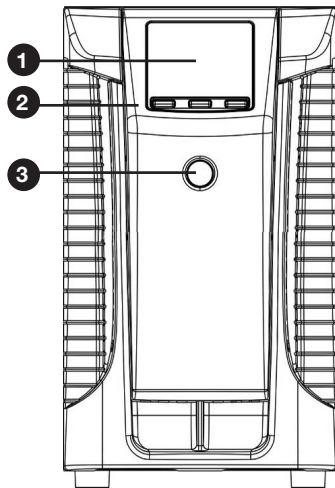
Delta UPS V3 front



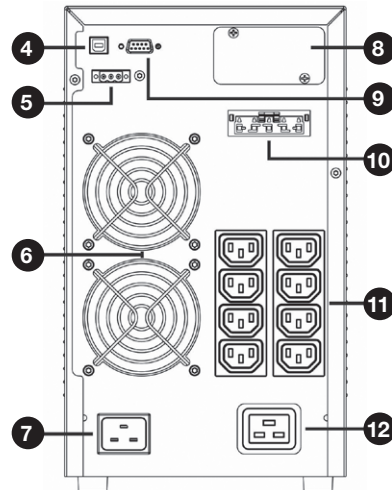
Delta UPS V3 rear

1. Display
2. Multipurpose buttons
3. ON/OFF Switch
4. Removable front panel
5. Cooling fan
6. Circuit breaker
7. IEC 10A input plug
8. Communication port RS232
9. USB communication port
10. Communication card slot
11. IEC 10A output socket
12. Energysare

2.3.2 Delta UPS V4/6 parts



Delta UPS V4/6 front



Delta UPS V4/6 rear

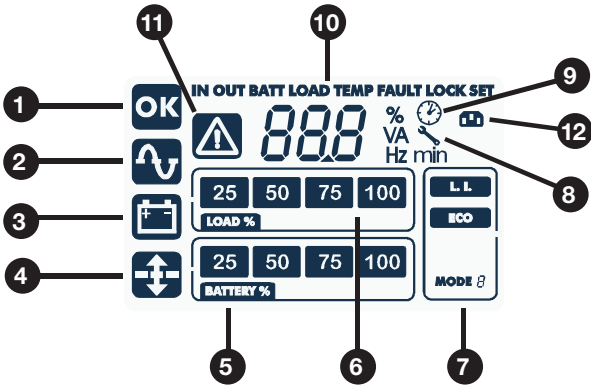
1. Display
2. Multipurpose buttons
3. ON/OFF Switch
4. USB communication port
5. Remote control terminal board
6. Cooling fan
7. IEC 16A input plug
8. Communication card slots
9. RS232 communication port and contacts
10. Battery expansion connector
11. IEC 10A output socket
12. IEC 16A output socket

2. Installation and operation

2.3.3 Display panel



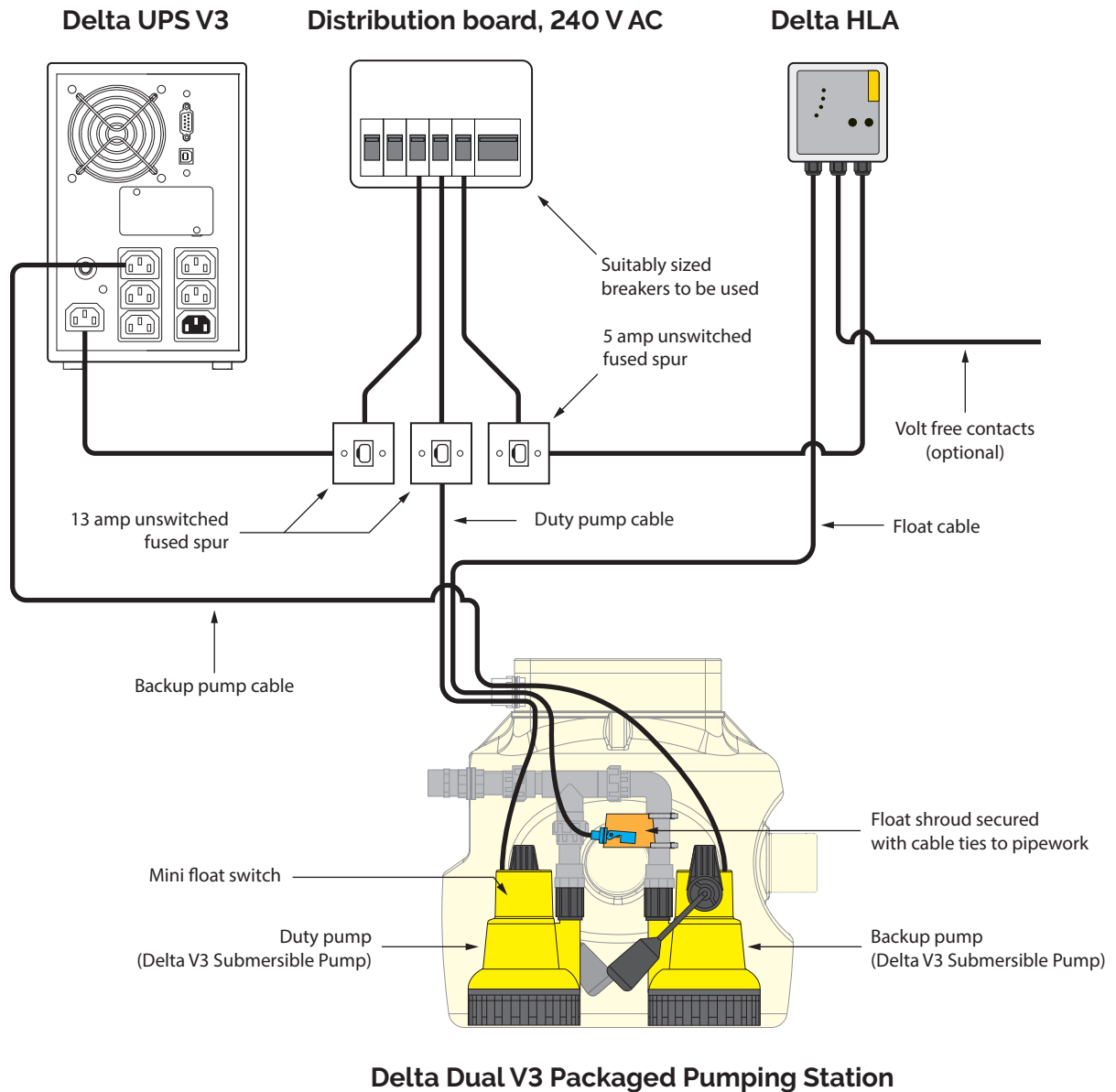
- A. "SEL" button (Select)
- B. "ON" button
- C. "STAND-BY" button



- 1. Regular operation
- 2. Mains operation
- 3. Battery operation
- 4. AVR active
- 5. Battery charge indicator
- 6. Load level indicator
- 7. Configuration area
- 8. Maintenance request
- 9. Timer
- 10. Measurement display area
- 11. Stand-by / alarm
- 12. EnergyShare

2.4 System setup

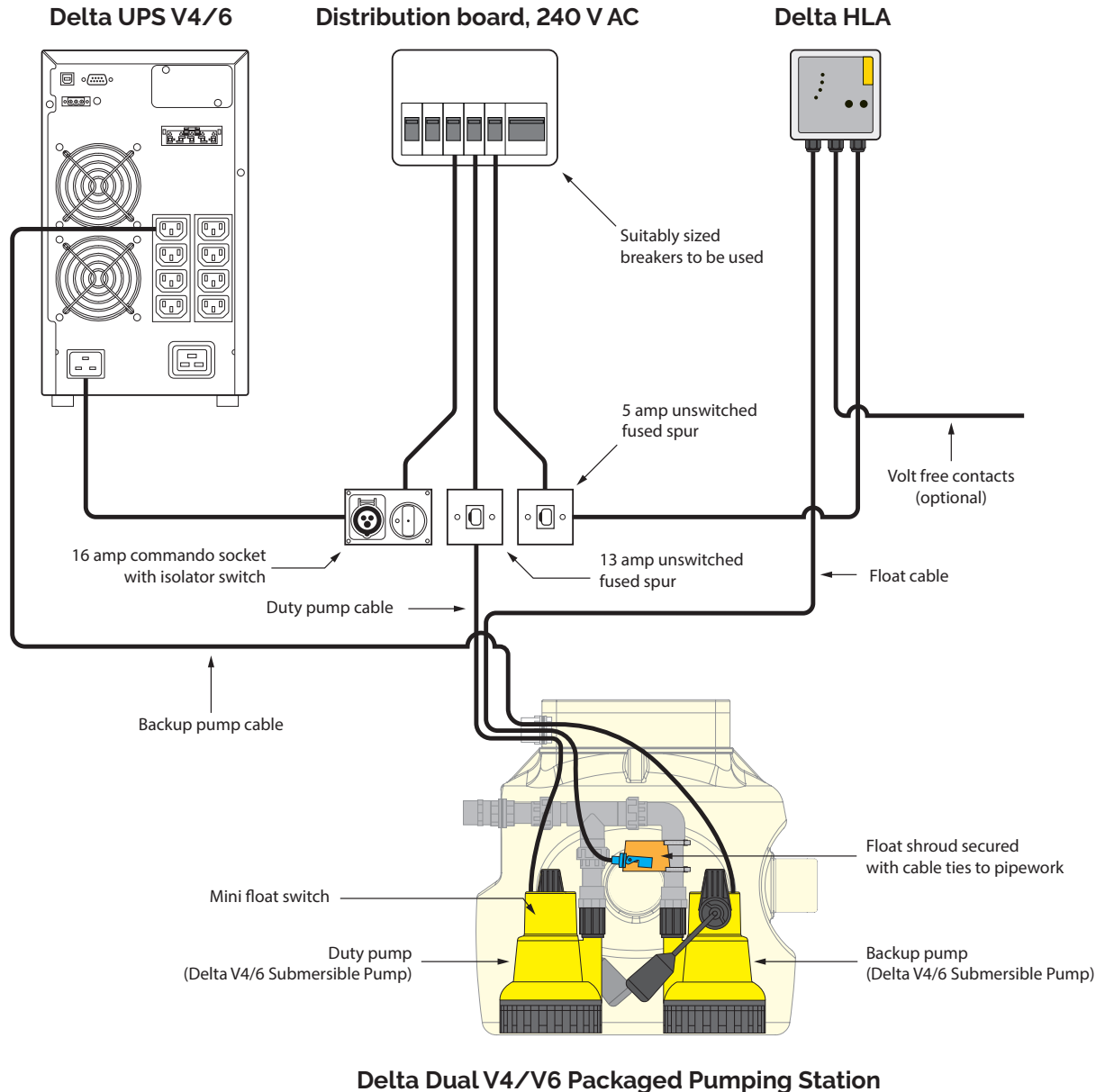
2.4.1 System setup for Delta UPS V3



Example installation of a Delta UPS V3 with a Delta Dual V3 Packaged Pumping Station and Delta HLA..


2. Installation and operation

2.4.2 System setup for Delta UPS V4/6



Example installation of a Delta UPS V4/6 with a Delta Dual V4 or V6 Packaged Pumping Station and Delta HLA.

2.5 Switching on for the first time


1. Check that there is a protection device against overcurrents and short circuits in the system upstream from the UPS. The recommended protection value is 16 A with a C trip curve.
2. Power the UPS using the input cable provided.
3. Press the ON/OFF switch located on the front panel.
4. After a few moments, the UPS will switch on, the display will light up, there will be a beep and the  icon will start to flash. The UPS is in stand-by mode: meaning that it is only consuming a small amount of power. The microcontroller is powered which supervises the self-diagnoses; the batteries are charging; everything is ready for UPS activation. Battery operation is also in stand-by mode provided that the timer is active.
5. Connect the pump to be powered to the sockets on the back of the UPS, using the cable and plug supplied.
6. Check which operating mode is set on the display and, if necessary, see the "Configuring operating modes" paragraph to set the required mode.

If you are unsure on any point, then please contact Delta Membranes on 01992 523 523 between 8am and 5pm, Monday to Friday or by email at info@deltamembranes.com for more information.

2.6 Switching on from the mains

1. Press the "ON" button for 1 second. After pressing it, all the icons on the display light up for 1 second and the UPS beeps.
2. Switch on the equipment connected to the UPS.

When switching on for the first time only: after 30 seconds, check that the UPS is operating correctly:

- Simulate a mains power failure by disconnecting power to the UPS.
- The load must continue to be powered, the  icon on the display must light up and there must be a beep every 4 seconds.

When power is reconnected, the UPS must go back to operating from the mains.

2.7 Switching on from the battery

1. Press the ON/OFF switch located on the front panel.
2. Hold down the "ON" button for at least 5 seconds. All the icons on the display light up for 1 second.
3. Switch on the equipment connected to the UPS.

2.8 Internal battery


The battery typically lasts for two to five years. Environmental factors impact battery life. Elevated ambient temperatures, poor quality utility power, and frequent short duration discharges will shorten battery life.

This can be ordered from Delta Membranes on 01992 523 523 between 8am and 5pm, Monday to Friday or by email at info@deltamembranes.com. See section 7 for more information.

DO NOT access the internals of the system. This should only be completed by a competent repairer. Any unregistered access to the internals of the system may void any warranty claim should this be raised.

Should you find a battery fault, please contact Delta Membranes on 01992 523 523 between 8am and 5pm, Monday to Friday or by email at info@deltamembranes.com for more information.

2.9 Switching on from the UPS







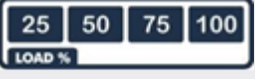


In order to switch off the UPS, hold down the "STBY" button for at least 2 seconds. The UPS goes back to stand-by mode and the  icon starts to flash. If the mains power is present, the ON/OFF switch must be pressed to completely turn off the UPS.

During battery mode operation with the timer not set, the UPS automatically switches off after 30 seconds. If, on the contrary, the timer is set, press and hold down the "STBY" key for at least 5 seconds to turn off the UPS. For complete shutdown, press the ON/OFF switch.










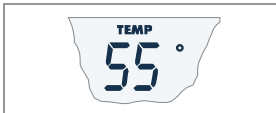


2. Installation and operation

2.10 Display panel messages

This details the various information that can be displayed on the LCD.

Output	Status	Description
	Fixed	Indicates a fault
	Flashing	The UPS is in stand-by mode
	Fixed	Indicates regular operation
	Fixed	The UPS is operating from the mains
	Flashing	The UPS is operating from the mains, but the output voltage is not synchronised with the mains voltage
	Fixed	The UPS is operating from the battery. In this condition, the UPS emits an acoustic signal (beep) at regular 4-second intervals.
	Flashing	Low battery pre-alarm. Indicates that battery autonomy is coming to an end. In this condition, the UPS emits a beep at regular 1-second intervals.
	Fixed	Indicates that the loads connected to the UPS are powered by the bypass
	Dynamic	Indicates the estimated percentage charge of the batteries
	Dynamic	Indicates the percentage of charge applied to the UPS compared with the nominal value.
	Flashing	Maintenance is required. Contact the support centre.
	Fixed	Indicates that the timer is active (programmed switch-on and switch-off). The timer can be activated/deactivated using the software provided.
	Flashing	1 minute until the UPS switches back on or 3 minutes until it switches off

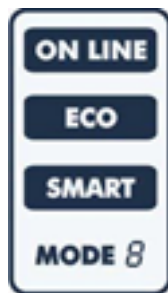
2.11 Display panel messages

	Mains voltage		Battery charge percentage
	Mains frequency		Total battery voltage
	UPS output voltage		Applied load percentage
	Output voltage frequency		Current absorbed by the load
	Residual battery autonomy		Temperature of the electronics cooling system inside the UPS
	Fault / Alarm ⁽²⁾ : the corresponding code is displayed		Lock ⁽²⁾ : the corresponding code is displayed

1. The values shown in the images in the table are purely as an indication.
2. The FAULT / LOCK codes can only be displayed if they are active (presence of a fault/alarm or a lock).

2.12 Configuring the operating mode

The area of the display shown in the figure displays the active operating mode and allows the user to choose other modes directly from the display panel.



2.12.1 How to proceed

- To access the configuration area, hold down the "SEL" button for at least 3 seconds.
- The icon corresponding to the mode currently set lights up.
- To change the mode, press the "ON" button.
- To confirm the mode chosen, hold down the "SEL" button for at least 3 seconds.

2.12.2 Possible settings

The UPS is designed to be configured in various operating modes:

- **ON-LINE** is the mode with the greatest load protection and the best quality of the output waveform (*)
- **ECO** is the mode with which the UPS consumes the least power, so is therefore the most efficient (**)
- **SMART ACTIVE**: in this mode, the UPS decides whether to operate in ON-LINE or ECO mode according to a statistic about the quality of the mains power.
- **STAND-BY OFF [Mode 1]**: the UPS operates as an emergency power supply. If mains power is present, the load is not powered, however should the mains supply fail, the load is powered by the UPS.

(*) The effective value (rms) of the output frequency and voltage is constantly controlled by the microprocessor, independently from the waveform of the mains voltage, maintaining the output frequency synchronised to the mains within a configurable range.

Outside this range, the UPS output de-synchronises from the mains supply, moving to the nominal frequency; in this condition, the UPS cannot use the bypass.

(**) In order to optimise performance, in ECO mode, the load is normally powered by the bypass. If the mains goes out of the permitted tolerance range, the UPS switches to ON LINE operation. If the mains returns within the permitted tolerance range for at least five minutes, the UPS goes back to powering the load from the bypass.

2.12.3 Additional functions

Manual bypass

Using the Manual Bypass feature, the UPS can be switched to bypass. In this condition the load is powered directly by the input mains, any disruption in the mains directly affects the load.



CAUTION

Before carrying out the following sequence of operations, ensure that the UPS's input and output frequency coincide, and that the UPS is not operating from the battery.



ATTENTION

Even when the UPS is switched on, the load is disconnected in the event of a mains power failure.

- If the input mains deviates from the established tolerances, the UPS automatically switches to Stdby mode and disconnects the load.
- To force the UPS into manual bypass mode, press and hold down the ON and SEL keys simultaneously for at least 4 seconds.
- The code "C02" appears on the display.
- To return to the normal operation mode press the ON and SEL keys again for at least 4 seconds.

2. Installation and operation

2.13 UPS configuration

This table illustrates the possible configurations available to optimise the UPS to individual requirements.

Function	Description	Default	Possible configuration
Output frequency	Selects the nominal output frequency	Auto	<ul style="list-style-type: none"> • 50 Hz • 60 Hz • Auto: automatic learning of the input frequency
Output voltage	Selects the nominal output voltage	230 V	220–240 in 1 V increments
Operating mode	Selects one of the 4 different operating modes	ON LINE	<ul style="list-style-type: none"> • ON LINE • ECO • SMART ACTIVE • STAND-BY OFF (MODE 1)
Bypass operation	Selects the mode of use of the bypass line	Normal	<ul style="list-style-type: none"> • Normal • Disabled with input/output synchronization • Disabled without input/output synchronization
Power-off due to minimum charge	Automatic UPS power-off in battery operation mode if the charge is lower than 5%	Disabled	<ul style="list-style-type: none"> • Enabled • Disabled
Autonomy limit	Maximum battery operation time	Disabled	<ul style="list-style-type: none"> • Disabled complete battery discharge • (1–65,000) sec. in 1 sec steps
Battery low warning	Estimated autonomy time remaining for the battery low warning	3 minutes	(1–255) minutes in 1 min steps
Battery test	Interval of time for the automatic battery test	40 hours	<ul style="list-style-type: none"> • Disabled • (1–1000) h in 1 hour steps
Maximum charge alarm threshold	Selects the user overcharge limit	Disabled	<ul style="list-style-type: none"> • Disabled • (0–103) % in 1% steps
Input frequency tolerance range	Selects the permitted range for the input frequency for switching to the bypass and for the synchronization of the output	±5%	• (±3 – ±10) % in 1% steps
Bypass voltage thresholds	Selects the permitted voltage range for switching to the bypass	Low: 180V High: 264V	<ul style="list-style-type: none"> • Low: 180–200 in 1 V steps • High: 250–264 in 1 V steps
Bypass voltage threshold for ECO	Selects the permitted voltage range for operation in ECO mode	Low: 200V High: 253V	<ul style="list-style-type: none"> • Low: 180–220 in 1 V steps • High: 240–264 in 1 V steps
Intervention sensitivity for ECO	Selects the intervention sensitivity during operation in ECO mode	Normal	<ul style="list-style-type: none"> • Low • Normal • High
Power-on delay	Waiting time for automatic switching back on after mains power returns	5 seconds	<ul style="list-style-type: none"> • Disabled • (1–255) seconds in 1 s steps
Remote power ON/OFF function	Selects the function associated with the RS232 connector.	Disabled	<ul style="list-style-type: none"> • Disabled • Remote ON • Remote OFF • Remote ON/OFF

* For configurations of the $F_{out} = 50, 60\text{Hz}$ or if the sync is disabled with the input, the UPS downgrades the output power.

3. Alarm codes

Using a sophisticated self-diagnosis system, the UPS is able to check its own status and any anomalies and/or faults which may occur during normal operation and display them on the display panel. If there is a problem, the UPS signals the event by showing the code and the type of active alarm on the display (FAULT and/or LOCK).

3.1 Faults

FAULT alerts can be divided into three categories:

3.1.1 Anomalies

These are "minor" problems which do not cause the lock of the UPS but reduce performance or prevent certain functions from being used.

Code	Description
A06	Sensor 1 temperature under 0°C
A08	Sensor 2 temperature under 0°C
A54	Load percentage greater than the user threshold set
A61	Replace batteries
A62	Batteries missing, or battery box missing or not connected
A63	Waiting for battery charging

3.1.2 Alarms

These are more critical problems than anomalies because, if they persist, they could cause the UPS to lock in a very short time.

Code	Description
F03	Incorrect auxiliary power supply
F04	Dissipator over temperature
F05	Temperature sensor 1 faulty
F07	Temperature sensor 2 faulty
F11	Input relay faulty
F13	Capacitor pre-charge failed
F21	Capacitor bank overvoltage
F40	Inverter overvoltage
F41	Continuous output voltage
F42	Incorrect inverter voltage
F43	Inverter undervoltage
F50	Overload: load > 103%
F51	Overload: load >110%
F52	Overload: load > 150%
F53	Short circuit
F55	Waiting for load reduction to return to inverter
F60	Battery overvoltage

3. Alarm codes

3.1.3 Active commands

Indicates the presence of an active remote command.

Code	Description
C01	Remote control 1 (Switch On/Off)
C02	Remote control 2 (load on bypass or manual bypass command)
C03	Remote control 3 (Switch On/Off)
C04	Battery test in progress

3.2 Lock

LOCK alerts are normally preceded by an alarm signal and their scale leads to the power-off of the inverter and the load being powered by the bypass line (this procedure is excluded for locks due to serious, persistent overloads and short circuits).

Code	Description
L02	Control card is not inserted correctly
L03	Incorrect auxiliary power supply
L04	Dissipater over temperature
L05	Temperature sensor 1 faulty
L07	Temperature sensor 2 faulty
L10	Input fuse broken or input relay stuck (does not close)
L11	Input relay faulty
L13	Capacitor pre-charge failed
L20	Capacitor bank under-voltage
L21	Capacitor bank over-voltage
L40	Inverter over-voltage
L41	Continuous output voltage
L42	Incorrect inverter voltage
L43	Inverter under-voltage
L50	Overload: load > 103%
L51	Overload: load > 110%
L52	Overload: load > 150%
L53	Short circuit

4. Wiring

A qualified person in accordance with the Institute of Electrical Engineers Regulations should connect the UPS system to the mains supply, taking into account all the electrical information provided.

4.1 Delta UPS V3

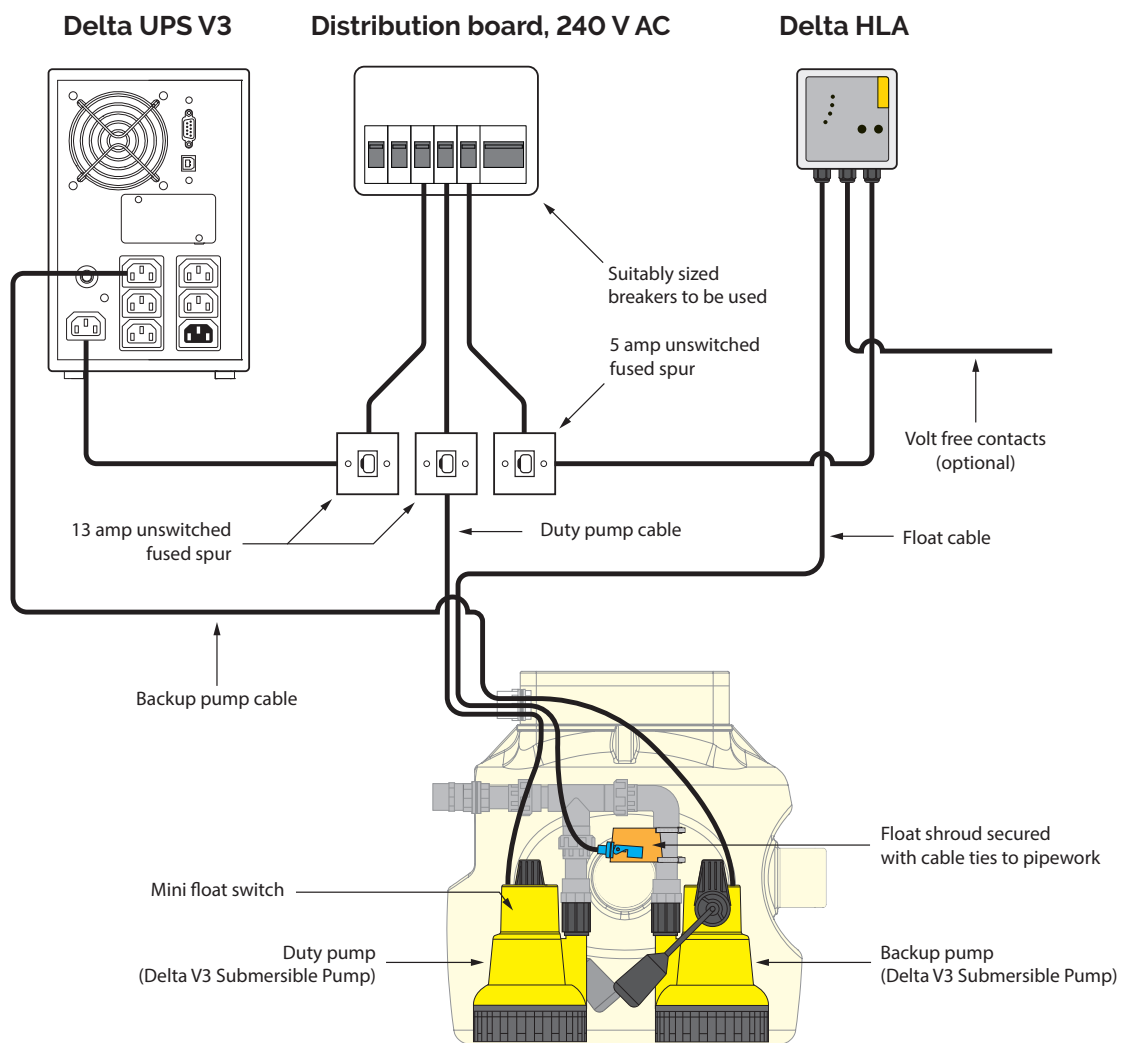
The device should be connected to its own 230V unswitched fuse spur. Fuse to be suitably sized based on the electrical specifications as detailed under the Technical Specification, (see Section 1.6).

The unswitched fuse spur is to be powered from its own dedicated breaker within the distribution board. Ensure that the appropriate breaker within the distribution board is clearly marked for isolation of the connected device.

This work should be entrusted to a qualified electrician in accordance with the latest IET wiring regulations BS7671.

Keep the connection isolated until you are ready to test the system.

The Delta UPS V3 should be connected to the Backup pump.



Delta Dual V3 Packaged Pumping Station

4. Wiring

4.2 Delta UPS V4/6

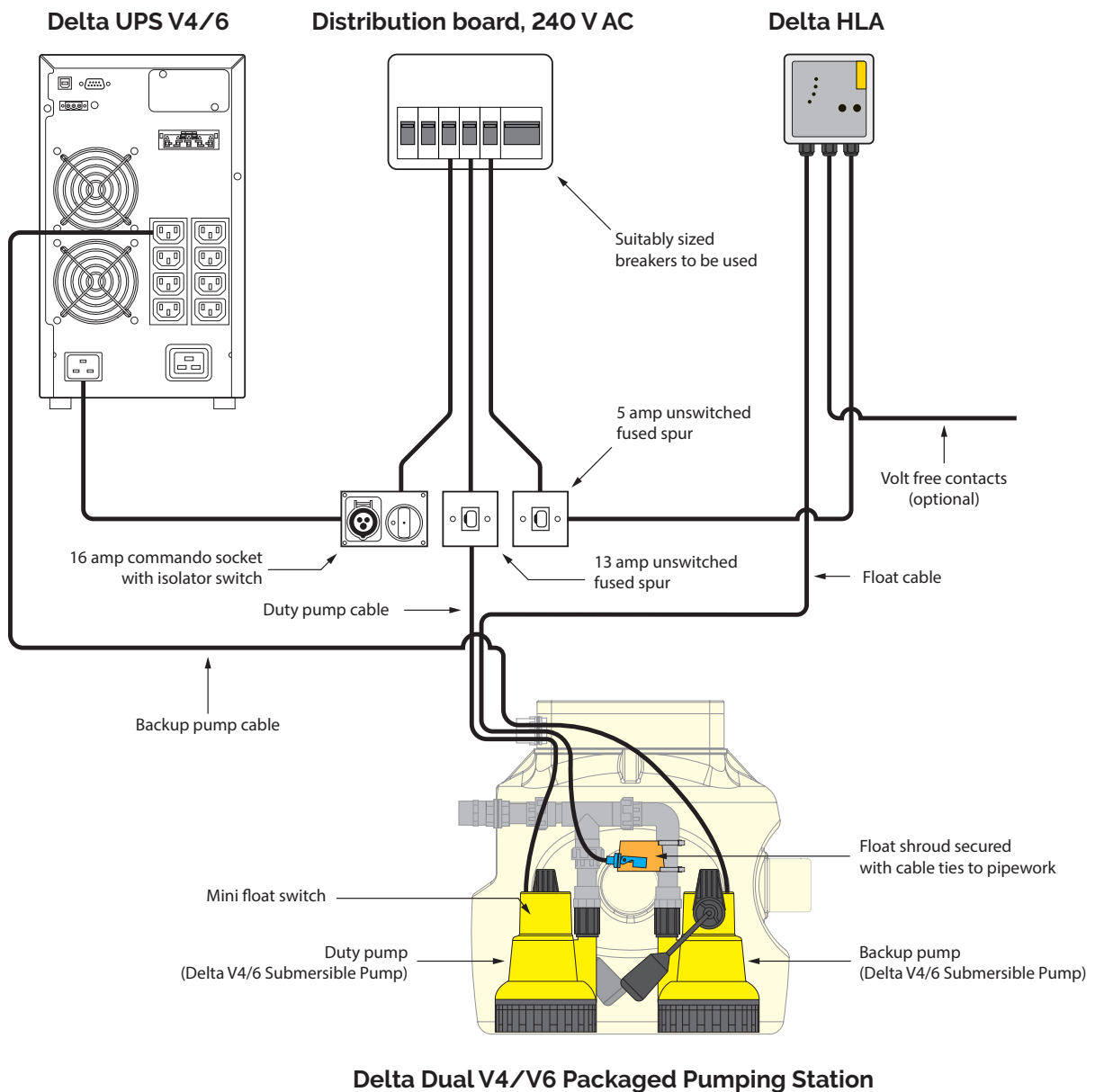
The device should be connected to its own 230 V 16 A commando socket.

The commando socket is to be powered from its own dedicated breaker within the distribution board. Ensure that the appropriate breaker within the distribution board is clearly marked for isolation of the connected device.

This work should be entrusted to a qualified electrician in accordance with the latest IET wiring regulations BS7671.

Keep the connection isolated until you are ready to test the system.

The Delta UPS V4/6 should be connected to the Backup pump.



5. Maintenance



DANGER! DO NOT OPEN THIS UNIT IF NOT QUALIFIED TO DO SO

To reduce the risk of electric shock, do not remove cover. No user-serviceable parts inside. Refer servicing to qualified service personnel.



IMPORTANT

All maintenance works (inspections and services) **MUST** be undertaken by a technically qualified/ competent company/engineer.



DANGER!

Before carrying out any maintenance work the system **MUST** be completely disconnected from the mains power supply, and measures should be taken to prevent the system from being inadvertently switched back on.

The product should be inspected quarterly. When installed in conjunction with a pump system, please refer to the product installation and operating guidelines for pump station maintenance requirements.

In addition to the above it is important that the product undergoes a full service at a minimum frequency of once yearly (increased servicing frequency is subject to site and product specific details. Where a product is serving more than a single residential dwelling and/or there is a risk of flooding as a result of product failure the servicing frequency should be increased accordingly).

To arrange a service please contact Delta Membranes on 01992 523 523 between 8am and 5pm, Monday to Friday or by email at info@deltamembranes.com.

6. Health and safety

In order to minimise the risk of ill health or accidents when installing and/or servicing pump chambers, workers must be fully trained, competent and follow the health and safety guidelines below:

- Do not work without a risk assessment being in place.
- Work in accordance with the control measures identified in the risk assessment.
- All personnel must be vaccinated against diseases to which they may be exposed to, i.e. Tetanus, Polio, Hepatitis A&B, etc.
- At the time of writing, due to there being no vaccine against leptospirosis/weil's disease, where rats may be present, ensure appropriate personal protective equipment (skin protection) is worn and ensure any cuts or abrasions are fully covered.
- There should be no eating or drinking during works and only afterwards following a change of clothing and washing.
- Ensure electrical power to the pump is turned off/isolated before carrying out installation or maintenance.
- A suitable first aid kit must be close to hand.

7. Fault finding

Irregular UPS operation is most likely not an indication of a fault, but due to simple to solve issues. It is therefore advisable to consult the table below carefully as it summarises information which is useful for solving the most common problems.

Problem	Cause	Solution
The display does not light up	On/off switch not pressed	Press the ON/OFF switch on the front panel.
	Main connection cable missing	Check that the power cable is connected correctly.
	No mains voltage (mains power failure)	Check that the power reaches the socket where the UPS is connected (try it with a table lamp, for example).
	Intervention of the input circuit breaker	If present, reset the circuit breaker by pressing the button on the back of the UPS. CAUTION: Check that there is no output overload to the UPS.
The display is on but the load is not powered	The UPS is in stand-by mode	Press the "ON" button on the front panel to power the loads.
	The stand-by off mode is selected	It is necessary to change mode. The STAND-BY OFF (emergency power supply) mode, in fact, only powers the loads in the event of a mains power failure.
	No connection to the load	Check the connection to the load.
The UPS is operating from the battery despite the presence of mains voltage	The input voltage is outside the permitted tolerance range for mains operation	Problem with the mains. Wait until the input mains voltage returns within the tolerance range. The UPS will automatically return to mains operation.
	Intervention of the input circuit breaker	If present, reset the circuit breaker by pressing the button on the back of the UPS. CAUTION: Check that there is no output overload to the UPS.
The UPS does not come on and the display shows the code: A06, A08	The temperature of the UPS is lower than 0°C	Check the temperature of the environment in which the UPS is located; if it is too low, bring it past the minimum threshold (0°C).
The display shows the follow codes: L10, L11, F11	Input relay faulty	Switch off and disconnect the UPS from the power supply and contact Delta Membranes.
The display shows the follow code: L02	Control card is not inserted correctly	Switch off and disconnect the UPS from the power supply and contact Delta Membranes.

Problem	Cause	Solution
The buzzer sounds continuously and the display shows one of the following codes: A54, F50, F51, F52, F55, L50, L51, L52	The load applied to the UPS is too high	Reduce the load to within the threshold of 100% (or user threshold in the case of code A54). If the display shows a lock: remove the load and switch the UPS off and back on again.
The display shows the follow code: A61	Replace the batteries	Contact Delta Membranes for battery replacement.
The display shows the follow code: A62	Batteries missing or battery box missing or not connected	On the versions with an additional battery charger in place of the batteries, check that the battery box is inserted and connected to the UPS correctly.
The display shows the follow code: A63	The batteries are flat; the UPS is waiting for the battery voltage to exceed the set threshold	Wait until the batteries have recharged or force power- on manually by holding down the "ON" button for at least 2 seconds.
The buzzer sounds continuously and the display shows one of the following codes: F03, F05, F07, F13, F21, F40, F41, F42, F43	The UPS is malfunctioning; it will probably lock soon	If possible, disconnect the power to the load, switch the UPS off and back on again; if the problem occurs again, contact Delta Membranes.
The buzzer sounds continuously and the display shows one of the following codes: F04, L04	The temperature of the dissipators inside the UPS is too high	Check that the temperature of the environment in which the UPS is located does not exceed 40°C.
The buzzer sounds continuously and the display shows one of the following codes: F53, L53	There is a fault on one or more of the utilities powered by the UPS	Disconnect all the utilities, switch the UPS off and back on again, reconnect the utilities one at a time to identify which one is faulty.
The buzzer sounds continuously and the display shows one of the following codes: F60, L03, L05, L07, L13, L20, L21, L40, L41, L42, L43	The UPS is malfunctioning	If possible, disconnect the power to the load, switch the UPS off and back on again; if the problem occurs again, contact Delta Membranes.
The display shows one of the following codes: C01, C02, C03	A remote command is active	If unwanted, check the status of the command inputs on any optional contact card.
The display shows C02	The manual bypass function is active	To exit manual bypass mode, press the ON+SEL buttons at the same time for at least 4 seconds.

If you continue to experience problems, please contact Delta Membranes on 01992 523 523 between 8am and 5pm, Monday to Friday or by email at info@deltamembranes.com for more assistance.

8. Declarations

8.1 The European Union Waste Electrical and Electronic Regulations 2013

This PCB assembly is classified as Electrical or Electronic equipment and should not be disposed of in normal domestic or commercial waste.

Additionally, the internal batteries are lead-acid type.

Under the WEEE Directive, the equipment should be recycled using the best possible techniques to minimise environmental impact and avoid unnecessary landfill.

For further information, visit <http://www.legislation.gov.uk/ukxi/2013/3113/contents/made>

8.2 UKCA and CE approved

The product complies with the relevant sections of:

- L V 2014/35/EU low voltage
- EMC 2014/30/EU electromagnetic compatibility
- Safety IEC EN 62040-1
- EMC IEC EN 62040-2
- RoHS compliant



9. Warranty



9.1 Standard 12-month component warranty

The Delta UPS is offered with a 12-month component warranty from the date of invoice.

Standard Delta Membrane Systems Limited conditions apply.

This warranty does not cover defects caused by incorrect installation, installation/installer error, abnormal working conditions, misuse, or neglect.

Any defects or malfunctions should be reported to Delta Membrane Systems Limited within of seven days when defect becomes apparent. All broken components should be returned to Delta Membrane Systems Limited at customer cost.

To make a Warranty Claim, please email pumps@deltamembranes.com. Forms are available from www.deltamembranes.com.

In no event shall Delta Membrane Systems Limited be liable for any consequential damage, penalties, loss, or expenses howsoever arising, out of or in connection with incorrect installations or misuse, including, without limitation, direct or indirect loss, consequential loss or damage, loss of profit or goodwill, loss arising from any errors or omissions in the pump chamber as a result of, incorrect installation, installation/installer error, abnormal working conditions, misuse, or neglect.

Delta Membrane Systems Limited shall not accept liability if the product fails due to being incorrectly specified by any third parties not employed by Delta Membrane Systems Limited.

9.2 Warranty from date of commissioning

When the Delta UPS is commissioned by a Delta Registered Pump Service Provider, the 12-month warranty period shall start from date of commissioning, provided:

- all services and associated systems are ready to enable commissioning to take place;
- the Delta UPS is commissioned within 12 months from the date of invoice;
- the Delta UPS is commissioned by a Delta Registered Pump Service Provider;
- the Delta Registered Pump Service Provider has logged Commissioning details of the Delta UPS with Delta Membrane Systems Limited;
- the Delta UPS is serviced by a Delta Registered Pump Service Provider with a minimum of a yearly Service (within 12 months from the date of commissioning/last service) depending on site specifications.

10. Commissioning details

Property address	Commissioning engineers

Customer contact details	
Contact name	
Contact telephone	

Installation details	
Equipment installed	
Delta Registered Pump Service Provider	
Date of commissioning	
Commissioning engineer	
Signature of engineer	

Servicing plans

Sump pumps must be maintained. We recommend a qualified engineer examines and services equipment every year. Pumps running frequently due to higher water table, water drainage, or weather conditions should be examined more frequently, we recommend every 6 months. Sump pumps, being mechanical devices, may fail if not maintained which could lead to a flooded basement and costly repairs. Regular servicing of sump pumps will increase efficiency and extend the life of the pump. All Delta Membrane pump systems can be maintained and serviced by our recommended service companies or installing contractor.

Commissioning

All sump pumps require commissioning. Commissioning provides peace of mind, knowing that the system is installed correctly and in compliance with warranty conditions. All Delta Membrane pump systems can be commissioned by our recommended service companies or installing contractor.

Delta Membrane Systems Ltd, Delta House, Merlin Way, North Weald, Epping, Essex, CM16 6HR.

01992 523 523 info@deltamembranes.com www.deltamembranes.com

 [deltamembranes](https://www.facebook.com/deltamembranes)  [deltamembranes](https://twitter.com/deltamembranes)  [delta-membrane-systems-ltd](https://www.linkedin.com/company/delta-membrane-systems-ltd)  [deltamembranesystems](https://www.youtube.com/deltamembranesystems)