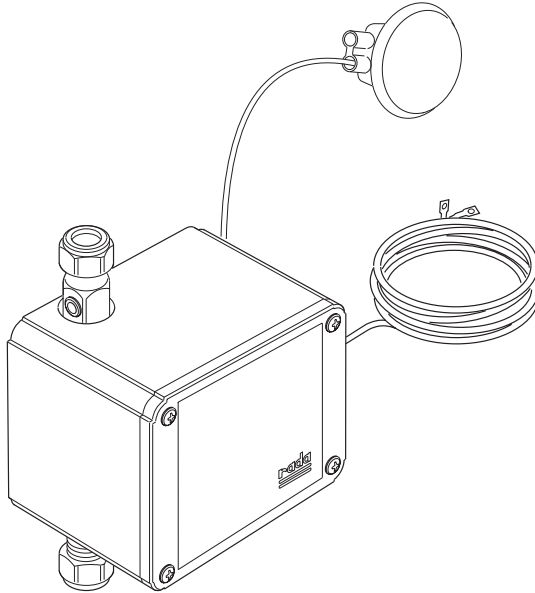




# ***Mono Box Control Systems***



***MC120, MC122, MC124, MC125,  
MC126 and MC129***

## ***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 Mono Box Control Systems range of electronic products combine to produce a controlled washroom environment offering a high degree of energy and water conservation.

There are several Mono Box Control Systems suitable for use in a washroom environment:

- The Mono Box Control System operates at 12 V AC via a transformer with a 230V supply with a range of sensors and electronic control modules that interface to suit showering, handwashing and urinal flushing applications.
- A solenoid valve linked to the electronic control module controls the water flow.

The appropriate electronic control module and solenoid valve in a surface mountable Control Box, together with a sensor, are all available in a convenient 'Operating System' package.

# DESCRIPTION

## Sensor Range

There are two generic types of No-touch sensor:

- Active infra-red sensors where a transmitted infra-red beam of light is reflected back to the sensor by the proximity of a hand.
- Passive infra-red sensors where the sensor receives infra-red heat from a person in the detection area.

## Rada Pulse 120/122 and 129

The sensor encloses an active sensor and is designed to be installed within the shower, urinal, W.C or washbasin area.

All electrical connections are totally sealed and the systems operate at a very safe low voltage.

The sensor can be fixed to the wall using two fixing screws (supplied).

A mounting plate is an **optional accessory**, intended to be used when wall mounting the Rada Pulse 120/122/129 sensor onto difficult walls or surfaces, or when extra security screws need to be used.

## Rada Pulse Ceiling Sensor 124 Washbasin, 125 Single Urinal, 126 Group Urinal

The ceiling sensor is a passive sensor that can be used to a washbasin or urinal area.

All electrical connections within the sensor are totally sealed, and the systems operate at a very safe low voltage.

# SAFETY INFORMATION

## 1. Warning!

- 1.1. Products manufactured by us are safe and without risk provided they are installed, used and maintained in good working order in accordance with our instructions and recommendations.
- 1.2. **THIS APPLIANCE MUST BE EARTHED. ENSURE SUPPLEMENTARY BONDING COMPLIES WITH THE "REQUIREMENTS FOR ELECTRICAL INSTALLATIONS".**

In accordance with the current edition of 'The Plugs and Sockets etc. (Safety) Regulations' in force at the time of installation, this Mono Box is intended to be permanently connected to the fixed electrical wiring of the mains system.

- 1.3. The control box must not be fitted where it may be exposed to freezing conditions. Make sure that any pipework that could become frozen is properly insulated.
- 1.4. **DO NOT** operate this appliance if it is frozen. Allow the appliance to thaw before using again.
- 1.5. **DO NOT** operate this appliance if water leaks from the solenoid, maintenance will be required before the appliance can be safely used.
- 1.6. There are no user serviceable components beneath the cover of this appliance. Only a competent tradesperson should remove the cover.
- 1.7. If any of the following conditions occur, isolate the electricity and water supplies and refer to "**To contact us**", on the back page of this guide.
  - 1.7.1. If the cover is not correctly fitted and water has entered the control box.
  - 1.7.2. If the case is damaged.
  - 1.7.3. If the appliance begins to make an odd noise, smell or smoke.
  - 1.7.4. If the appliance shows signs of a distinct change in performance, indicating a need for maintenance.
  - 1.7.5. If the appliance is frozen.

- 1.8. Turn off the electrical and water supplies before removing the cover. The electricity must be turned off at the mains and the appropriate circuit fuse removed, if applicable.
- 1.9. Refer to the wiring diagram before making any electrical connections.
- 1.10. Ensure all electrical connections are tight, to prevent overheating.

## **2. Caution!**

- 2.1. **Read all of these instructions and retain this guide for later use.**
- 2.2. Pass on this guide in the event of change of ownership of the installation site.
- 2.3. Follow all warnings, cautions and instructions contained in this guide, and on or inside the appliance.
- 2.4. The electrical installation must comply with the “Requirements for Electrical Installations” (refer to Section 7) commonly referred to as the IEE Wiring Regulations, or any particular regulations and practices, specified by the local electricity supply company in force at the time of installation. The installation should be carried out by an electrician or contractor who is registered, or is a member of, an association such as:
  - 2.4.1. National Inspection Council for Electrical Installation and Contracting (NICEIC), throughout the UK.
  - 2.4.2. The Electrical Contractors Association (ECA), England and Wales.
  - 2.4.3. The Electrical Contractors Association of Scotland (ECAS).
- 2.5. The plumbing installation must comply with the requirements of UK Water Regulations/Bye-laws (Scotland), Building Regulations or any particular regulations and practices, specified by the local water company or water undertakers. The installation should be carried out by a plumber or contractor who is registered, or is a member of, an association such as:
  - 2.5.1. Institute of Plumbing (IOP), throughout the UK.
  - 2.5.2. National Association of Plumbing, Heating and Mechanical Services Contractors (NAPH & MSC), England and Wales.
  - 2.5.3. Scottish and Northern Ireland Plumbing Employers’ Federation (SNIPEF), Scotland and Northern Ireland.

- 2.6.** Anyone who may have difficulty understanding or operating the controls of any shower should be attended whilst showering. Particular consideration should be given to the young, the elderly, the infirm, or anyone inexperienced in the correct operation of the controls.
- 2.7.** When this appliance has reached the end of its serviceable life, it should be disposed of in a safe manner, in accordance with current local authority recycling, or waste disposal policy.

### **3. Standards and Approvals**

- 3.1.** This Mono Box Control complies with all relevant directives for CE marking.

# Electronic Control Modules (ECM)

There are a range of ECM's used in the Mono Box Control. The ECM's function is to:

- To operate the remote mounted sensor.
- To operate the solenoid valve.
- To allow timing and flow control adjustment to the operating systems to be programmed in.
- To allow a visual indication as to the timing in use.

# Solenoid Valve

The Rada SV1015 1/2" solenoid valve for pipework mounting is used with each Mono Box Control Operating System.

# Transformers (supplied separately)

Specification:

Model variants	302 supplies 1 Mono Box
	308 supplies 8 Mono Boxes
	316 supplies 16 Mono Boxes

# MONO BOX CONTROL SYSTEMS

There are two elements to each Mono Box Control System :

1. Sensor (with which the user activates the timed flow of water)
2. Mono Control Box containing an ECM (time setting functions) and Solenoid Valve (water flow control).

# Single Urinal Application

## MC122/125 Operating System

The MC122/125 Operating System comprises:

- a wall mounted Rada Pulse122 Infra-red sensor unit or a Rada Pulse 125 ceiling mounted Infra-red sensor unit.

A Mono Control Box containing:

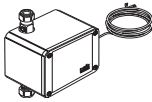
- MC122/125 Electronic Control Module.
- a 1/2" Solenoid Valve with 15 mm compression fittings and ball valve.

The MC122/125 Operating System is an advanced washroom control system which combines the established water and energy saving advantages of timed flow controls with hygienic 'no-touch' activation. The MC122/125 Operating System is designed specifically to meet the requirements of economic and hygienic urinal flushing. The infra-red sensor and solenoid

valve connect to the electronic control module, allowing flow timing to be programmed for the outlet. The flow timing can be programmed between 3 and 10 seconds (pre-flush is also available).



OR



# Group Urinal Applications

## MC 126 Operating System

The MC126 Operating System comprises:

- a ceiling mounted Rada Pulse 126 Infra-red Sensor Unit.

A Mono Control Box containing:

- a MC126 Electronic Control Module.
- a 1/2" Solenoid Valve with 15 mm compression fittings and ball valve.

The MC126 Operating System is an advanced washroom control system which combines the established water and energy saving advantages of timed flow controls with hygienic 'no-touch' activation. The MC126 Operating System is designed specifically to meet the requirements of economic and hygienic urinal flushing. The infra-red sensor and solenoid valve

connect to the electronic control module, allowing flow timing to be programmed for the outlets. The flow timing can be programmed between 3 and 15 seconds. Delays of between 30 seconds and 3 minutes are also programmable.



# Single Washbasin Application

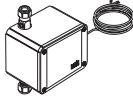
## MC124 Operating System

The MC124 Operating System comprises:

- a ceiling mounted Rada Pulse 124 Infra-red sensor unit.

A Mono Control Box containing:

- a MC124 Electronic Control Module.
- a 1/2" Solenoid Valve with 15 mm compression fittings and ball valve.



The MC124 Operating System is an advanced washroom control system which combines the established water and energy saving advantages of timed flow controls with hygienic 'no-touch' activation. The MC124 Operating System is designed specifically to meet the requirements of economic and hygienic washbasin use. The infra-red sensor and solenoid valve

connect to the electronic control module, allowing flow timing to be programmed for the outlets. The flow timing can be programmed between 1 and 16 seconds.

# Showering and Washbasin Applications

## MC 120/129 Operating System

The MC120/129 Operating System comprises:

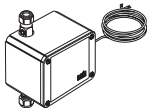
- a wall mounted Rada Pulse120 Infra-red sensor unit or a Rada Pulse 129 wall mounted Infra-red sensor unit.

A Mono Control Box containing:

- a MC120/129 Electronic Control Module
- a 1/2" Solenoid Valve with 15 mm compression fittings and ball valve.



OR

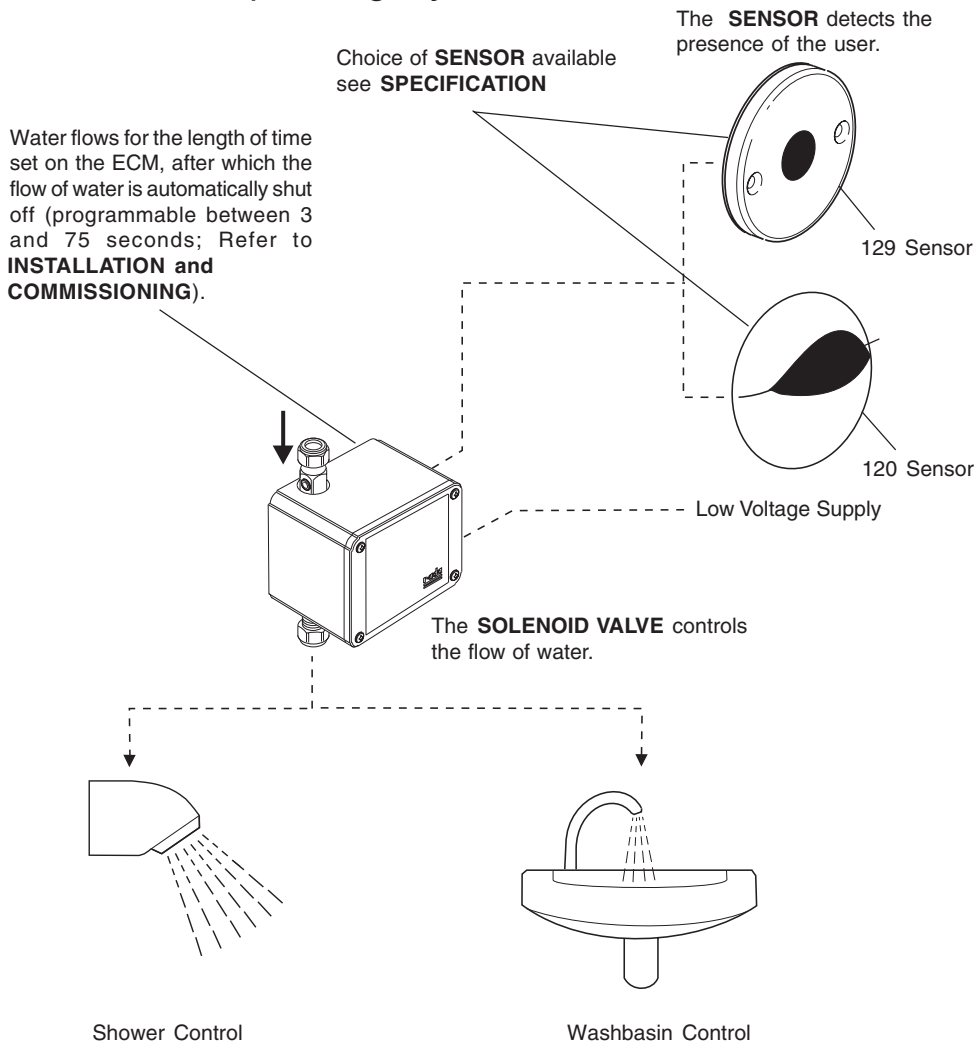


The MC120/129 Operating System is an advanced washroom control system which combines the established water and energy saving advantages of timed flow controls with hygienic 'no-touch' activation. The MC120/129 Operating System is designed specifically to meet the requirements of economic and hygienic shower and washbasin use.

The infra-red sensor and solenoid valve connect to the electronic control module, allowing flow timing to be programmed for the outlets. The flow timing can be programmed between 3 and 75 seconds.

# SCHEMATIC DIAGRAMS

## MC120/129 Operating Systems

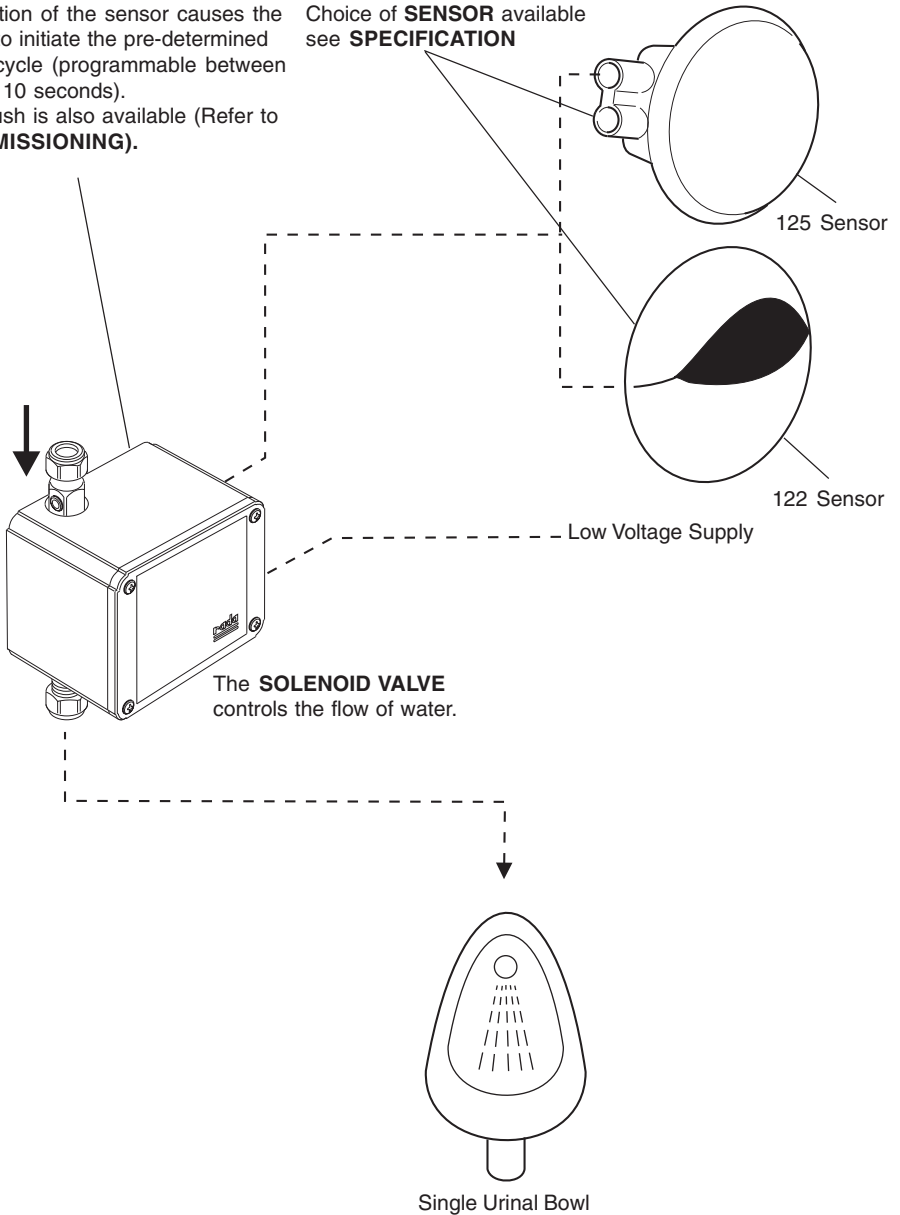


# MC122/125 Operating System

The **SENSOR** detects the presence of the user.

Activation of the sensor causes the ECM to initiate the pre-determined flush cycle (programmable between 3 and 10 seconds).  
Pre-flush is also available (Refer to **COMMISSIONING**).

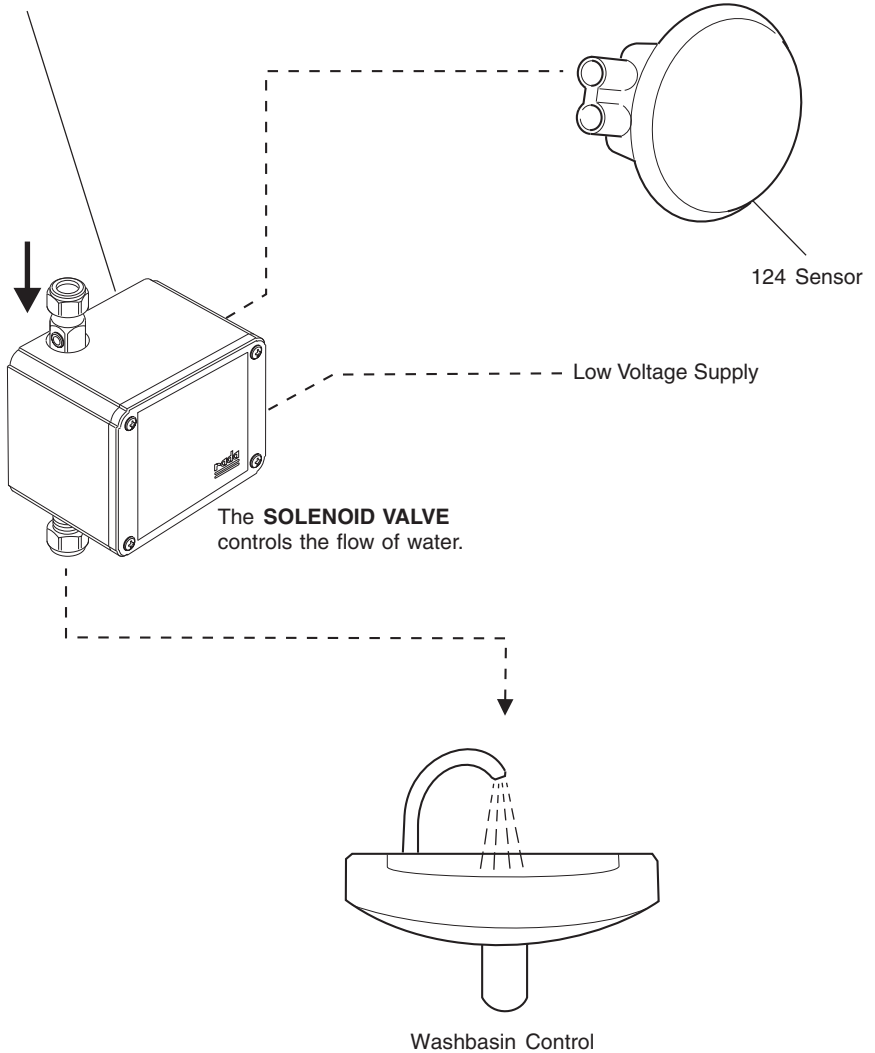
Choice of **SENSOR** available see **SPECIFICATION**



# MC124 Operating System

Activation of the sensor instructs the ECM to open the solenoid valve. Once activated, the water flow continues for a pre-determined period between 1 and 16 Seconds (Refer to **COMMISSIONING**).

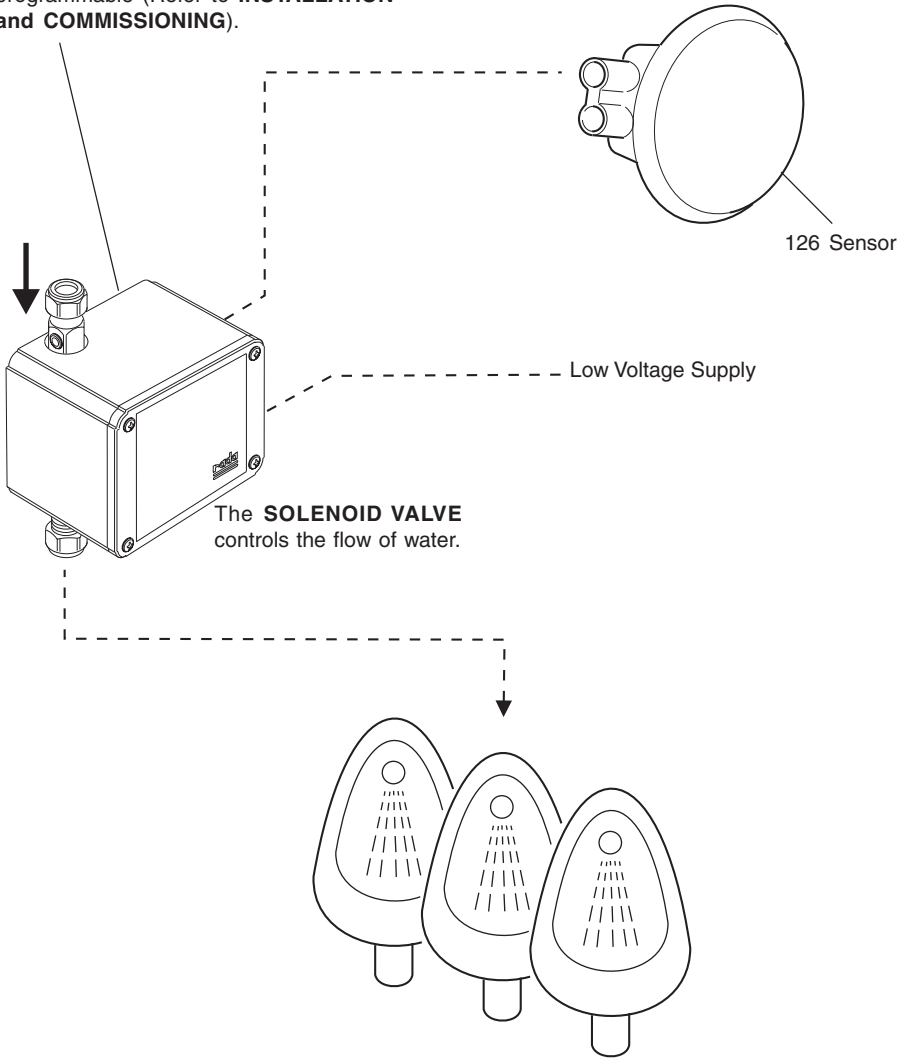
The **SENSOR** detects the presence of the user.



# MC126 Operating System

Water flows for the length of time set on the ECM, after which the flow of water is automatically shut off (programmable between 3 and 15 seconds). Delays of between 30 seconds and 3 minutes are programmable (Refer to **INSTALLATION and COMMISSIONING**).

User starts the flow of water by activating the **SENSOR**.



The **SOLENOID VALVE** controls the flow of water.

Group Urinal Control

# SPECIFICATION

## **Rada Mono Control Box**

Material - Plastic control box.

## **Rada Electronic Control Module**

Material - Plastic control box.

Voltage - 12V AC via Rada 302, 308 or 316 transformer (not supplied).

Rating - 10 VA.

Ambient Temperature range - 5 to 40 °C.

Maximum humidity - 80% at 25 °C.

1/4" male/female spade connectors for push fit connection of 12 V AC supply, sensors and solenoid valve.

## **Rada Pulse 120/122 Sensor**

Material - Durable Plastic cover, Finish - Chrome plated.

3 m of 2 core sheathed cable fitted, with connections sealed into the sensor.

Operating voltage - 12V A.C. via the 2 core cable.

Fixing holes - Drilled for 2 x 6 mm dome headed screws.

Protection - IP65.

Temperature range - 4 to 55 °C.

Activation distance -120 sensor 0 to 50 mm.

-122 sensor 300 to 700 mm.

The distance is dependent on the reflectivity of the detected object.

The Rada Pulse 120/122 complies with all relevant directives for CE marking.

## **Rada Pulse 129 Sensor**

Rada Pulse 129 Sensor (Part No. 093 41).

Material - Metal Alloy. Finish - Chrome plated.

Rear face fitted with close cell foam seal.

Fitted 3 m of 2 core sheathed cable, with connections sealed into the sensor.

Operating voltage - 12V A.C. via the 2 core cable.

Fixing holes - Drilled for 2 x 6 mm counter sunk screws.

Temperature range - 4 to 55 °C.

Protection - IP65.

Activation distance - 12 mm to 50 mm depending on the reflectivity of the detected object.

## Rada Mounting Plate

Rada mounting plate (Part No. 915 06).

Material - Brass (MS58). Finish - Chrome plated.

Fixing holes - Drilled for fixing by 2 x 6 mm screws to wall/panel (Screws not supplied), and drilled for 2 x 4 mm screws to secure to a junction box, if required.

Supplied with 2 x screws M5 x 12 mm (stainless steel) with 3 mm hexagon slot and a 3 mm A/F hexagon wrench.

## Rada Pulse Ceiling Mounted Passive Infra-red Sensor

Material - Base and cover ABS.

Supply voltage - 12V AC.

Maximum humidity - 80% at 30 °C.

Operating ambient temperature range - 0 to 35 °C.

Cable supplied - 3 m of 2 core insulated cable.

Cable requirements - 0.22 mm (minimum cross sectional area) up to 100 m.

## Rada SV1015 Universal Solenoid Valve

Supply Voltage: 12V ± 10%, 50/60 Hz rated at 5.5VA.

Electrical Connections: Socket to DIN 43650.

Body Material: Fibreglass polyamide.

Membrane Material: EPDM.

Pressure Range: 20 - 1000 kPa (0.2 - 10 bar).

Connections: Outlet 15 mm compression connectors.

Inlet 1/2" BSP ball valve union connections  
(with flat-faced inserts).

Inlet isolating valve for servicing

### Typical cable requirements (minimum cross-sectional area/length):

0.50 mm - up to 27 m

0.75 mm - up to 40 m

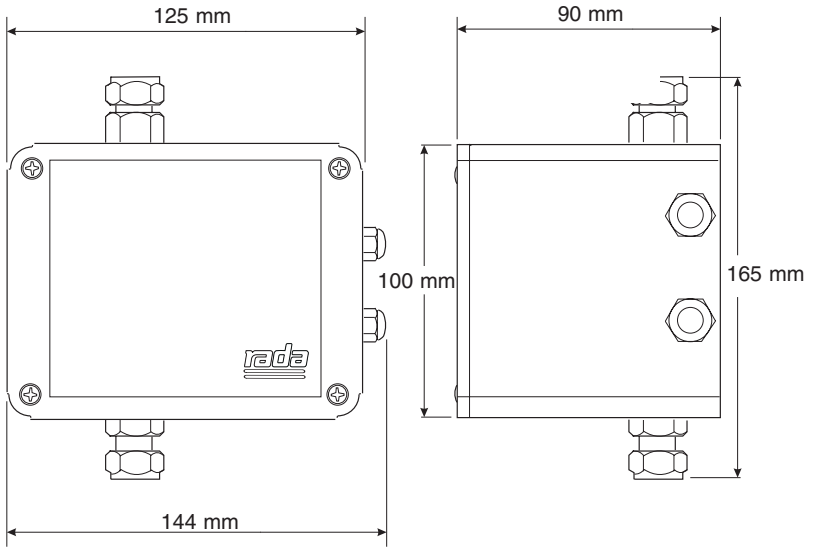
1.00 mm - up to 53 m

## Transformers 302, 316 (Supplied separately)

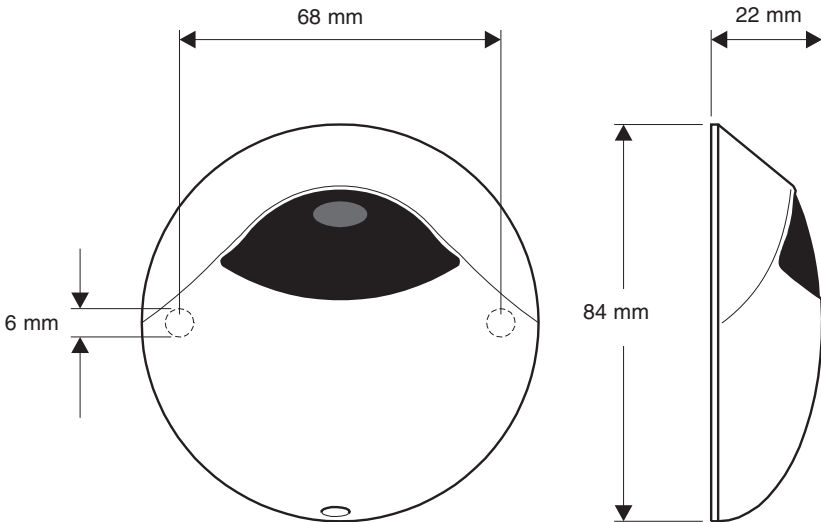
Model Variants: 302 supplies 1 Mono  
316 supplies 16 Mono's

# DIMENSIONS

## Rada Mono Control Box

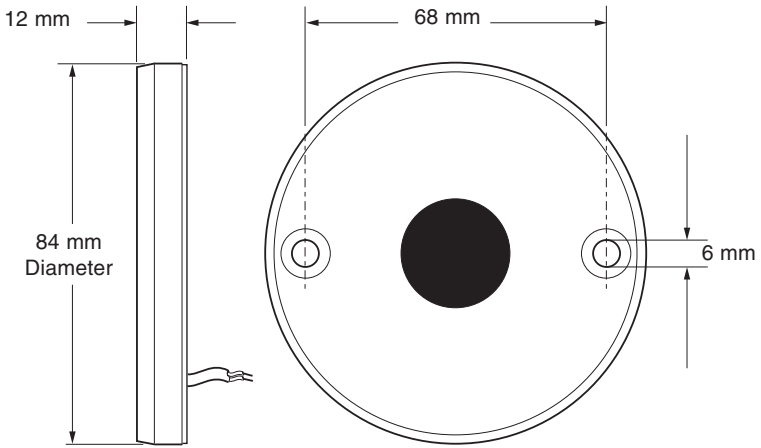


## Rada Pulse 120/122 Sensor

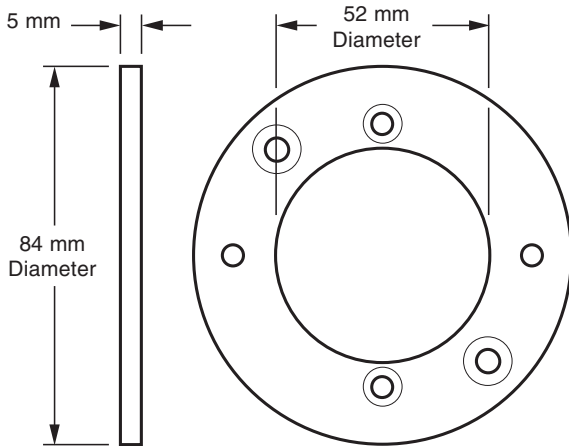




# Rada Pulse 129 Sensor

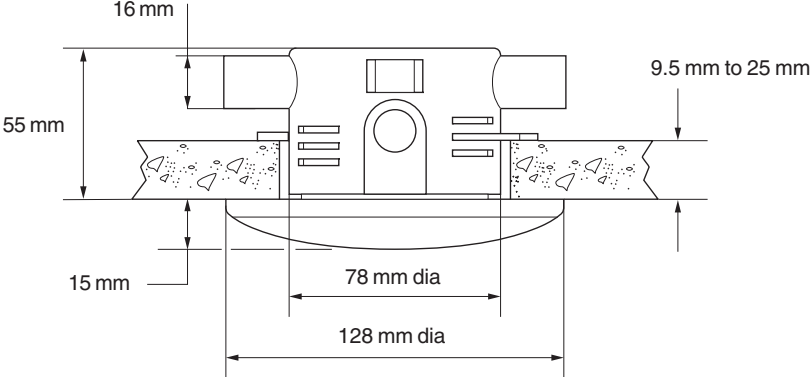


**Rada Pulse 129 Sensor  
Figure 1**



**Rada Mounting Plate  
Figure 2**

# Rada Pulse Ceiling Sensor



# INSTALLATION

## General

The mono control box solenoid valve connections can be installed directly into the water supply.

To set the Electronic Control Module flow and timing cycles, refer to **COMMISSIONING**.

Make sure that all the pipework connections are made and tested for leaks, and all electrical connections are made before applying power.

It is essential that the supply pipework is thoroughly flushed through before the solenoid is installed and operated.

This product is designed for use with clean, filtered cold water supplies.

The mono control box should be accessible for servicing.

Before commencing, ensure that the installation conditions comply with the information given in the **SPECIFICATION** section.

Care must be taken during installation to prevent any risk of injury or damage.

## Electrical

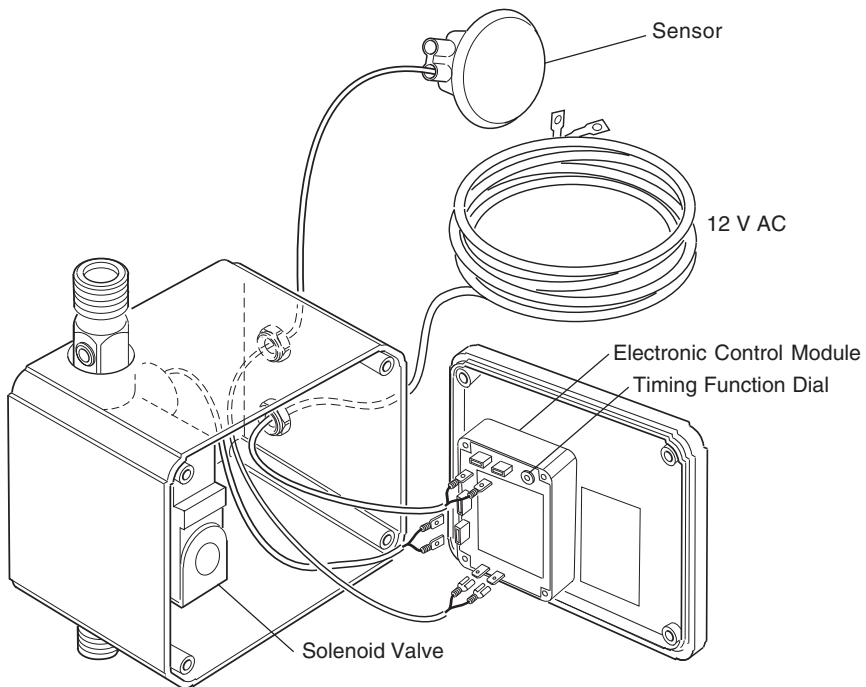
All electrical connections should be in accordance with current authority regulations and undertaken by a competent person.

1. The solenoid and power cable are pre installed to the ECM.
2. Remove the Mono Control Box lid and put the sensor cable through the top cable entry.
3. Crimp the spade connectors (supplied) to the sensor cables.
4. Connect the sensor spade connectors to the ECM (refer to Figure 1).
5. Tighten the cable entry.
6. Install the Mono Control Box lid and tighten the screws.
7. Connect the power supply cable to a 12 V ac supply via a transformer with a 230 V ac supply.

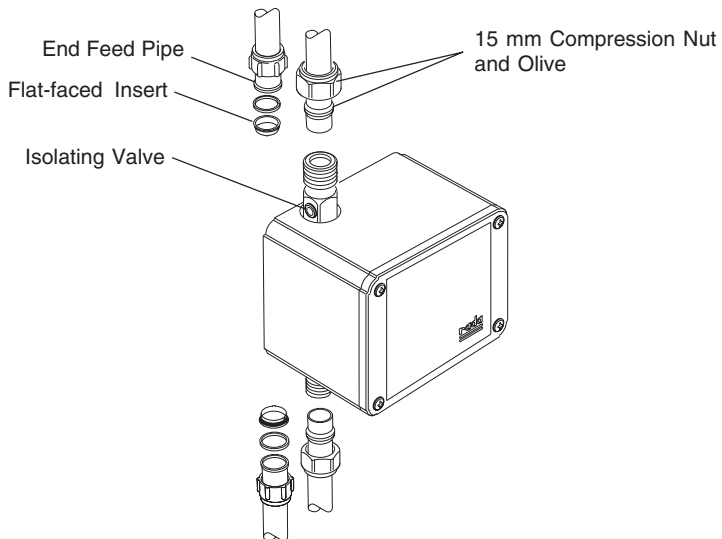
## Installation of the Mono Control Box Solenoid Valve

1. Connect the pipework to the inlet/outlet fittings. For 15 mm compression connections use the compression nuts and olives supplied. For 1/2" BSP union connections fit the flat-faced inserts to the inlet/outlet fittings. **Make sure that the water inlet is connected to the isolating valve (refer to Figure 2).**

2. Hold the adaptor when tightening the union nuts so that you do not twist or damage the valve.



**Figure 1**



**Figure 2**

# Installation of the Rada Pulse 120/122 Sensors

**Note!** Make sure that sensors are not mounted opposite reflective surfaces such as mirrors, stainless steel panels, etc.

1. Cut or drill the wall surface to run the 2 core cable to the Rada Pulse electronic control module. If necessary, chase out wall to fit a junction box.

**Note!** Make sure that the hole in the wall surface is positioned correctly and large enough so that you do not bend the cable.

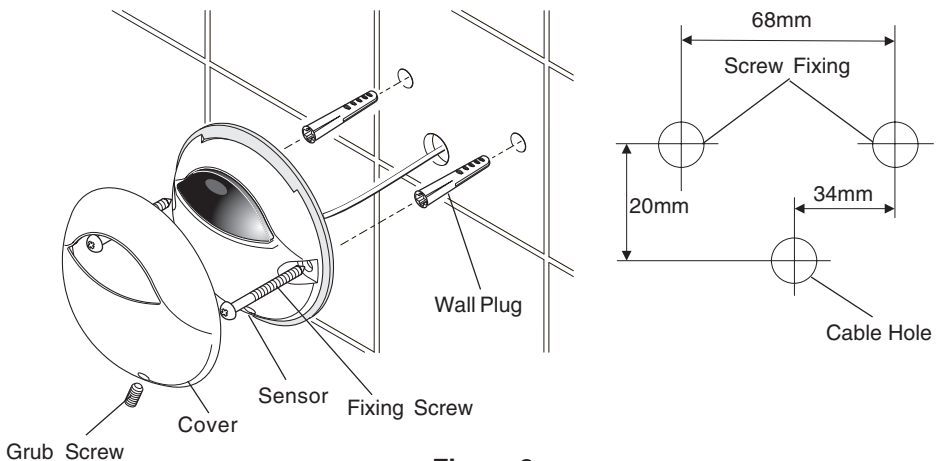
**Note!** If the 2 core cable requires lengthening, use watertight connectors, eg 3m.

**Note!** When installing the sensor in an existing pre-tiled area, with no duct space in which to run cables, a groove can be cut between tiles using a disc cutter. Set the cable in the groove and cover with silicone sealant. Otherwise, concealment of the cable in miniature trunking is recommended.

2. Remove the grub screw, un-hook and remove the cover from the sensor.
3. Mark, drill and plug for two securing screws (supplied). Alternative fixings (not supplied) may be necessary for some wall structures.

Make sure the holes are lined **horizontally**, and the fixing is preferably in the centre of a flat tile (Refer to **Figure 3**). If the sensor bridges a groove between two tiles, we recommend this gap be filled with silicone sealant.

4. Secure the sensor to the wall with the supplied fixing screws.
5. Make connection between 2 core cable and the electronic control module. Refer to the electronic control module for wiring details.
6. Fit the cover. **Make sure that it locates correctly over the top lip of the sensor.**
7. Fit the grub screw to secure the cover in position.



**Figure 3**

# Installation of the Rada Pulse 129 Sensor

**Note!** Make sure that sensors are not mounted opposite reflective surfaces such as mirrors, stainless steel panels, etc.

1. Cut or drill the wall surface to run the 2 core cable to the Rada Pulse electronic control module. If necessary, chase out wall to fit a junction box. If the sensor is to be fitted on top of a junction box, the Rada mounting plate must be used. Follow instructions for the installation of mounting plate.

**Note!** Make sure that the hole in the wall surface is large enough so that you do not bend the cable.

**Note!** If the 2 core cable requires lengthening, use watertight connectors, eg 3m.

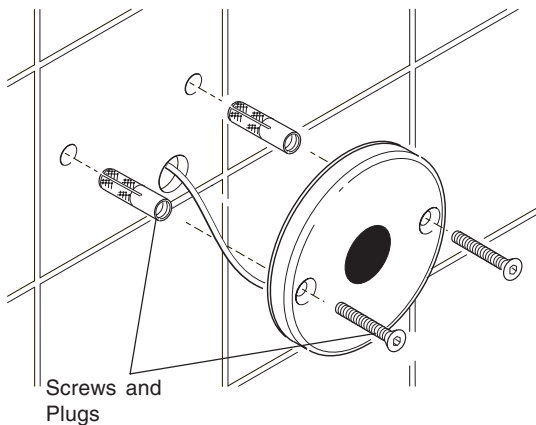
**Note!** When installing the sensor in an existing pre-tiled area, with no duct space in which to run cables, a groove can be cut between tiles using a disc cutter. Set the cable in the groove and cover with silicone sealant. Otherwise, concealment of the cable in miniature trunking is recommended.

2. Mark, drill and plug for two securing screws.

**Note!** The environment and site conditions in which the product is installed will determine the type of screw used.

Make sure the holes are lined **horizontally**, and the fixing is preferably in the centre of a flat tile (Refer to **Figure 4**). If the sensor bridges a groove between two tiles, we recommend this gap be filled with silicone sealant.

3. Secure the sensor to the wall, ensuring the foam seal on the rear face is in place. To resist corrosion, the use of chrome plated or stainless steel countersunk screws is recommended.
4. Make connection between 2 core cable and Rada Pulse electronic control module (Refer to Figure 1 for wiring details).



**Figure 4**

# Installation of the Rada Mounting Plate

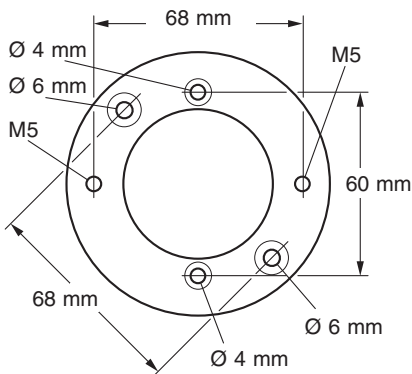
1. Select which set of fixing holes you intend to use (Refer to **Figure 5**).
  - (i) 6 mm holes are intended for wall/panel fixing screws. Use plugs to suit the wall composition
  - (ii) 4 mm holes are intended for screws to fix the Mounting Plate directly to an electrical junction box.

**Note!** The environment in which the product is installed will determine the type of screw used. We recommend fixing with brass or stainless steel screws.

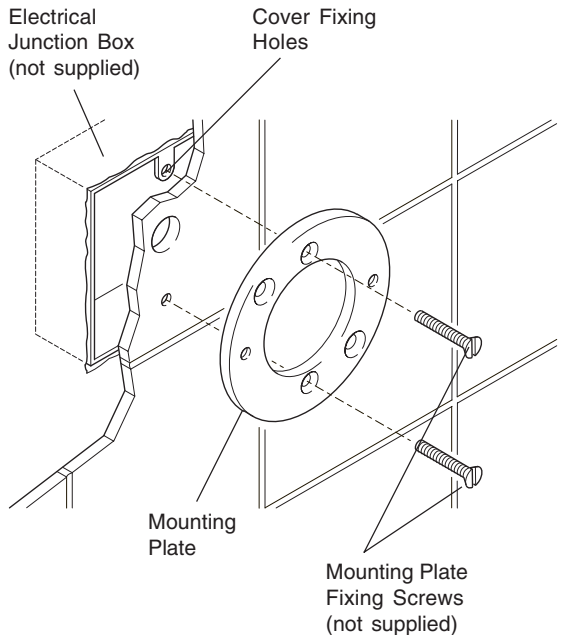
The M5 holes are for receiving the screws securing the sensor to the mounting plate.

**Important:** When fitting an electrical junction box, ensure the junction box cover fixing holes are in **vertical** position (Refer to **Figure 6**). When preparing the finished wall surface (e.g. tiling), allow sufficient clearance to facilitate alignment of the mounting plate fixing screws into the cover fixing holes of the junction box, leaving space for the cable to be inserted through the centre of the mounting plate.

When fixing the mounting plate it is essential that the 4 mm diameter fixing holes are vertically aligned. This is to ensure that when the sensor is offered up, the wording is seen horizontally, and the touch area is correctly aligned.

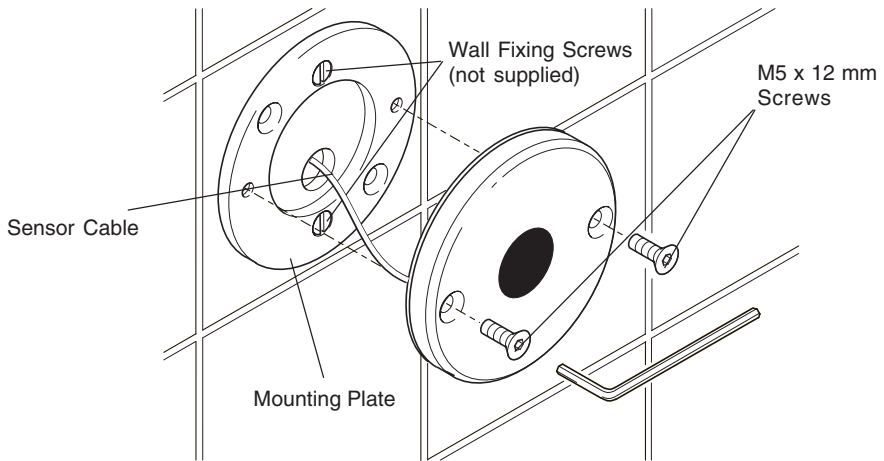


**Figure 5**



**Figure 6**

2. With the mounting plate secure, offer up the Rada 129 Sensor, and ensure the cable from the sensor runs through the centre hole (refer to Figure 7).



**Figure 7**



## Installation General

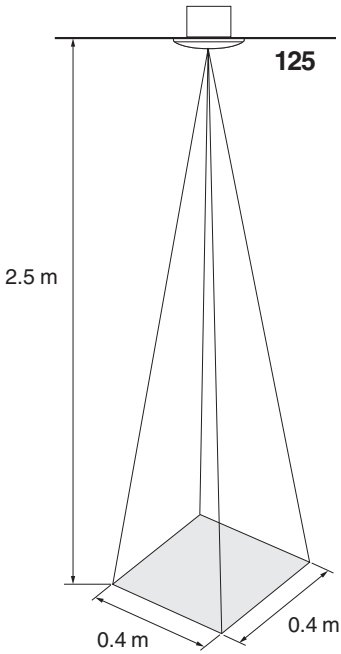
1. The distance from the sensor to the front edge of the washbasin, or urinal must be minimum **0.5 m**, maximum **2.5 m**.
2. The sensor should be placed at least **0.5 metres** away from any heat source.
3. **Steam or condensation can effect the sensitivity of the sensor, and may damage the electronics.**
4. The sensor must be positioned so that its 'view' of the washbasin, or urinal is unobstructed:- soap dishes, towel racks etc. should be placed out of the sensor detection path.

## Installation of the Rada Pulse 124/125/126 Sensors

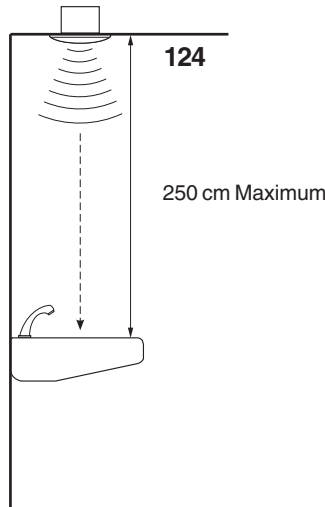
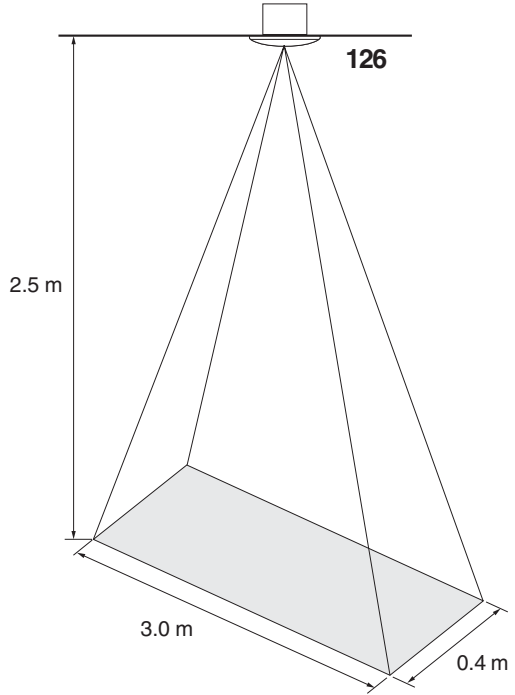
1. The sensor should be fitted in a dry position, allowing access for adjustment or maintenance.
2. Mark the selected position for the sensor, and cut a circular hole of 78 mm diameter. Note depth of mounting surface, and adjust base unit depth tabs to nearest setting below actual depth (minimum setting 9.5 mm, maximum 25 mm). Install the cable from the Rada Pulse Control Box via chosen route, extending if necessary. If required, cabling may be housed within conduit piping (the base unit accepts nominal 16 mm ext). Feed cable through base unit. Pass base unit through mounting hole, and place in position as shown in main illustration, fixing to conduit as necessary.
3. Connect the two-core cable to the connector block **(A)** on the Sensor internal circuit board **(B)** (refer to Figure 8). Wiring polarity is not important.
4. Align and offer up the Sensor unit to the base unit (see illustration), and retain with bolts supplied (but do not tighten these yet).
5. The sensor **(C)** is retained on a swivel bracket, which enables the sensor to be directed toward the target area.  
Rotate the Sensor unit until the sensor is directed at, and aligned with, the required target area. Tighten bolts to secure sensor unit to base unit. Align tabs on cover **(E)** with slots around base unit, and rotate clockwise to secure.
6. Connect to the Rada Pulse Control Box. Refer to the control box product manual for connection details.

# Sensor Detection Area Diagrams

Sensor detection area for single applications



Sensor detection area for group applications



# Rada Pulse Ceiling Sensor Alignment/Sensitivity Adjustment

1. Grip the cover and rotate anticlockwise, and lower cover away from Sensor unit.
2. The sensor alignment is adjusted by gently swivelling the sensor on its mounting bracket (refer to Figure 8). The delay/flush cycle should be activated by the presence of a user within the urinal area.  
**Note!** There is a delay between sensor detection and flush cycle. You may wish to reset the delay to minimum whilst directing and testing the sensor.
3. The sensitivity is adjustable via a two position (H=high / L=low) switch (D, see illustration) on the Sensor internal circuit board, which will need to be separated from the base unit. The unit is supplied with this set at “H” (high). Slide the switch to the “L” position, if required.
4. Refit the cover, ensuring that the sensor window is correctly aligned toward the urinal area.

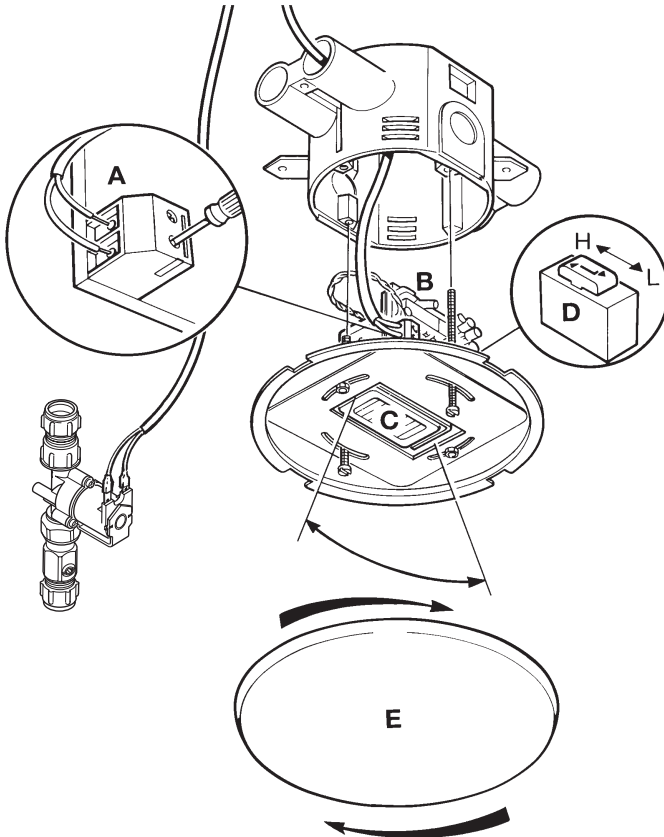


Figure 8

# COMMISSIONING

## Wash Basins and Showers

Switch on the power to the Mono Box Control System. Wait a minimum of **ten** seconds.

- Check that flow is initiated only when hands or persons move into the desired detection area.
- Check that flow is not initiated by sources outside the desired detection area (e.g. passers-by).
- With the delay timing set to a minimum, activate flow and then move out of the detection area. Check that flow ceases after the desired overrun period.

The target sensing area should be the front central area of the wash basin or shower.

## Urinals

Switch on power to Mono Box Control System. Wait a minimum of **ten** seconds.

- Check that delay/flush cycle is initiated only when a user moves into the desired detection area.
- Check that cycle is not initiated by sources outside the desired detection area (e.g. passers-by).
- (With delay-timing set to minimum) Activate cycle and then move out of the detection area. Check that flush-timing allows cistern-fill until syphonic valve lifts and empties the cistern, and that cycle does not repeat.

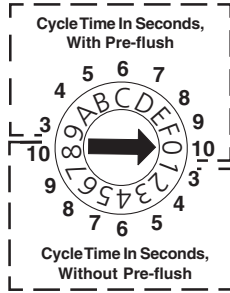
The target detection area should cover the immediate front area of each urinal in the group.

# Setting the Electronic Control Module

## MC122/125 (Refer to Figure 9)

The Rada MC122/125 is an operating system for timed flow control of a urinal area.

To alter the timing of the electronic control module, remove the lid of the mono control box and adjust the timing function dial as required (refer to Table 1) using a small slot-end screwdriver. Install the lid and tighten the screws.



**Figure 9**

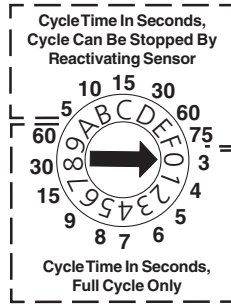
Position	Flush Time (Seconds)	Pre Flush
1	3	No
2	4	No
3	5	No
4	6	No
5	7	No
6	8	No
7	9	No
8	10	No
9	3	Yes
A	4	Yes
B	5	Yes
C	6	Yes
D	7	Yes
E	8	Yes
F	9	Yes
0	10	Yes

**Table 1**

# MC120/129 (Refer to Figure 10)

The Rada MC120/129 is an operating system for timed flow control of a shower or washbasin area.

To alter the timing of the electronic control module, remove the lid of the mono control box and adjust the timing function dial as required (refer to Table 2) using a small slot-end screwdriver. Install the lid and tighten the screws.



**Figure 10**

Position	Cycle Time (Seconds)	Operation Control
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**ON/OFF Control:**

The cycle is interrupted if the Sensor is reactivated.

**Fixed Time Control:**

Full cycle only. The cycle is not interrupted if the sensor is reactivated.

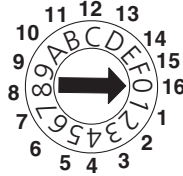
**Table 2**

# MC124 (Refer to Figure 11)

The Rada MC124 is an operating system for timed flow control of a wash basin area.

To alter the timing of the electronic control module, remove the lid of the mono control box and adjust the timing function dial as required (refer to Table 3) using a small slot-end screwdriver. Install the lid and tighten the screws.

## Mono Control Module 124



### Cycle Time In Seconds

Figure 11

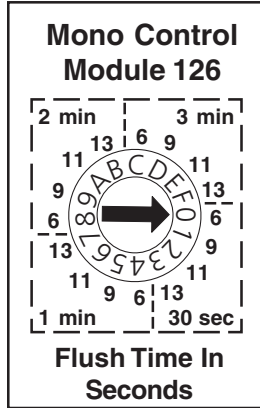
Position	Flow Time (Seconds)
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
A	10
B	11
C	12
D	13
E	14
F	15
0	16

Table 3

# MC126 (Refer to Figure 12)

The Rada MC126 is an operating system for timed flow control of a group urinal area.

To alter the timing of the electronic control module, remove the lid of the mono control box and adjust the timing function dial as required (refer to Table 4) using a small slot-end screwdriver. Install the lid and tighten the screws.



**Figure 12**

Position	Flush Time (Seconds)	Delay (Seconds/Minutes)
0	6	30 Secs
1	9	30 Secs
2	11	30 Secs
3	13	30 Secs
4	6	1 Min
5	9	1 Min
6	11	1 Min
7	13	1 Min
8	6	2 Min
9	9	2 Min
A	11	2 Min
B	13	2 Min
C	6	3 Min
D	9	3 Min
E	11	3 Min
F	13	3 Min

**Table 4**



## FAULT DIAGNOSIS

If the system does not operate, carry out checks 1 to 3.

1. Check if ball valves are open and a minimum pressure drop across the solenoid valve of 15 kPa is present.
2. Check if all electrical connections are correct and tight.
3. Check that 12 V AC  $\pm$  10% is present at the electronic control module supply connectors.

If the system is still not operating continue fault diagnosis by following the instructions below:

Symptom	Action	Yes/No	Remedial action
Solenoid does not work	Connect 12 V AC supply direct to solenoid connectors.	No  Yes	Renew Mono Control Box  Continue below.
Does the ECM work	Check that 10-12 V DC is present at the ECM sensor connectors.	No  Yes	Renew Mono Control Box  Continue below.
Does Sensor work	Does sensor voltage drop momentarily when sensor is operated	No  Yes	Renew sensor  Renew Mono Control Box
Is water flow continuous	Disconnect the 12 V AC supply from the ECM. Does the water stop?	Yes	Renew Mono Control Box

Remarks:

The ECM has a built-in protection against malfunction. If there is a malfunction, disconnect the 12 V AC connection for approx 5 seconds to reset module.

# 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.

Apart from occasional cleaning of the solenoid diaphragm, and filter if fitted, no other periodic maintenance is necessary unless component failure occurs.

Components are precision-made, so care must be taken during maintenance to avoid damage.

Rada Service Engineers/Agents will call by prior arrangement if required.

Solenoid valves require periodic maintenance, which depends on the quality of water within the building. Strainers within the water supply lines are recommended.

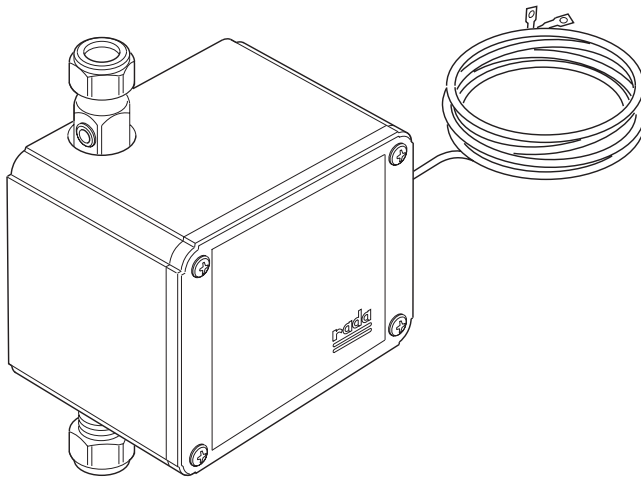
The diaphragm within the SV1015 solenoid valve is fitted with a bleed hole cleaning spring to help overcome blockages due to water borne debris.

# SPARE PARTS

## Mono Box Control System Spare Parts List

422.78	Cable Gland Pack
424.42	Mono Control Module (MC 120/129)
424.43	Mono Control Module (MC 122/125)
424.44	Mono Control Module (MC 124)
424.46	Mono Control Module (MC 126)
817.38	Solenoid SV1015
817.41	Mono Box Outer Case

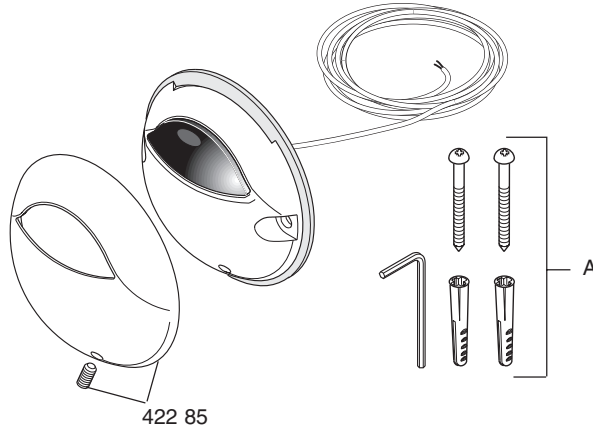
## Spare Parts Diagram



# Rada Pulse 120/122 Sensor Spare Parts List

- 422 78 Cable Gland Pack (not illustrated)
- 422 85 Cover Plate Assembly
- 422 86 Fixing Pack - components identified 'A'
- 422 87 Two Part Connector Pack (not illustrated)

## Spare Parts Diagram

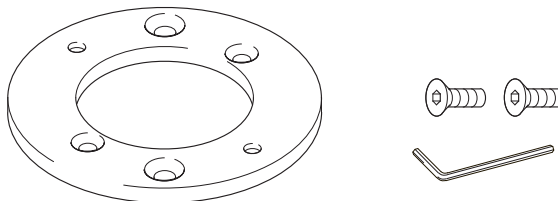


# Rada Pulse 124/125/126 Sensor Spare Parts List

- 429.51 Ceiling Sensor Cover (not illustrated)

## ACCESSORIES

### Rada Mounting Plate



**Rada mounting plate:** Supplied with 2 x M5 x 12 mm stainless steel screws and 1 x 3 mm hexagonal wrench with which to secure the Rada Pulse 129 sensor for extra fixing security.

# 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: