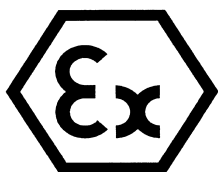




## Installation & Operating Manual

iUPS200



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**Warranty**

For full details of the Extronics warranty policy please go to the Company section of the website and download Terms and Conditions.

Document Number **402093** (See Last Page for Revision Details)

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Extronics reserve the right to change this manual and its contents without notice, the latest version applies.

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# 1 Introduction

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The iUPS200 Zone 2 UPS Enclosure is designed to supply an uninterruptible power supply for critical equipment located in hazardous areas.

The unit is designed to be either wall or pole mounted next to the equipment to power.

The system includes advanced battery charge controls including built in temperature compensation feedback to ensure the correct charging of the internal lead acid battery.

Optional features include UPS status indication via enclosure mounted lamps, power output disable via an enclosure mounted button, active logic outputs for connection to a DCS or other equipment plus the option of plug and socket cable entry instead of cable glands.

Mounting solutions and brackets are available on request.

## 2 Safety Information and Notes

### 2.1 Storage of this Manual

Keep this user manual safe and in the vicinity of the device. All persons who have to work on or with the device should be advised on where the manual is stored.

### 2.2 Special Conditions Of Safe Use

#### 2.2.1 ATEX

There are no special conditions of safe use

### 2.3 List Of Notes

The notes supplied in this chapter provide information on the following.

- Danger / Warning.
  - Possible hazard to life or health.
- Caution
  - Possible damage to property.
- Important
  - Possible damage to enclosure, device or associated equipment.
- Information
  - Notes on the optimum use of the device

<b>Warning</b>	<b>Installation to be by skilled electricians and instructed personnel in accordance with national legislation, including the relevant standards and, where applicable, in accordance with IEC 79.17 on electrical apparatus for explosive atmospheres.</b>
----------------	---

<b>Warning!</b>	<b>For the installation, maintenance and cleaning of the units, it is absolutely necessary to observe the applicable regulations and provisions concerned with explosion protection (EN60079-0:2006, EN 60079-14:2008) as well as the Accident Prevention Regulations.</b>
-----------------	--

<b>Warning!</b>	<b>The iUPS200 must only be operated in ATEX Gas Zone 2 hazardous areas, or in safe areas. Refer to the ATEX certificate for further information.</b>
-----------------	---

<b>Warning!</b>	<b>The iUPS200 must not be stored or operated outside of its rated temperature range as stated on the ATEX certificate.</b>
-----------------	---

<b>Warning!</b>	<b>The technical data indicated on the iUPS200 ATEX rating plate, this manual and the ATEX certificate must be observed at all times.</b>
-----------------	---

<b>Warning!</b>	The ATEX rating plate must be fitted at all times, if damaged it must be replaced immediately or the iUPS200 must be removed from service and the hazardous area.
-----------------	---

<b>Warning!</b>	Changes in the design and modifications to the equipment are not permitted.
-----------------	---

<b>Warning!</b>	The iUPS200 shall be operated as intended and only in an undamaged condition.
-----------------	---

<b>Warning!</b>	Never operate the iUPS200 unit outside its rated voltage, current & power as indicated in the specification or the safety of the unit may be impaired.
-----------------	--

<b>Caution</b>	This assembly may weigh up to 15Kg depending on requirements, therefore ensure the assembly is mounted using suitable fixtures.
----------------	---

<b>Important</b>	Never exceed the maximum loading of the iUPS200 as stated in the specifications.
------------------	--

<b>Important</b>	The iUPS200 is supplied fitted with anti-seize grease on the lid screws. Ensure that this is not removed during installation. See section 6.5.1 for maintenance details.
------------------	--

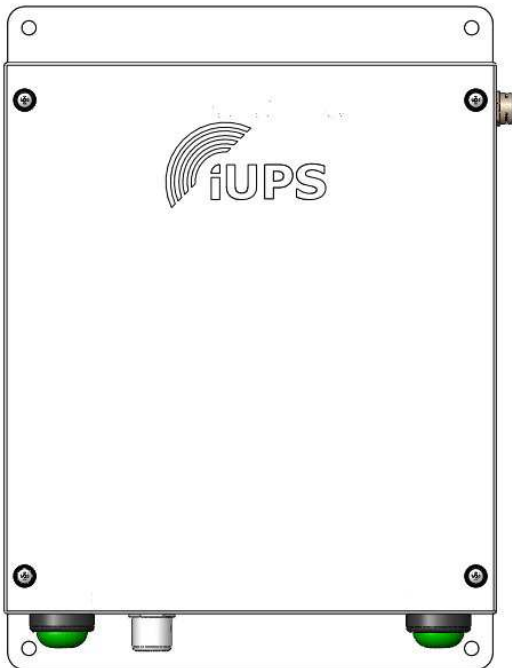
<b>Important</b>	The iUPS200 is supplied with a protective coating to prevent 'tea staining' of the stainless steel enclosure. Take care to avoid damage to this coating during handling and installation. Do not use abrasive substances to clean the enclosure. See section 6.5.2 for maintenance details.
------------------	---

## 3 Installation and Setting-to-Work

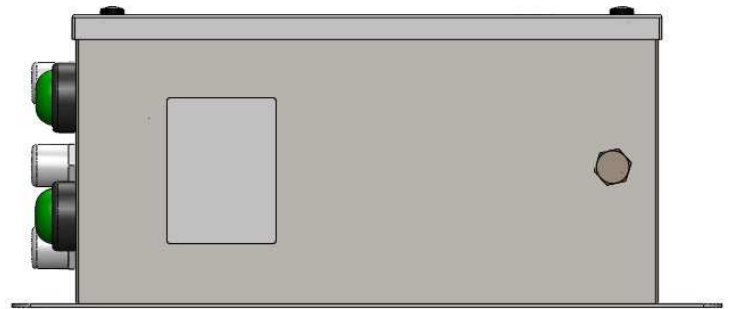
### 3.1 Installation

The iUPS200 is simple to install and can be secured directly to suitable surface using the mounting holes on the Enclosure. The iUPS200 enclosure can be installed either horizontally or vertically but never upside down.

Correct Vertical Installation



Correct Horizontal Installation



Incorrect Vertical Installation – Never install the iUPS200 unit like this



### 3.1.1 Removing the cover

Unscrew the four screws and remove the enclosure lid. If required the lid earth connection may be removed but **ENSURE** it is re-connected when the lid is re-fitted.

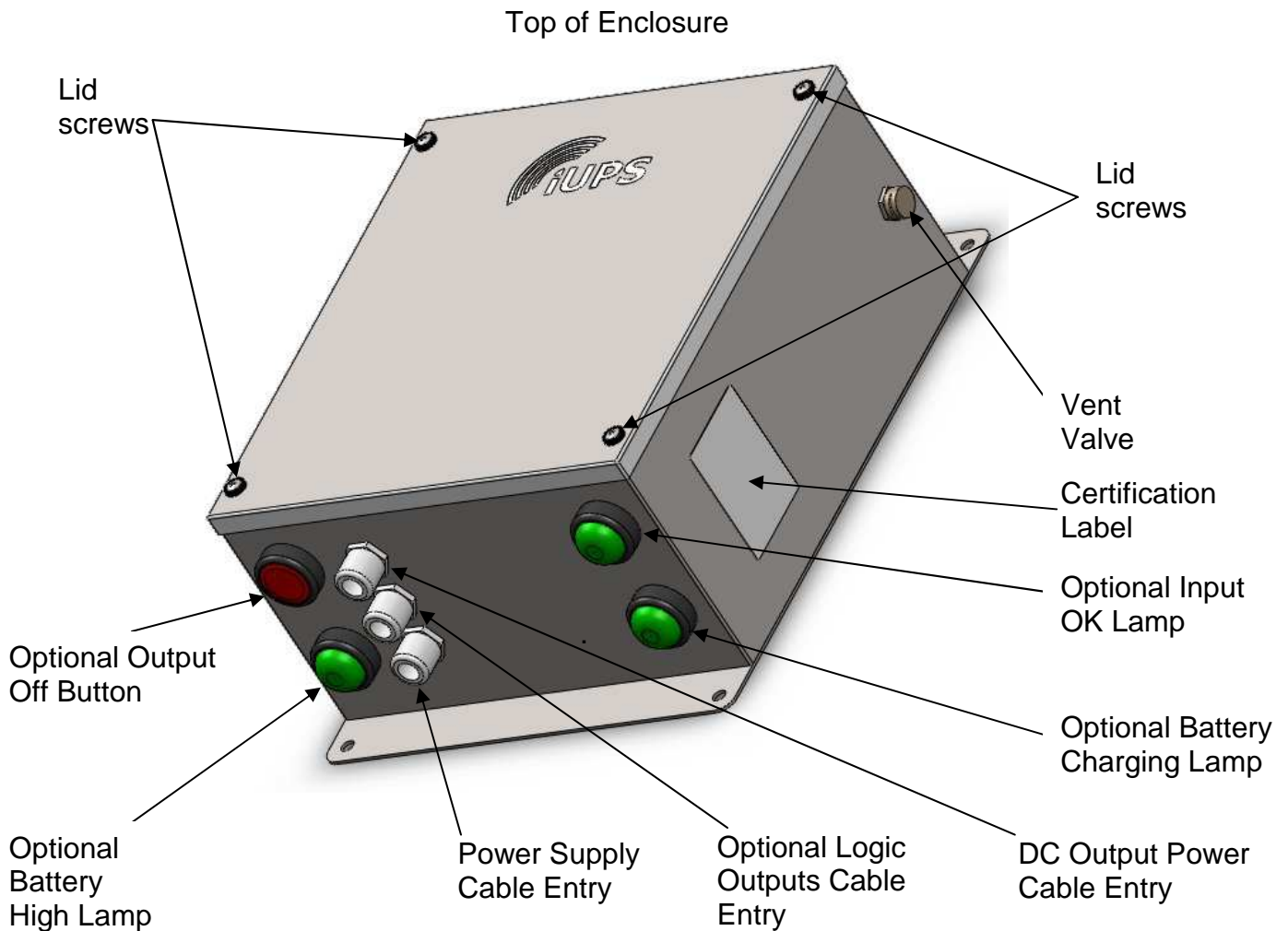


Diagram 3.1.1



### 3.1.2 Fitting the Batteries

The iUPS200 unit is delivered to the customer with the lead acid batteries removed to avoid any damage in transit. The batteries need to be installed and re-connected as per the diagrams below before the unit can be powered up.

#### 3.2.2.1 12V Unit Battery

**AT ALL TIMES TAKE GREAT CARE NOT TO SHORT THE LEAD ACID BATTERY TERMINALS AGAINST THE METAL ENCLOSURE OR BRACKETS.**

The unit is supplied with a plastic bag attached inside the unit that contains the required parts for re-connecting the batteries.



Contents :-

- 1 off battery terminal insulating boot
- 1 off T10A fuse
- 1 off fuse holder cap

**AT ALL TIMES TAKE GREAT CARE NOT TO SHORT THE LEAD ACID BATTERY TERMINALS AGAINST THE METAL ENCLOSURE OR BRACKETS.**

1. Remove and loosen the brackets within the iUPS200 unit & fit the 1 off 9020001 lead acid batteries. Re-fit and tighten all brackets.
2. Fit the 1 off terminal insulating boots over the + terminal wire.
3. Re-connect the wire crimps to the outer +/- terminals and also the temperature sensor crimp to the – terminal as shown. Take great care with these connections as over tightening may cause damage.
4. Ensure all connections are tight and then push the terminal insulating boot over the battery terminals.
5. Fit the T10A fuse supplied into the screw in fuse holder & then insert into the battery fuse FS3, see section 3.1.4.



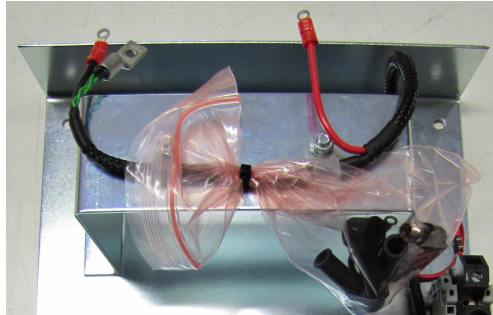
### 3.2.2.2 24V Unit Batteries

The unit is supplied with a plastic bag attached inside the unit that contains the required parts for re-connecting the batteries.



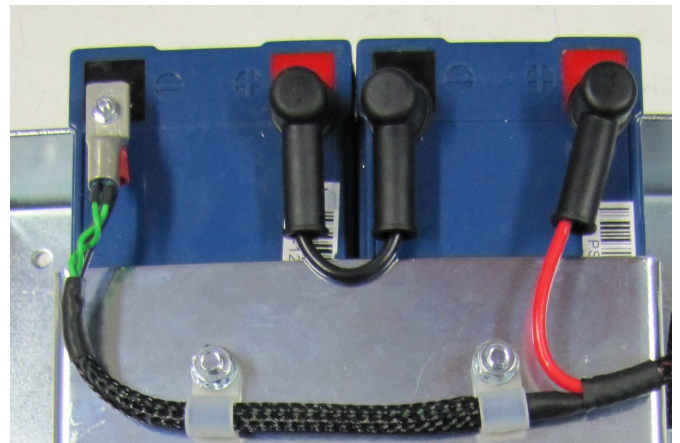
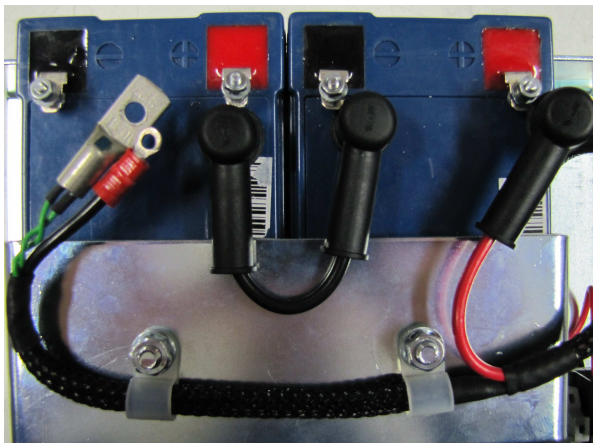
Contents :-

- 3 off battery terminal insulating boot
- 1 off battery link wire
- 1 off T5A fuse
- 1 off fuse holder cap



**AT ALL TIMES TAKE GREAT CARE NOT TO SHORT THE LEAD ACID BATTERY TERMINALS AGAINST THE METAL ENCLOSURE OR BRACKETS.**

6. Remove and loosen the brackets within the iUPS200 unit & fit the 2 off 9020002 lead acid batteries. Re-fit and tighten all brackets.
7. Fit the 3 off terminal insulating boots over the + terminal wire & also the battery link wire.
8. Re-connect the wire crimps to the outer +/- terminals, the +/- battery link wire and also the temperature sensor crimp to the – terminal as shown. Take great care with these connections as over tightening may cause damage.
9. Ensure all connections are tight and then push the terminal insulating boot over the battery terminals.
10. Fit the T5A fuse supplied into the screw in fuse holder & then insert into the battery fuse FS3, see section 3.1.4.



### 3.1.3 Fitting the Cables

The iUPS200 unit should be powered via an external site circuit breaker/fuse/switch to allow disconnection of the power. This circuit breaker/fuse/switch should be located close to the unit and be suitably marked to identify it as the isolating device for the iUPS200 unit.

The connections for AC power in and DC out will need to be terminated into the enclosure via the correct cable entries shown in Diagram 3.1.1.

The user wiring to connect the AC power in and DC out to the unit are connected via screw terminals and must conform to the following specification:-

All wires to be rated 90°C or greater operating temperature and be capable of carrying a current of at least 10A.

All wires should be stripped and, if stranded cable is used, should be crimped using 2.5mm bootlace ferrules. The stripped/crimped wires should then be placed into the corresponding screw terminal and securely screwed in place.

**If using solid core cable;**

Minimum cross section of cable =  $0.2\text{mm}^2$

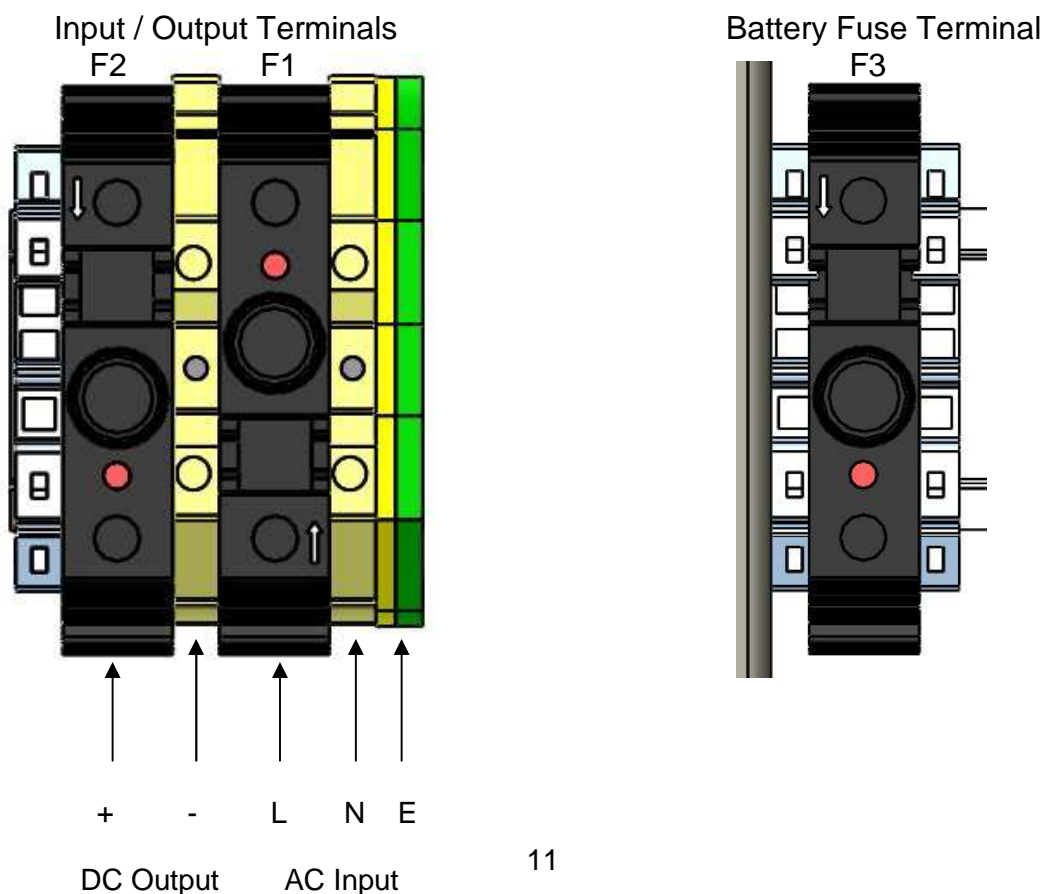
Maximum cross section of cable =  $2.5\text{mm}^2$

**If using crimped stranded core cable;**

Minimum cross section of cable =  $0.25\text{mm}^2$

Maximum cross section of cable =  $1.5\text{mm}^2$

### 3.1.4 Terminals



### 3.1.5 Fusing – 12V System

90-264VAC, 50/60Hz input fuse, F1 = 20mm x 5, T2A  
12VDC output fuse, F2 = 20mm x 5, T6.3A  
Battery protection fuse, F3 = 20mm x 5, T10A

### 3.1.6 Fusing – 24V System

90-264VAC, 50/60Hz input fuse, F1 = 20mm x 5, T2A  
24VDC output fuse, F2 = 20mm x 5, T3.15A  
Battery protection fuse, F3 = 20mm x 5, T5A

<b>Warning!</b>	<b>All cables should be connected to the iUPS200 via the correct cable gland and fitted by a competent person.</b>
-----------------	--

<b>Warning!</b>	<b>Changes in the design and modifications to the equipment are not permitted. If any changes are performed on the enclosure the ATEX certification will become void.</b>
-----------------	---

<b>Warning!</b>	<b>The installer MUST ensure that that all cables have adequate mechanical protection to avoid damage to the wires.</b>
-----------------	---

### 3.1.7 Setting to work

Once all cables are connected correctly and inspected, refit the enclosure lid using the four screws previously removed. Use a torque screwdriver set to 2.5 Nm. Do not over tighten screws.

<b>Important</b>	<b>Ensure the lid is secure, correct cable glands are fitted and the unit device correctly wired and earthed for the particular application before applying power.</b>
------------------	--

<b>Important</b>	<b>The iUPS200 is supplied fitted with anti-seize grease on the lid screws. Ensure that this is not removed during installation. See section 6.5.1 for maintenance details.</b>
------------------	---

<b>Important</b>	<b>Ensure that the lid gasket is clean and undamaged before fitting the lid. Take care not to trap the lid earth cable in the gasket when closing the lid.</b>
------------------	--

## 4 Operation

### 4.1.1 Power On/Off

When AC power is applied to the unit, the 12/24V output will power on and the various indicators or logic outputs will energise. If the AC power is removed the unit will then go into backup mode & supply the load with 12/24V for an amount of time dependant on load & conditions.

See section 5 for instructions on testing and commissioning the iUPS200.

### 4.1.2 Status Indicators Option

If the status indicator option is fitted the enclosure will have a number of indicators and/or a pushbutton as per the diagram 4.1.2 below.

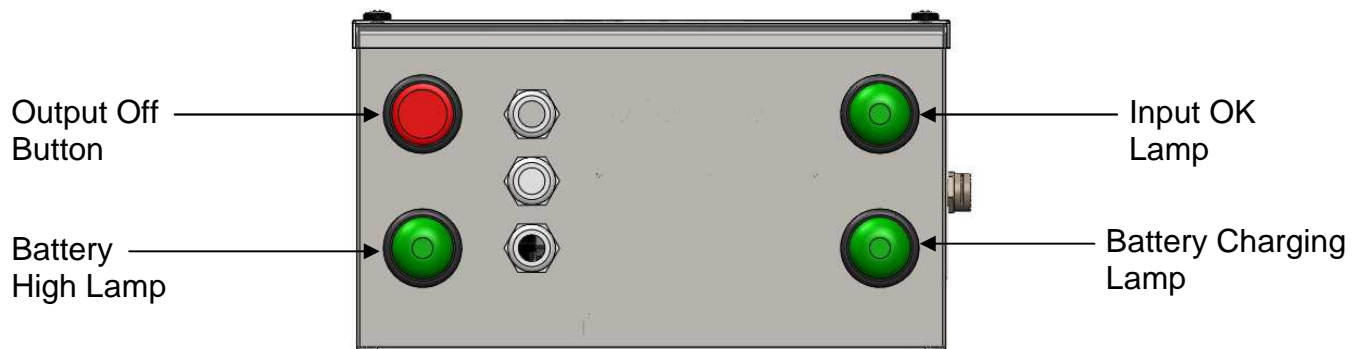


Diagram 4.1.2

### 4.1.3 Logic Outputs Option

If the logic output option is fitted, a multi-core cable can be installed via the optional M20 cable gland and the connections can be made directly into the A26000x module as per diagram 4.1.3 below. The logic outputs are active signals switched at the output DC voltage, 12/24V.

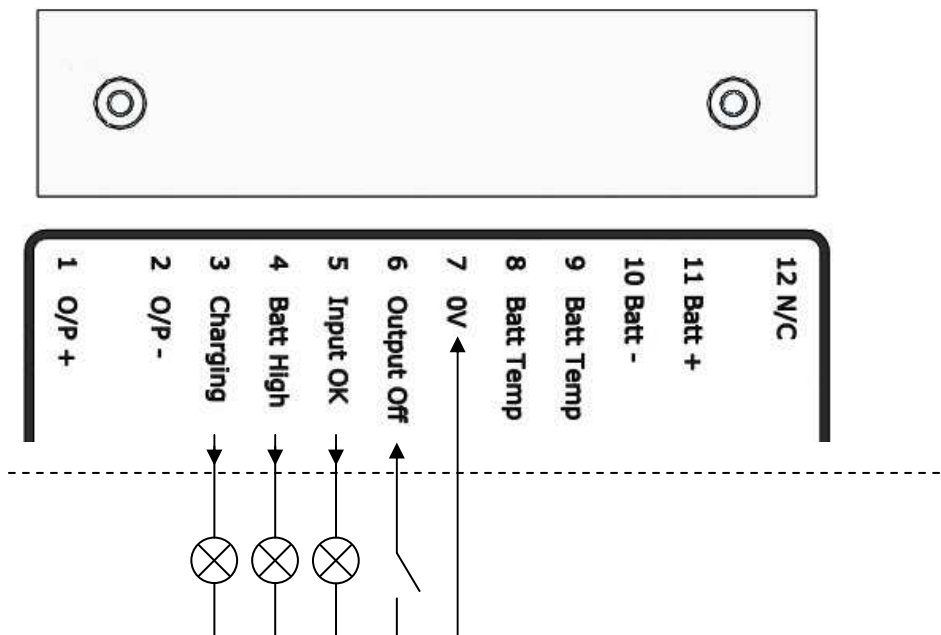


Diagram 4.1.3

#### 4.1.4 Status Indicators / Logic Outputs Operation

With the AC Power ON:

Indicator / Logic Output	Status	Battery Condition	Description
Charging *	ON	>0.08A / 0.05A	Charging battery
Batt High	ON	>11.3V / 22.6V	Battery voltage OK (early warning)
Input OK	ON	>13.1V / 26.2V	Unit supplied by AC
DC Output	ON	>10.4V / 20.9V	Output connected to battery / PSU (active)

\* Charging indicator / logic output will go OFF when batteries are fully charged.

With the AC Power OFF:

Indicator / Logic Output	Status	Battery Condition	Description
Charging	OFF		No charging when AC OFF
Batt High	OFF	<11.3V / 22.6V	When 15% battery energy left (early warning)
Input OK	OFF	<12.8V / 25.6V	Unit AC OFF – DC Input goes down
DC Output	OFF	<10.6V / 20.9V	Load disconnected to protect battery from deep discharging

#### 4.1.5 Output OFF Pushbutton

When the unit is in back up mode (AC power OFF) the DC output can be turned off by pressing the pushbutton as per diagram 4.1.2 or closing the contact as per diagram 4.1.3

Note: When using this option, please keep the iUPS200 loaded. If not the iUPS200 will take 10-20 seconds for the DC output to turn off due to the internal circuits discharging, during this time keep the pushbutton or contact closed.

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## 5 Testing and Commissioning

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1. This manual should be fully read & the iUPS200 unit should be fully inspected prior to powering on.
2. Check all fuses for their correct ratings; see section 3.1.5 or 3.1.6 depending on system output voltage.
3. Connect any required test lamps, pushbutton etc, to the logic outputs if optional pushbuttons and indicators are not fitted, see section 4.1.3.
4. Connect a suitably rated load to terminals F2(+) & - , see section 3.1.4  
12V system – 2.14Ω (max 5.6A)  
24V system – 9.23Ω (max 2.6A)
5. Apply 90-264VAC, 50/60Hz mains power to terminals F1, N & E , see section 3.1.4
6. Check nominally +12/24V at terminals F2(+) & - , voltage will vary dependant on load and charging voltage.
7. Ensure battery is fully charged & then turn off the mains power supply.
8. Check +12/24V is still present at terminals F2(+) & -
9. Check the lamps operate as per section 4.1.4.
10. Leave the mains power off for approx 120 minutes or until the +12/24V turns off.
11. Check the lamps operate as per section 4.1.4.
12. Re-apply the mains power to reset.
13. Check +12/24V is still present at terminals F2(+) & -
14. Turn off the mains power & press the output off pushbutton to turn the unit off.

## 6 Intended Purpose Usage

<b>Important</b>	<b>Before setting the units to work read the technical documentation carefully.</b>
------------------	---

<b>Important</b>	<b>The latest version of the technical documentation or the corresponding technical supplements is valid in each case.</b>
------------------	--

The iUPS200 is built using modern components and is extremely reliable in operation; however it must only be used for its intended purpose. Please note that the intended purpose also includes compliance with the instructions issued by the manufacturer for installation, setting up and service.

Any other use is regarded as conflicting with the intended purpose. The manufacturer is not liable for any subsequent damage resulting from such inadmissible use. The user bears the sole risk in such cases.

### 6.1 Transportation and Storage

All iUPS200 devices must be so transported and stored that they are not subjected to any excessive mechanical stresses.

### 6.2 Authorized Persons

Only persons trained for the purpose are authorized to handle the iUPS200; they must be familiar with the unit and must be aware of the regulation and provisions required for correct installation as well as the relevant accident prevention regulations.

### 6.3 Cleaning and Maintenance

The iUPS200 and all its components require no maintenance and are self-monitoring. All work on the iUPS200 by personnel who are not expressly qualified for such activities will cause the guarantee to become void.

#### 6.3.1 Lead Acid Batteries

The rechargeable sealed lead acid batteries contained within the iUPS200 have an operational life of approximately 3-5 years dependant on charge/discharge cycles. After this period it is recommended to replace them, please contact Extronics for battery sales and advice. These batteries may be changed in the field by the customer under safe area conditions. Please note that is essential that this work is carried out by a competent person and care must be taken not to short the +/- terminals of the batteries. Please contact Extronics for advice before performing this work.



## 6.4 Safety Precautions

<b>Important</b>	<b>For the installation, maintenance and cleaning of the units, it is absolutely necessary to observe the applicable regulations and provisions concerned with explosion protection (EN 60079-0:2006, EN 60079-14:2008) as well as the Accident Prevention Regulations.</b>
------------------	---

## 6.5 Cleaning and Maintenance Intervals

The cleaning intervals depend on the environment where the system is installed.

### 6.5.1 Screw Thread Lubrication

The threads of the lid screws and inserts have been coated with a thin layer of Rocol 251 stainless steel anti-seize grease. It is recommended that this grease should be periodically renewed if the lid is opened frequently, to prevent the stainless threads from binding.

<b>Warning</b>	<b>Use only Rocol 251 or Loctite 771 as thread lubricants, as other materials may damage the gasket and invalidate the IP rating of the enclosure</b>
----------------	---

### 6.5.2 Surface Coating

The iWAP200 enclosure has been coated with a material to prevent 'tea staining' of the stainless steel by build-up of salt deposits in marine environments. Avoid damage of the surface of the enclosure during handling.

However, if 'tea staining' does occur, it is purely cosmetic and does not affect the performance of the enclosure.

If the coating is damaged, it can easily be re-applied in the field. Contact Extronics for details.

## 6.6 Aggressive substances and environments

The iUPS200 is not designed to come into contact with aggressive substances or environments, please be aware that additional protection may be required.

## 6.7 Exposure to external stresses

The iUPS200 is not designed to be subjected to excessive stresses e.g. vibration, heat, impact. Additional protection is required to protect against these external stresses.

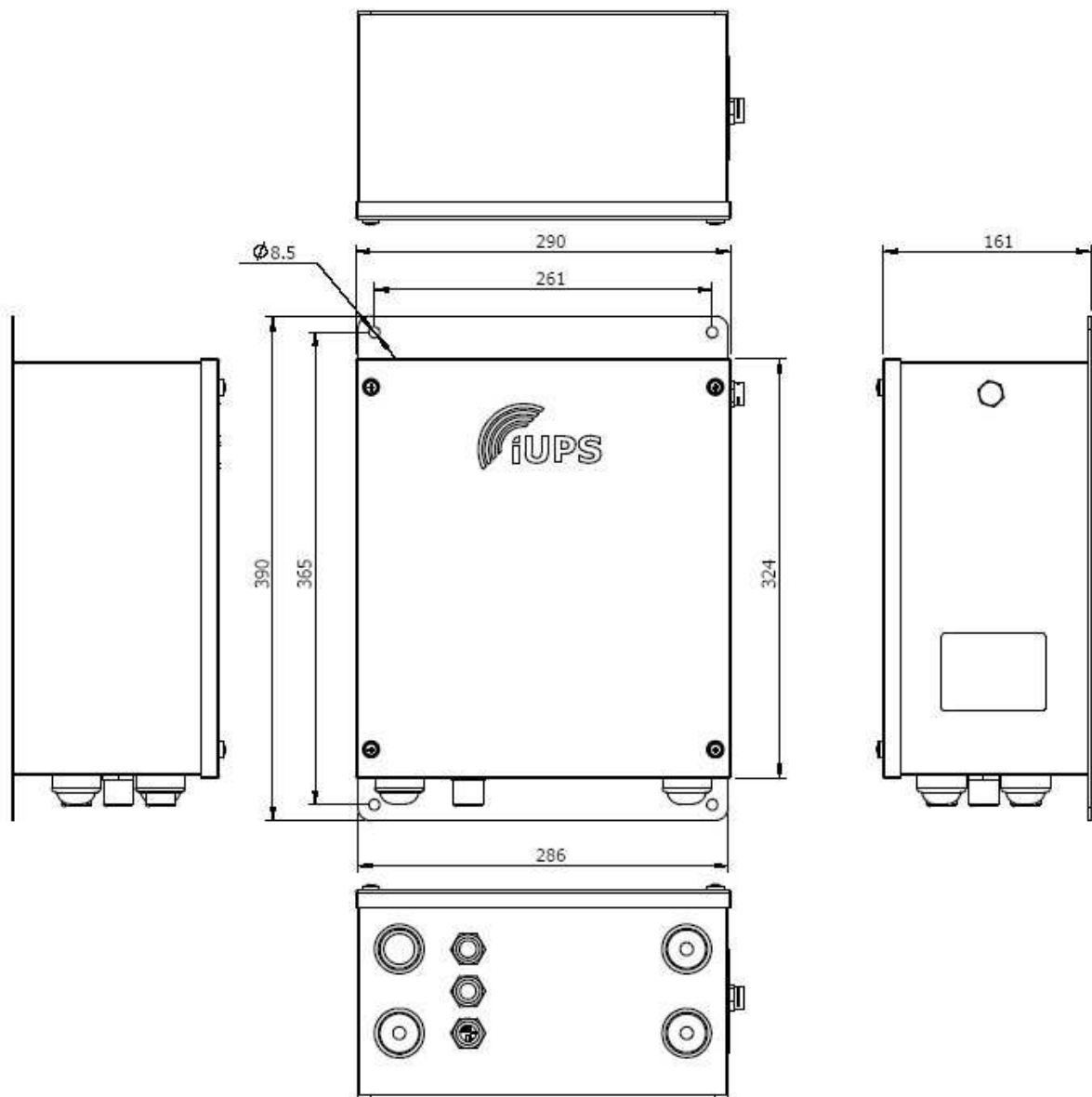
The iUPS200 will require additional protection if it is installed in a location where it may be subjected to damage.

## 7 Technical Data

### 7.1 Specification

<b>Power Supply</b>	90-264VAC, 50/60Hz
<b>Maximum Power Output</b>	67.2W, 5.6A @ 12V or 62.4W, 2.6A @ 24V depending on battery/power output voltage ordered
<b>Backup Time</b>	For full load, approx 120 minutes @ 25°C
<b>Enclosure Material</b>	316L Stainless Steel
<b>Ingress Protection</b>	IP66
<b>Weight</b>	Approximately 15 Kg
<b>Dimensions</b>	390 x 290 x 161 mm (h x w x d)
<b>Environmental</b>	Operating temperature: -20°C to 55°C Storage temperature; -20°C to 85°C Relative humidity; 0 to 95%, non condensing
<b>Input Connections</b>	115/230VAC fused screw terminals via M20 cable gland See cable gland option #6
<b>Output Connections</b>	12/24VDC fused screw terminals via M20 cable gland See cable gland option #6
<b>Enclosure Status Indicators (Optional, when logic outputs not used)</b>	Battery charging, green lamp — Battery being charged  Battery high, green lamp — Battery voltage OK >11.3V / 22.6V  Input OK, green lamp — Unit supplied by AC >13.1V / 26.2V  Output off, red pushbutton — Press to turn off output voltage, remove and re-apply mains to reset
<b>Logic Outputs (Optional, when status indicators not used)</b>	Battery charging, logic signal at battery voltage — Battery being charged  Battery high, logic signal at battery voltage — Battery voltage OK >11.3V / 22.6V  Input OK, logic signal at battery voltage — Unit supplied by AC >13.1V / 26.2V  Output off, opto isolated input — Connect to 0V to turn off output voltage, remove and re-apply mains to reset
<b>ATEX Certification</b>	ITS09ATEX46416 ATEX II 3 G Ex nA II T4 (-20°C≤Ta≤+55°C)

## 7.2 Enclosure Dimensions



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## 8 Type Codes

---

### iUPS200 Zone 2 UPS Enclosure

iUPS200-[#1]-[#2]-[#3]-[#4]-[#5]-[#6]-[#7]

#### Specify option [#1] - Battery/Power Output Voltage

12V DC

12

24V DC

24

#### Specify option [#2] - Battery Charging Indicator

No Battery Charging Indicator Fitted

N

Enclosure Indicator Fitted

Y

#### Specify option [#3] - Battery High Indicator

No battery High Indicator Fitted

N

Enclosure Battery High Indicator Fitted

Y

#### Specify option [#4] - Input OK Indicator

No Input OK Indicator Fitted

N

Enclosure Input OK Indicator Fitted

Y

#### Specify option [#5] - Output Off Pushbutton

No Output Off Pushbutton Required

N

Enclosure Output Off Pushbutton Fitted

Y

#### Specify option [#6] - Enclosure Cable Entry

Cable Glands Fitted

G

No Cable Glands Fitted, M20 gland holes drilled

N

#### Specify option [#7] - Logic Outputs (only available when status indicators are not used, gland not fitted if option #6N selected)

No Logic Outputs Required

N

Logic Outputs Fitted

L

## 9 ATEX Label



iUPS200

Date

Serial #



ITS09ATEX46416

II 3 G Ex nA II T 4 ( $-20^{\circ}\text{C} \leq T_a \leq +55^{\circ}\text{C}$ )

Vin(Max)	Ain(Max)	Vout(Max)	Aout(Max)
----------	----------	-----------	-----------

**DO NOT OPEN WHILE ENERGIZED**  
**DO NOT OPEN WHEN AN EXPLOSIVE GAS ATMOSPHERE IS PRESENT**

ENSURE GASKET IS FITTED BETWEEN BODY AND COVER  
 TO MAINTAIN IP RATING

Extronics Ltd Meridian House Roe Street Congleton CW12 1PG

**Tel:** +44(0) 1260 297274 **Fax:** +44 (0) 1260 297280

**E-mail:** Info@extronics.com **Web:** www.extronics.com

# 10 EC Declaration Of Conformity



Hazardous Area Specialists

## EC Declaration of Conformity

**Extronics Ltd, 1 Dalton Way, Midpoint 18, Middlewich, Cheshire CW10 0HU, UK**

Equipment Type:

**iUPS200**

**Directive 94/9/EC** Equipment and protective systems intended for use in potentially explosive atmospheres (ATEX).

Provisions of the directive fulfilled by the equipment:

**Ex II 3G Ex nA II T4 Tamb = -20°C to +55°C**

Notified Body for EC-Type Examination:

**Intertek 0359 Leatherhead UK**

EC-Type Examination Certificate:

**ITS09ATEX46416 - latest supplement ITS09ATEX46416/V1 dated 26<sup>th</sup> September 2011**

Notified Body for Production:

**SIRA 0518 Chester UK**

Harmonised Standards used:

None

Other Standards and Specifications used:

EN 60079-0:2006	Electrical Apparatus for potentially explosive atmospheres – General Requirements (A review against EN 60079-0:2009, which is harmonised, shows no significant changes relevant to this equipment so EN 60079-0:2006 continues to represent "State of the Art")
EN60079-15:2005	Electrical apparatus for explosive gas atmospheres – Construction, test & marking of type 'n' (A review against EN60079-15:2010, which is harmonized, shows no significant changes relevant to this equipment so EN 60079-15:2010 continues to represent "State of the Art")

**Directive 2004/108/EC**

Electromagnetic Compatibility Directive (EMC)

## Harmonised Standards used:

EN55022:2006	(+A1:2007) Information technology equipment – Radio disturbance characteristics - Limits and methods of measurement
--------------	--

## Other Standards and Specifications used:

EN55024:1998	(+A2:2003) Information technology equipment – Immunity characteristics - Limits and methods of measurement (A review against EN55024:2010, which is harmonized, shows no significant changes relevant to this equipment so EN 55024:1998 continues to represent "State of the Art")
--------------	---

## Other Standards and Specifications used:

EN61010-1:2001	Safety requirements for electrical equipment for measurement, control and laboratory use – Part 1: General requirements (A review against EN61010-1:2010, which is harmonized, shows no significant changes relevant to this equipment so EN 61010-1:2001 continues to represent "State of the Art")
----------------	---

On behalf of Extronics Ltd, I declare that, on the date the equipment accompanied by this declaration is placed on the market, the equipment conforms with all technical and regulatory requirements of the above listed directives.

Signed

David Crump  
Technical Manager  
Date: 19/11/2013

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## 11 Manual Revision

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Revision	Description	Date	By
1.0	Initial Release, replaces 325722_08. Added revised d of c, updated information on greasing threads and coating.	19/12/13	BTS
1.1	Fixed typo	20/12/13	BTS
1.2	Added warranty statement	20/12/13	BTS