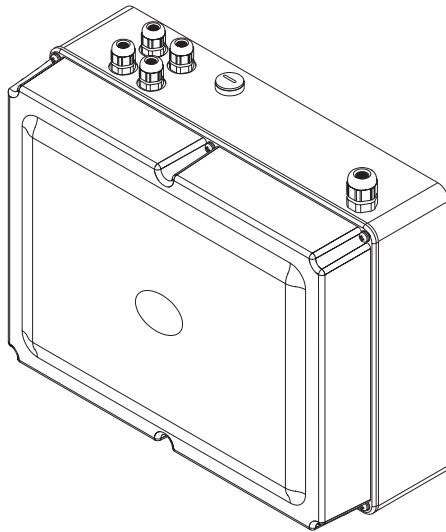


# Pulse **rada**

## **ELECTRONIC CONTROL BOX**



## **PRODUCT MANUAL**

### **IMPORTANT**

**Installer:** This manual is the property of the customer and must be retained with the product for maintenance and operational purposes.

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# INTRODUCTION

The Rada Pulse range of electronic products combine together to produce a controlled washroom environment offering a high degree of energy and water conservation.

## Rada Pulse Control Box

- The system is an independently mounted electronic control.
- The system operates at 12 V AC, 50/60 Hz with a 230V supply with a range of sensors and control interfaces to suit showering, handwashing, urinal flushing and W.C applications.
- The core of the system is the Rada Pulse Control Box containing a transformer and a PCB. One control box can control up to ten outlets in any configuration e.g. 5 showers, 3 washbasins, 1 urinal and 1 W.C.
- External to the Rada Pulse Control Box are the sensors and the solenoid valves to control the water flow. They are all wired into the box.

The appropriate sensor and solenoid valve are all available in a convenient 'Operating System' package (supplied separately).

# DESCRIPTION

## Sensors

There are two generic types:

- No-touch sensors where a transmitted infra-red beam of light is reflected back to the sensor by the proximity of a hand, called active infra-red.
- No-touch sensors where the sensor receives infra-red heat from a person in the detection area, called passive infra-red.

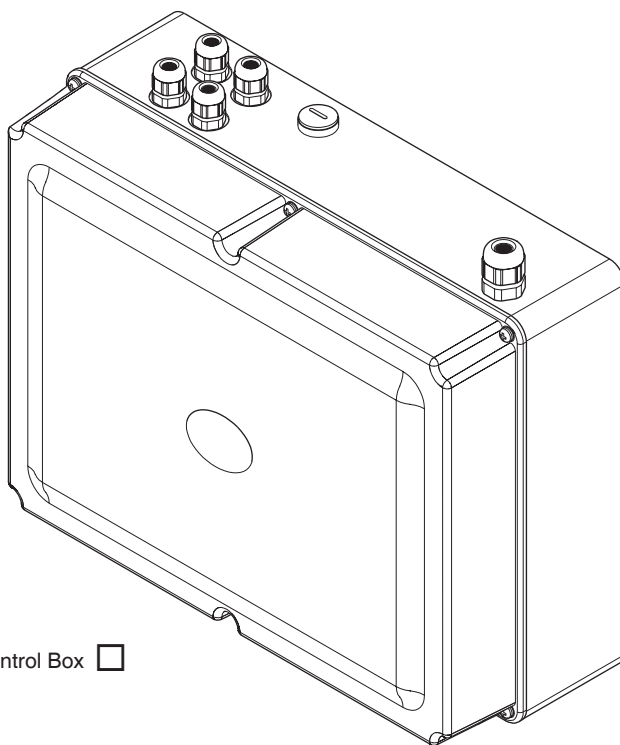
## Printed Circuit Boards (PCB)

The PCB is mounted in the Rada Pulse control box. The purpose of the PCB is to:

- Supply power (via the transformer) to the remote mounted sensor.
- To operate a remote mounted solenoid valve.
- To allow the operating functions to be programmed in through the hand held programmer.
- To provide a signal so as to allow operation of the auxiliaries.

# PACK CONTENTS

## 1. Rada Pulse Control Box Pack Contents



1 x Rada Pulse Control Box

4 x Fixing Screws(not illustrated)

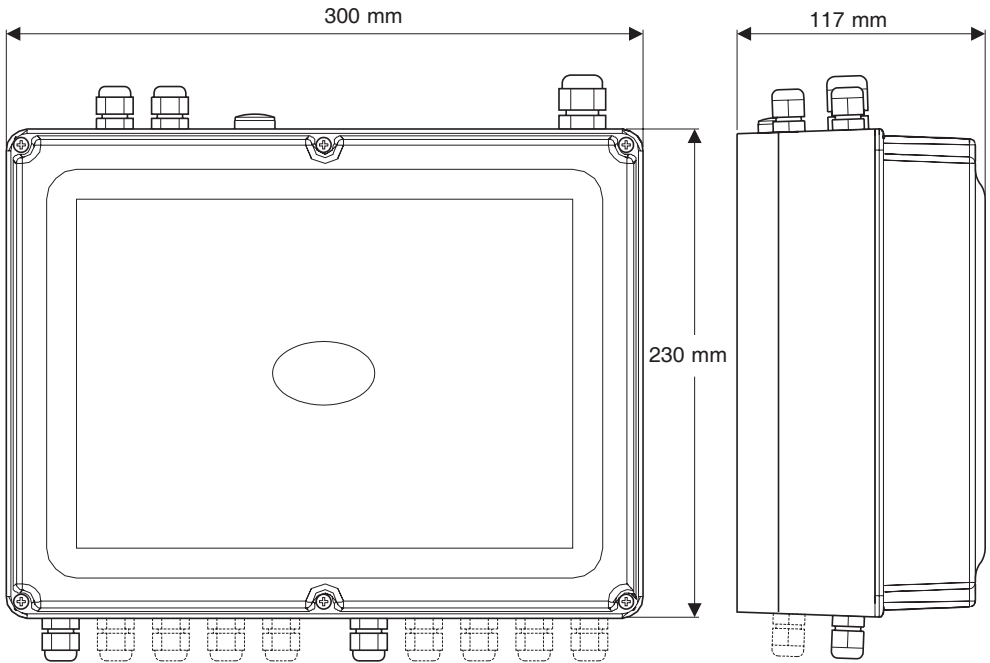
4 x Wall Plugs (not illustrated)

## 2. Documentation

1 x Product Manual

1 x Installation Template

# DIMENSIONS



# SPECIFICATION

## **Rada Pulse Control Box**

Material - Plastic sealed to IP54.

Voltage - 230V AC, 50/60 Hz.

Rating - 120 VA.

Main Fuse - 1AT.

10 x Solenoid Outputs (5 fuses) - fused at 2A for each pair.

4 x Auxiliary Outputs (1 fuse) - fused at 200mA.

Transformer - 230V AC/14V AC.

Ambient Temperature Range - 0 - 40 °C.

Maximum Humidity - 80% at 25 °C.

# INSTALLATION

## General

**The installation and maintenance of this unit must be carried out in accordance with the instructions and information given in this Manual, and must be conducted by designated, qualified and competent personnel.**

1. Before commencing, ensure that the installation conditions comply with the information given in the **SPECIFICATION** section.
2. Care must be taken during installation to prevent any risk of injury or damage.
3. All electrical connections should be in accordance with BS7671 and undertaken by a competent person.
4. Isolate mains voltage supply before removing cover.
5. Installations must comply with all current Building and Electrical Regulations in force, and relevant Guidelines.
6. The installation and usage environment of this product must not be subject to extremes of moisture or temperature, unauthorised tampering or wilful abuse.
7. All solenoids must be approved to EN 60730-2-8.

## Installation

The Rada Pulse Control Box is designed to interface with Rada Pulse sensors and Rada Pulse solenoid valves (refer to individual Product Manuals for information) which control the system functions.

The enclosure is intended for wall-mounting to a suitable flat dry surface (fixing screws are supplied), accessible for maintenance. Make sure that you fit the sealing washers to the fixing screws before installation.

**Note!** An installation template is supplied so that the fixing positions can be marked and drilled without putting the control box on the wall (If the wall is uneven it is advisable to fit a board to ensure surface is flat and the control box does not become distorted).

This appliance is intended for permanent connection to the fixed electrical wiring of the mains electric system via a double pole switched connection unit fused at 3 amps, which has at least 3 mm contact separation.

A mains 230 V supply cable of 2 metre length is pre-connected, this must not be removed; do not renew the cable inside the box if damaged.

Safe low-voltage 12 V AC output is fuse-protected internally. This appliance is IP54 protected, provided blanking caps are fitted to unused cable holes and the cover seal is fitted correctly.

All AC cable used on the installation must be HAR approved (0.75 mm).

The PCB has four connections to enable auxiliary items to be used in conjunction with the pulse system (e.g.pump, fan, lights and disinfection).

The connection of these auxiliaries must be through a 12V relay with a maximum coil resistance of 160 ohms.

Maximum cable runs for solenoid connection are as follows:

<b>Cable Lengths</b>	
<b>Sq mm</b>	<b>Metres</b>
<b>0.50</b>	<b>27</b>
<b>0.75</b>	<b>40</b>
<b>1.00</b>	<b>53</b>
<b>2.00</b>	<b>104</b>

Programming of all outlets is via the hand held programmer.

#### **WARNING!**

**Under normal operating conditions the input water temperature to the unit SHALL be regulated to less than 55°C**

**During the disinfection process high water temperatures can be discharged from the shower heads or taps. During this process suitable safety precautions SHALL be taken to ensure that persons are not exposed to the risk of scalding.**

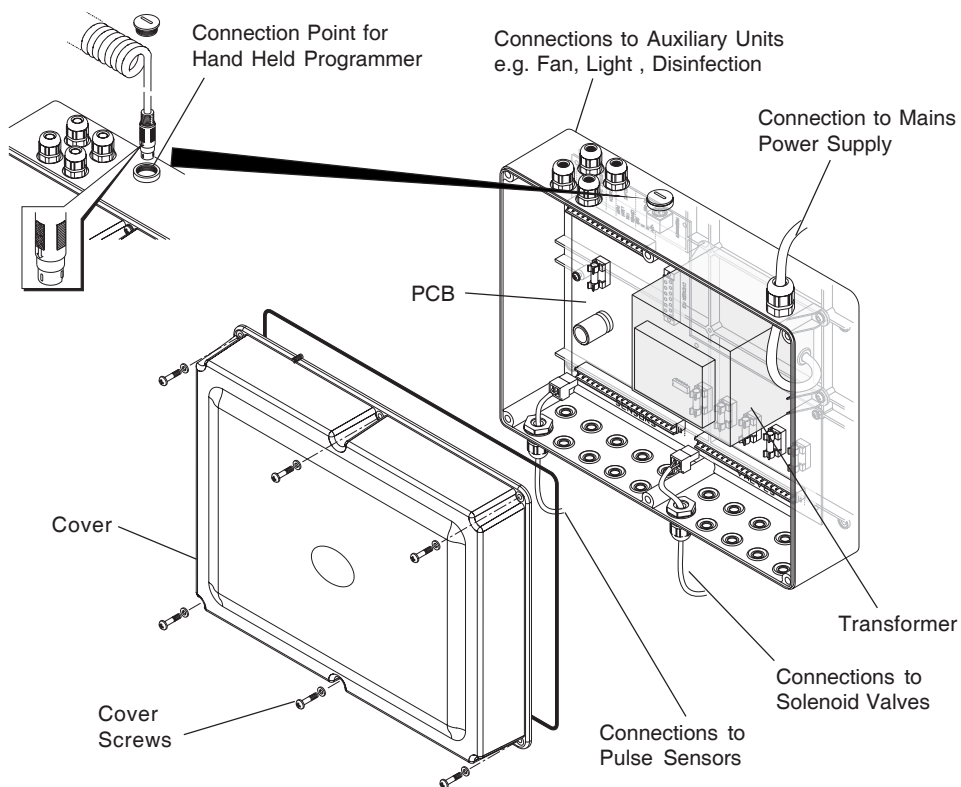
1. Use the installation template (supplied) to mark the positions of the fixing holes for the control box.
2. Drill and plug the fixing holes.
3. Remove the cover from the control box.
4. Hold the control box in position and secure with the fixing screws (supplied).

**Note!** On some wall surfaces or structures alternative fixings may be required (not supplied).

5. Connect the solenoid valve and sensors to the PCB with the two part connectors. Make sure that the cables go through the cable glands (supplied with the sensor and the solenoid valve).

**Note!** Sensor position identified No. 1 operates solenoid valve No. 1 etc. Inside the cover of the control box is an information label to be completed by the installer. The information on this label should identify the position in the building of individual solenoids and sensors (refer to example on label).

6. Connect the transformer to the mains electrical supply.
7. The control box will now need programming with the hand held programmer (refer to the Product Manual for the hand held programmer).
8. Fit the cover to the control box and secure with the screws (6 off).



## Installation of the Rada Pulse Control Box



# FAULT DIAGNOSIS

Symptom	Cause/Rectification
<p><b>1.</b> All outlets do not operate (e.g. washbasin, shower, urinal, W.C).</p>	<p><b>a.</b> Check power to Pulse control box (power light illuminated on PCB).</p> <p><b>b.</b> If there is power to the control box, check fuse in transformer.</p>
<p><b>2.</b> Individual outlets do not operate.</p>	<p><b>a.</b> Check output fuse on PCB. Replace as necessary.</p> <p><b>b.</b> Plug in hand held controller and check that non operating outlet is set up correctly.</p> <p><b>c.</b> Plug in hand held controller and complete a system info 'error' check. This will identify if the sensor or solenoid is incorrectly installed or faulty. Replace parts or products as required.</p> <p><b>d.</b> Check solenoid. Replace if necessary.</p>
<p><b>3.</b> Outlets continue running or run for e x c e s s i v e periods</p>	<p><b>a.</b> Plug in hand held programmer and check timing for outlet. Reprogram if necessary.</p> <p><b>b.</b> Check solenoid valve. Maintain or replace parts if required.</p>
<p><b>4.</b> Outlets only run for a short period of time.</p>	<p><b>a.</b> Plug in hand held programmer and check timing for outlet. Reprogram if necessary.</p>

# MAINTENANCE

## General

Rada products are precision-engineered and should give continued superior and safe performance, provided:

1. They are installed, commissioned, operated and maintained in accordance with our recommendations, and
2. Periodic attention is given as necessary to maintain the product in good functional order. Guidelines for frequency are given below.

Rada Service Engineers/Agents will call by prior arrangement, if required. Service Contracts may be undertaken, subject to survey - details upon request.

## Preventative/Precautionary Maintenance (Planned Maintenance Programmes)

The frequency and extent of attention required will vary according to prevailing site and operational conditions.

### Six-monthly

**Visual:** check internal component condition. Inspect for debris, scale deposition, deformation, damage, corrosion, etc. Maintain or renew as necessary.

## Maintenance Procedures

**Maintenance must be carried out in accordance with these instructions, and must be conducted by designated, qualified and competent personnel.**

External surfaces may be wiped clean with a soft cloth, and if necessary, a mild washing-up type detergent or soap solution can be used.

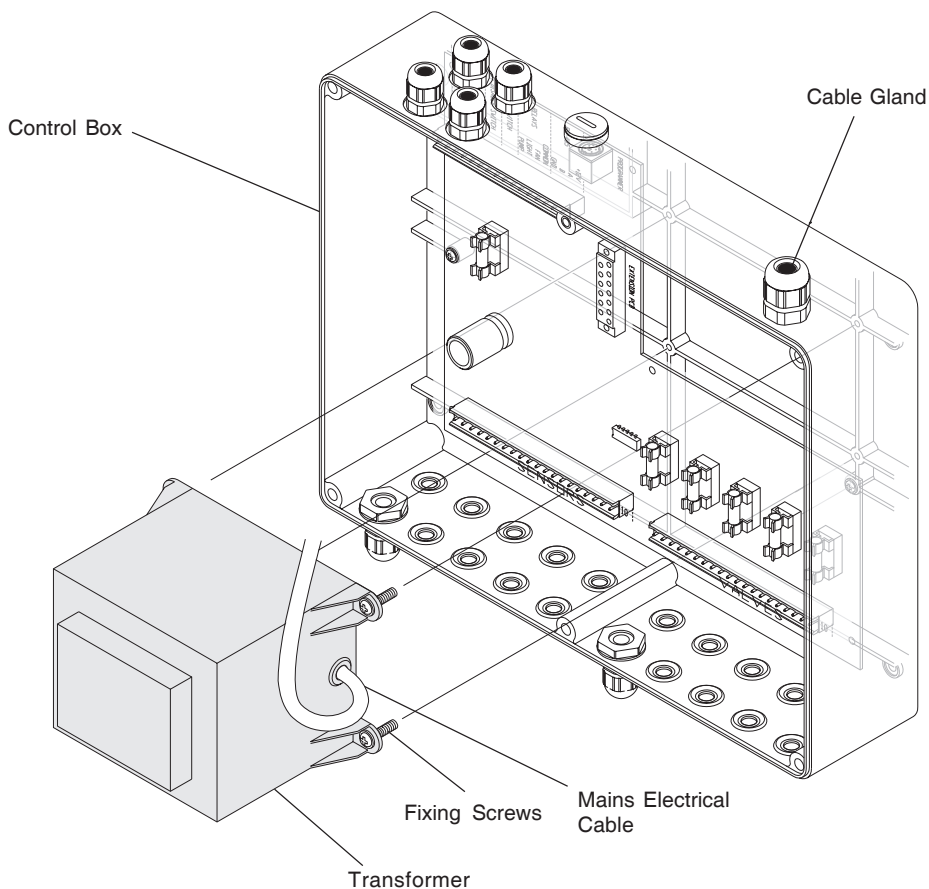
**WARNING!** Many household and industrial cleaning products contain mild abrasives and chemical concentrates, and should **not** be used on this product.

Components are precision made, so care must be taken whilst servicing to avoid damage.

When ordering spare parts, please state the product type, i.e. Rada Pulse, and identify the part name and number (refer to the **PARTS LIST**).

## Maintenance Procedure - Transformer

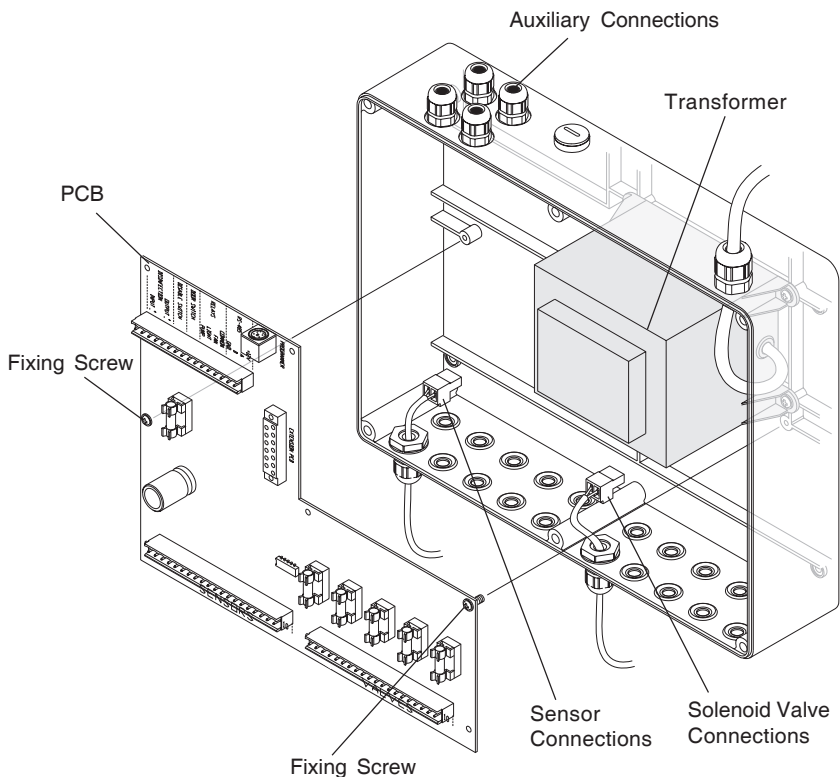
1. Isolate the electrical supply to the control box.
2. Remove the cover from the control box.
3. Disconnect the transformer from the mains electrical supply.
4. Disconnect the two part connector that connects the transformer to the PCB.
5. Remove the fixing screws (4 off) that secure the transformer to the control box.
6. Unscrew the cable gland and carefully pull the electrical cable through it.
7. Remove the transformer from the control box.
8. Refit the new transformer in reverse order.



### Removal and Installation of the Transformer

## Maintenance Procedure - PCB

1. Isolate the electrical supply to the control box.
2. Remove the cover from the control box.
3. Disconnect the transformer from the PCB.
4. Make a note of the positions of the connections for the sensors and the solenoid valves.
5. Disconnect the solenoid valves and the sensors connections from the PCB.
6. If necessary, disconnect any auxiliary connections from the PCB.
7. Remove the fixing screws (2 off) that secure the PCB to the control box.
8. Remove the PCB from the control box.
9. Refit the new PCB in reverse order.
10. The control box will now need programming with the hand held programmer (refer to the Product Manual for the hand held programmer).



### Removal and Installation of the PCB

## **Maintenance Procedure - Transformer Fuse**

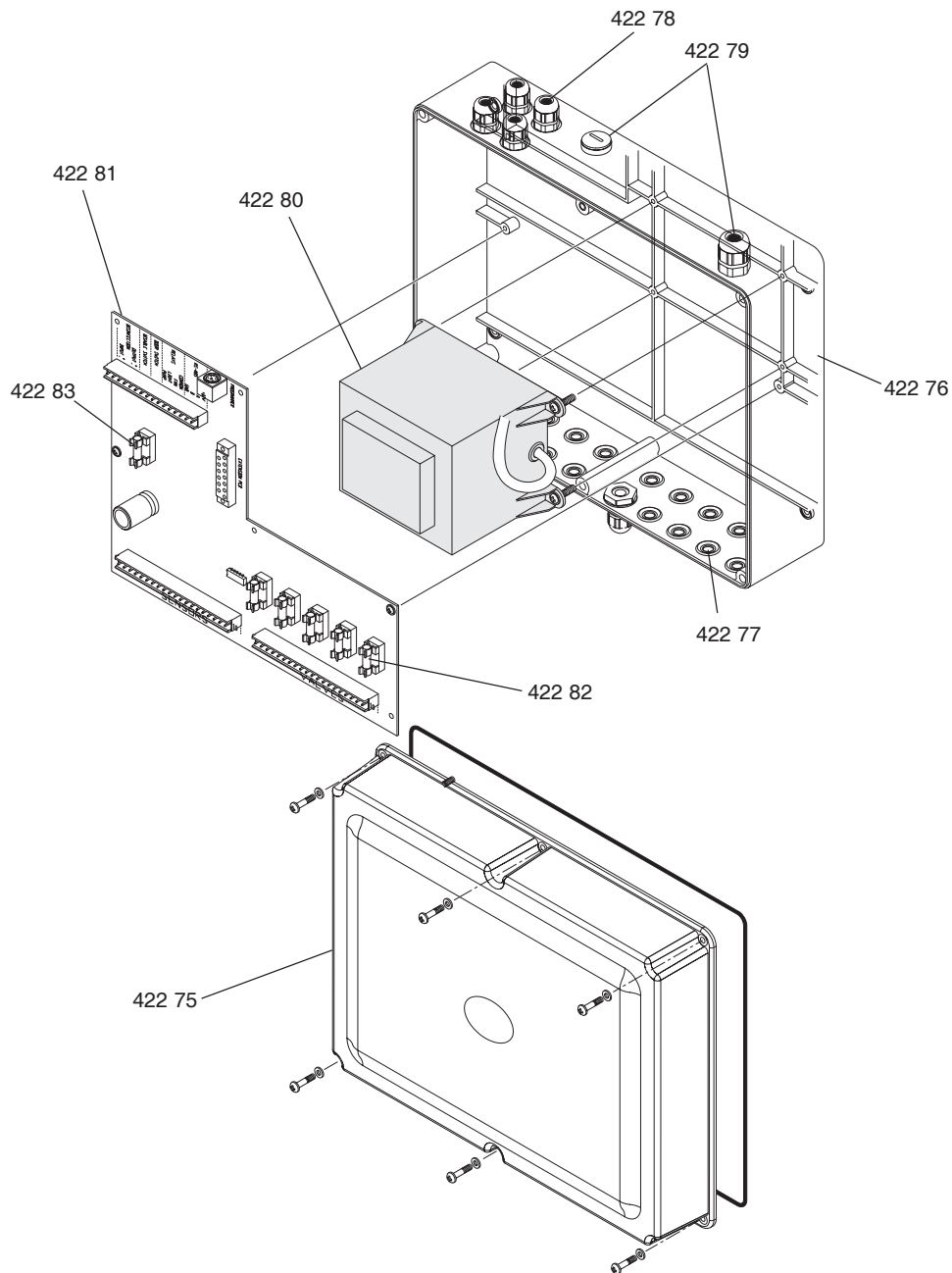
- 1.** Isolate the electrical supply to the control box.
- 2.** Remove the cover from the control box.
- 3.** Disconnect the transformer from the mains electrical supply.
- 4.** Disconnect the two part connector that connects the transformer to the PCB.
- 5.** Remove the fixing screws (4 off) that secure the transformer to the control box.
- 6.** Unscrew the cable gland and carefully pull the electrical cable through it.
- 7.** Remove the fuse in the side of the transformer.
- 8.** Refit the new fuse in reverse order.

# SPARE PARTS

## Rada Pulse Control Box Spare Parts List

422 75	Cover Assembly
422 76	Base Assembly
422 77	Blanking Plugs (x10)
422 78	Cable Grommets (x10)
422 79	Mains Cable Grommet and Threaded Plug
422 80	Transformer
422 81	PCB
422 82	Fuse (output)
422 83	Supply Fuse (12 V)
422 84	Mains Input Fuse (located in transformer, not shown)

# Rada Pulse Control Box Spare Parts Diagram









# INSTALLATION AND MAINTENANCE RECORD CARD

**Control Box Ref:** \_\_\_\_\_ **Location:** \_\_\_\_\_

**No. Of Outlets:** \_\_\_\_\_ **Installation Date:** \_\_\_\_\_

## PROGRAM SETTINGS

Channel No.	Type of Outlet (e.g. shower, washbasin)	Type (e.g. Manual, automatic)	Flow Settings	Duty Flush (urinal and W.C only)	Auxiliary Functions Activated (fan, light, pump, disinfection)
e.g.	urinal	Single auto.	preflush 10 secs flush delay 5 min flush time 15 secs	Duty flush 1st 12 hrs	Fan and disinfection
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

# CONTACTS

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# CUSTOMER CARE

## Guarantee

This product is guaranteed against any defect of materials or workmanship for one year from the date of purchase, provided that the product has been installed correctly and used in accordance with the instructions supplied.

Any part found to be defective during the guarantee period will be replaced or repaired - at our option - without charge, provided that the product has been properly used and maintained.

Routine cleaning and maintenance should be carried out in accordance with the instructions supplied.

The product should not be modified or repaired except by a person authorised by Rada.

Your statutory rights are in no way affected by this guarantee.

## After Sales Service - how we can help you

We have a network of fully trained staff ready to provide assistance, should you experience any difficulty operating your Rada equipment.

## Spare Parts

All functional parts of Rada products are kept for up to ten years from the date of final manufacture.

If during that period, our stock of a particular part is exhausted we will, as an alternative, provide an equivalent new product or part at a price equating to the cost of repair to the old, bearing in mind the age of the product.

## Customer Care Policy

If within a short time of installation the product does not function correctly, first check with the operation and maintenance advice provided in this Manual to see if the difficulty can be overcome.

Failing this, contact your installer to ensure that the product has been installed and commissioned in full accord with our detailed installation instructions.

If this does not resolve the difficulty, please ring your nearest Rada contact who will give every assistance and, if appropriate, arrange for the local Service Engineer or Agent to call on a mutually agreeable date.

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## Contact:

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### Rada Controls

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The company reserve the right to alter product  
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**Web site: [www.rada-controls.co.uk](http://www.rada-controls.co.uk)**



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