

BPS VALVE MODULE

2 Port Water Control Valve Module for BPS Units Installation and Maintenance



The EMC Directive
2014/30/EU
The Low Voltage
Directive
2014/35/EU

1.0 INTRODUCTION

The information contained in this document provides details of installation and maintenance for installers and users of the BPS valve modules to suit the BPS packaged AHU units with heat recovery.

The BPS Valve module is a remote module manufactured from powder coated mild steel, containing a valve and actuator set for control of the water flow rate to the Frost coil, LPHW coil and/or CHW coil.

General information regarding performance and specification for the equipment can be obtained from our technical literature, and/or project specific documentation.

CODE DESCRIPTION

B 07 A/VM - LC - ES
 1 2 3 4 5

1. **BOXER Package Solution Range**
2. **Unit Size** 07, 12, 17, 22, 32 or 42.
3. **Module Type** A/VM = Ancillary Valve Module (Remote to main unit)
4. **Coil Type(s)** F = Frost
L = LPHW
C = CHW
5. **Control Type** ES = EcoSmart Classic
CO = EcoSmart Connect
AT = Adapt (Trend)

2.0 HANDLING

2.1 Health & Safety

Nuairé intend that this manual and any other supportive documents that may be mentioned should be read and understood by authorised operating and service personnel before performing any task related to the installation, commissioning and maintenance of Nuairé BPS Air handling units and any associated components.

The operative / service personnel should comply with good industry practice, the appropriate authority and conformance with all statutory and governing regulations.

Sharp edges need to be handled with caution; most of the equipment will contain sharp edges on the internal and external surfaces. Care should be taken to ensure that all personnel are aware of this and precautions are implemented to ensure that no injuries are caused.

To help operating and service personnel perform tasks safely, please pay attention to the notes throughout this document (see below for example).

All notes are designed to alert the reader to potential hazards.

IMPORTANT

Information contained in this format is designed to outline important notes, dangers, cautions and warnings.

2.2 Delivery & Receipt of Equipment

All equipment is inspected prior to despatch and leaves the factory in good condition. Upon receipt of the equipment an inspection should be made and any damage indicated on the delivery note.

Particulars of damage and/or incomplete delivery should be endorsed by the driver delivering the goods before offloading by the purchaser.

No responsibility will be accepted for damage sustained during the offloading from the vehicle or on the site thereafter.

All claims for damage and/or incomplete delivery must be reported to Nuairé within two days of receipt of the equipment.

2.3 Off Loading and Handling From the Delivery Vehicle

The weight of the unit modules and palletised items are displayed on the packaging.

Some of the modules have an uneven weight distribution, and this will be indicated by labelling where appropriate. Each module will have its own individual base frame.

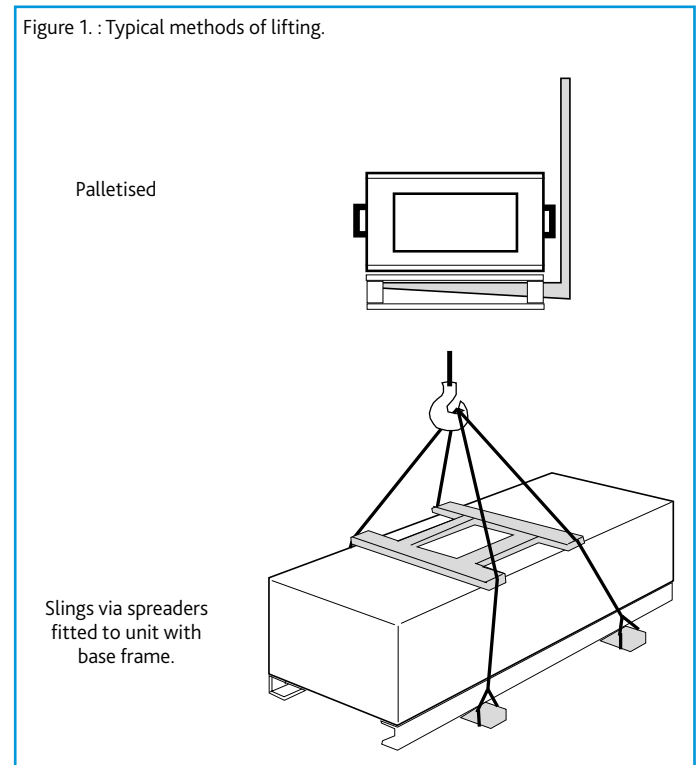
Offloading and positioning of the equipment is the responsibility of the purchaser. Items should only be lifted by competent personnel following appropriate risk assessment.

NOTE: When offloading, care must be taken to ensure that the module is kept level at all times.

IMPORTANT

To ensure that the delivery vehicle is loaded according to the planned method of offloading, Nuairé should be notified, to ensure coordination.

Figure 1. : Typical methods of lifting.



2.4 Unit Protection

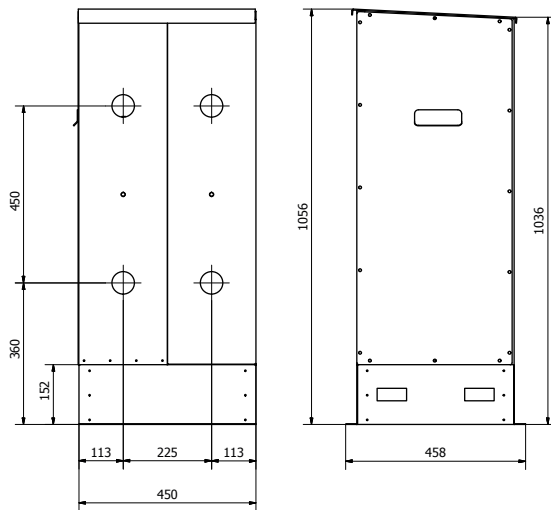
Unless otherwise specified, unit sections will be delivered to site covered in "shrink wrap" polythene, which should provide a more than adequate level of protection against inclement weather.

Should alternative methods of unit protection be required (i.e. timber, Corex, or flame retardant materials), Nuairé should be notified of the specific requirements at the pre- contract stage. Waste must be disposed of by a registered waste carrier in accordance to national regulations.

Installation and Maintenance

2.5 Unit Dimensions

Figure 2. Unit Dimensions



All Dimensions shown in mm.

3.0 INSTALLATION

3.1 Weather Resistant Units

The modules are supplied with a single pitch sloped roof and are weather resistant as standard.

IMPORTANT

If a frost coil is not fitted within the main unit then appropriate control methods must be taken to prevent the coils, filters and other equipment from freezing (by others).

3.2 Pipework

Piped connections should be made to the valve module using appropriate techniques, all valve modules use 35mm diameter pipe connections.

Care should be taken to ensure that all pipework is adequately supported, therefore ensuring that no additional weight is added to the unit. Extra precaution should be taken to prevent pipe damage on site, as the fragile pipework will protrude from the side of the unit.

Observe the Flow and Return connection labels on the unit. Drain and bleed valves are located on the coil. Other valves may be required in the system pipework depending on the installation (by others).

Ensure that installed pipework runs do not prevent or restrict access to the unit at any point.

The completed installation (including the connections within the unit, as these may be disturbed during installation) shall be pressure tested to the project engineer's specification.

(This is a condition of the unit warranty).

If a valve module is located externally, all valves and pipes must be adequately insulated.

3.3 Access

Access to the valve module is via lift off panels. When maintenance work is finished, please ensure that the unit is left in a clean state, and all access panels are fastened correctly.

3.4 Coil and Valve Details

In cases where the valve modules includes multiple types of coil, the details of each coil can be found in the tables below.

3.5 2 Port Pressure Independent Valves

| Unit Size | Coil Type | Valve Max Working Press. (bar) | Valve Press. Drop (bar) | Valve Max Flow Rate (l/s) | Coil Max Press. Drop (kPa) |
|-----------|-----------|--------------------------------|-------------------------|---------------------------|----------------------------|
| 7 | Frost | 25 | 4 | 0.25 | N/A |
| 12 | | 25 | 6 | 0.611 | N/A |
| 17 | | 25 | 6 | 0.833 | N/A |
| 22 | | 25 | 6 | 0.833 | N/A |
| 32 | | 15 | 6 | 1.66 | N/A |
| 42 | | 16 | 6 | 2.5 | N/A |
| 7 | LPHW | 25 | 6 | 1.11 | 1.5 |
| 12 | | 15 | 6 | 1.66 | 3.4 |
| 17 | | 16 | 6 | 2.5 | 4.8 |
| 22 | | 16 | 6 | 3.05 | 5.3 |
| 32 | | 16 | 6 | 5 | 10.6 |
| 42 | | 16 | 6 | 5 | 18.9 |
| 7 | CHW | 25 | 6 | 1.11 | 3.4 |
| 12 | | 15 | 6 | 1.66 | 7.1 |
| 17 | | 16 | 6 | 2.5 | 7.7 |
| 22 | | 16 | 6 | 3.05 | 11.8 |
| 32 | | 16 | 6 | 5 | 23.4 |
| 42 | | 16 | 6 | 5 | 40.3 |

Installation and Maintenance

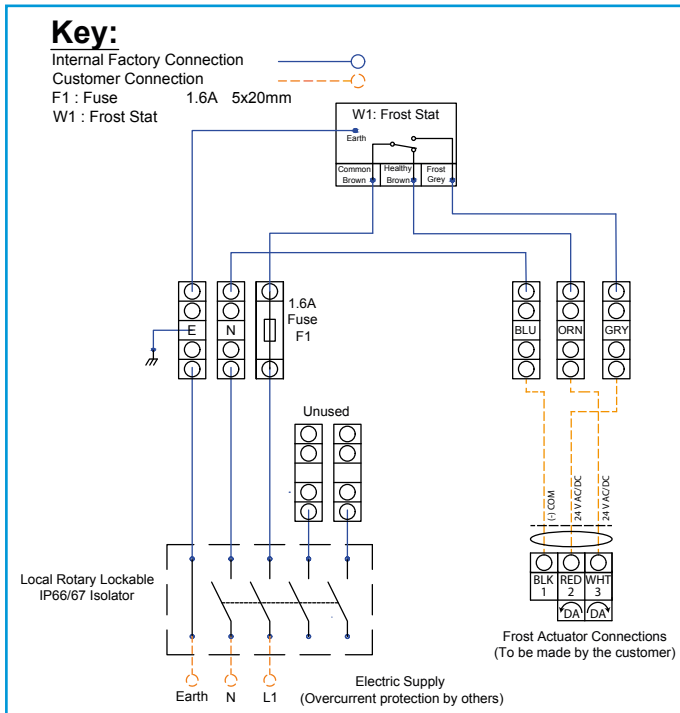
BPS Valve Module

4.0 WIRING

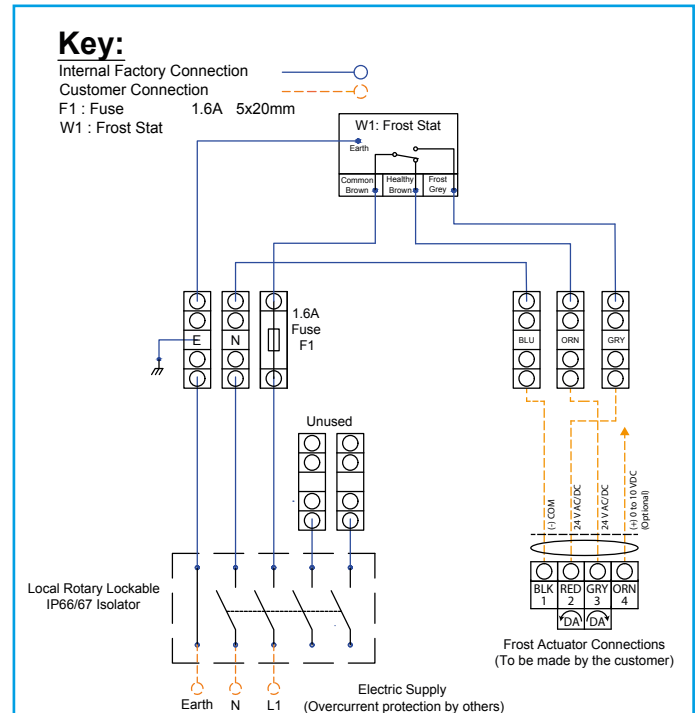
The electrical wiring must be carried out by competent persons, in accordance with good industry practice and should conform to all governing and statutory bodies i.e. IEE, CIBSE etc.

4.1 EcoSmart Classic Control (ES)

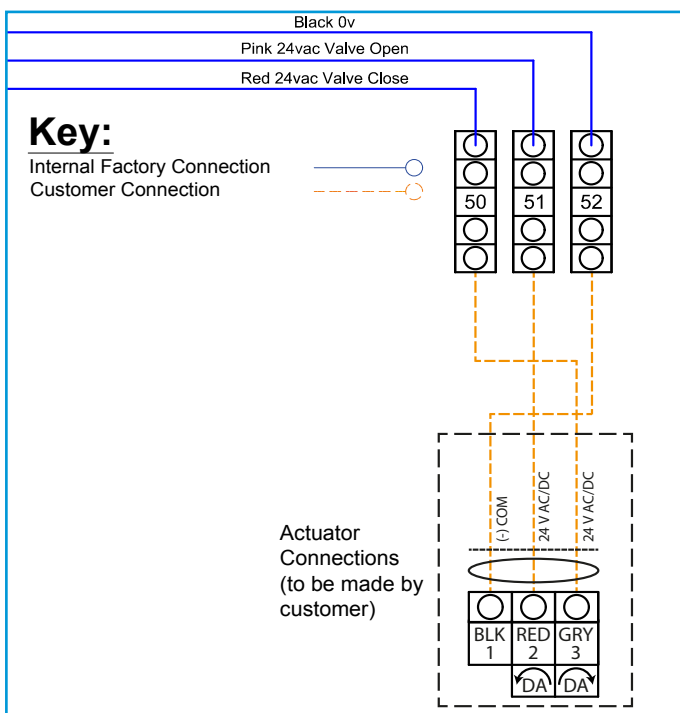
4.1.1 BPS Unit Size 07-22 - Frost Coil (ES)



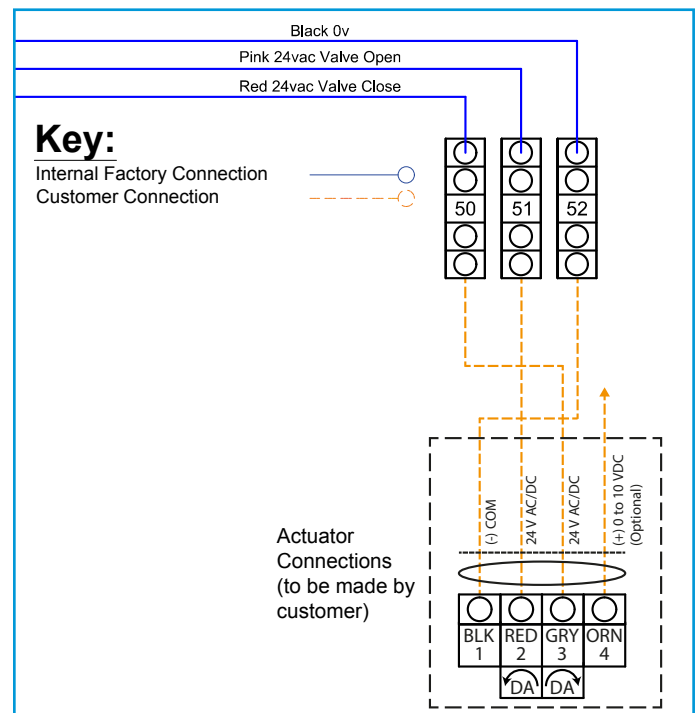
4.1.2 BPS Unit Size 32-42 - Frost Coil (ES)



4.1.3 BPS Unit Size 07 - LPHW (ES)



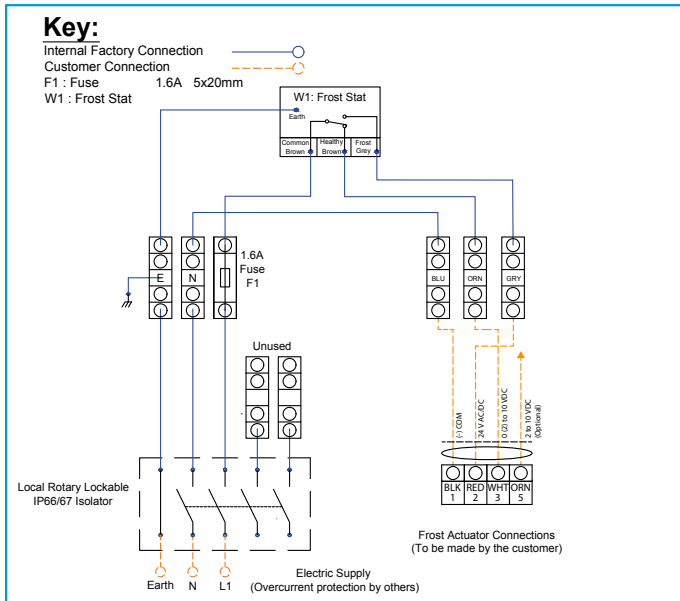
4.1.4 BPS Unit Size 12-42 - LPHW (ES)



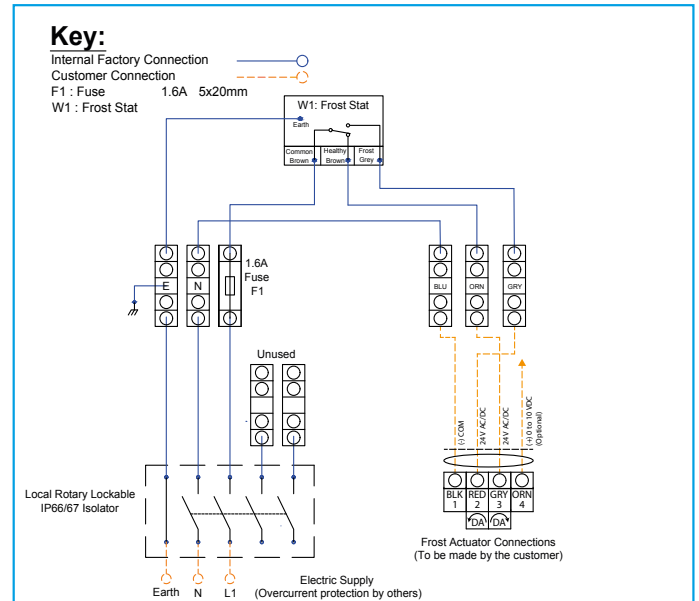
Installation and Maintenance

4.2 EcoSmart Connect/Adapt Control (CO/AT)

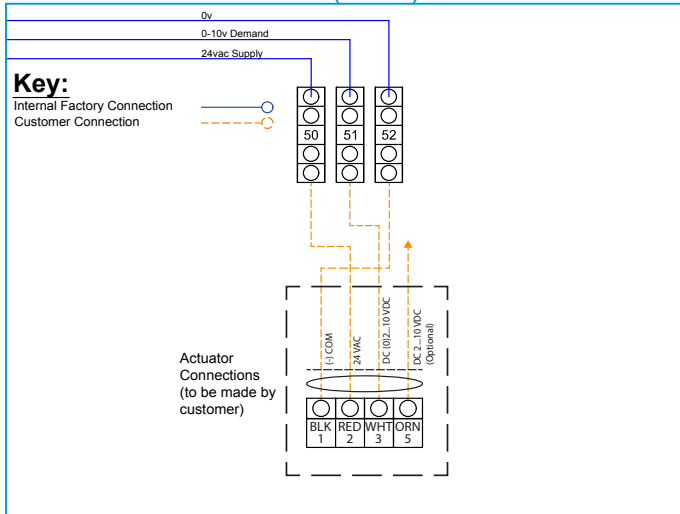
4.2.1 BPS Unit Size 07-22 - Frost Coil (CO/AT)



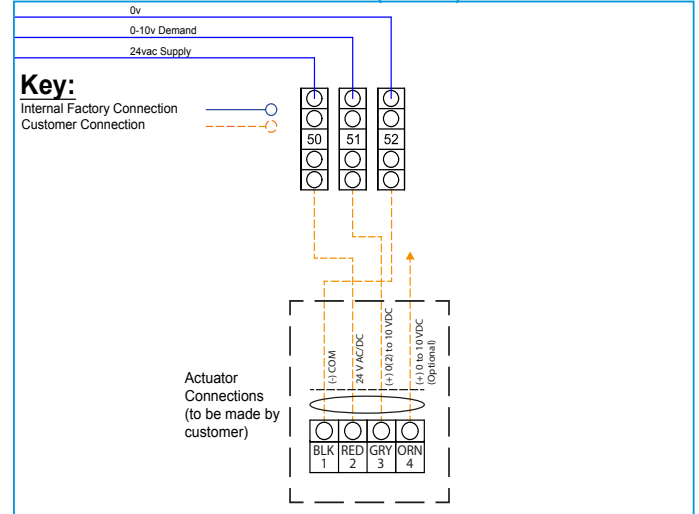
4.2.2 BPS Unit Size 32-42 - Frost Coil (CO/AT)



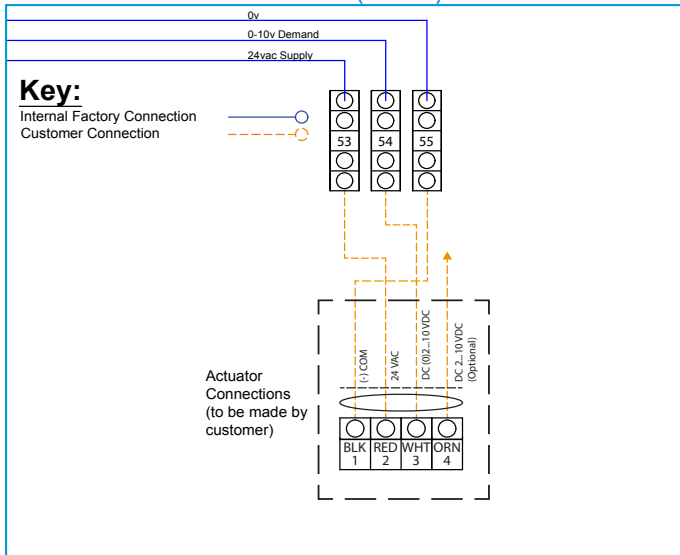
4.2.3 BPS Unit Size 07 - LPHW (CO/AT)



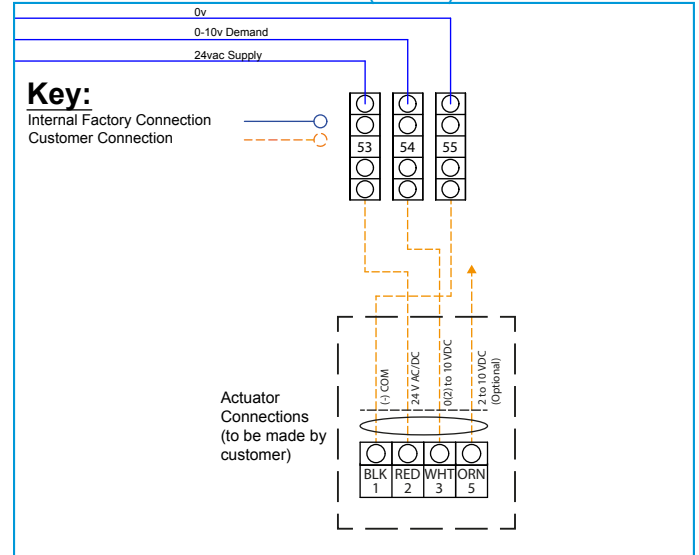
4.2.4 BPS Unit Size 12-42 - LPHW (CO/AT)



4.2.5 BPS Unit Size 07-12 - CHW (CO/AT)



4.2.6 BPS Unit Size 32-42 - CHW (CO/AT)



Installation and Maintenance

5.0 SETTING THE ACTUATOR

5.1 Auto Calibration Mode

The actuator enters auto calibration mode and positions the coupler to the maximum and minimum end stops to identify the range of travel.

5.2 Accessing the DIP Switches and LEDs

Locate the oval cover on the front of the unit and pull the cover outward. To complete the auto calibration process, press **Enter/Autocal** until all three LEDs are on. See Figure 3, Figure 4 and the table below for viewing the DIP switches and LEDs.

Figure 3. Removing Actuator Cover

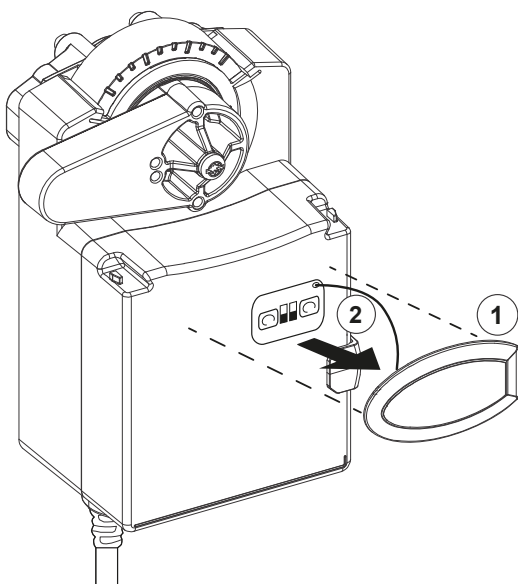
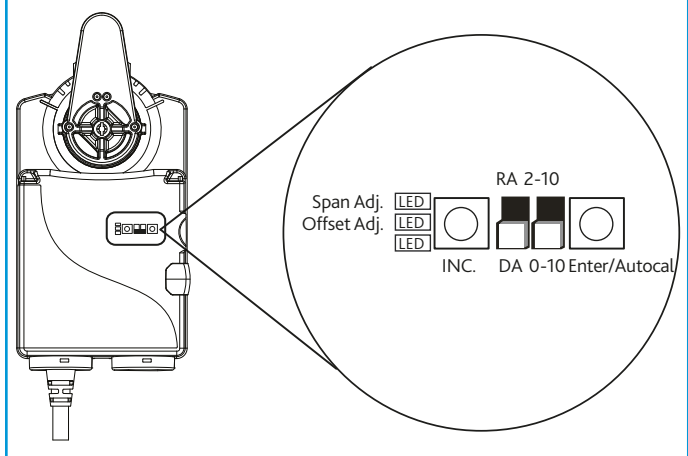
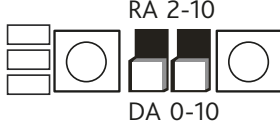
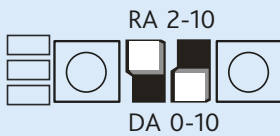
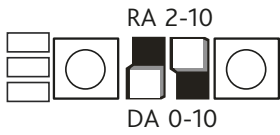
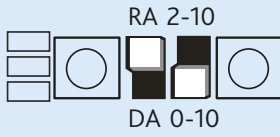


Figure 4. DIP Switches and LED Locations



| Example | Command Signal | Feedback Signal | Setting User Interface | Nuaire Control Type |
|---------|------------------------|------------------------|--|---------------------|
| 1 | 0 to 10 VDC | Direct 10 to 0 VDC |  | AT CO |
| 2 | 0 to 10 VDC | Reverse 10 to 0 VDC |  | - |
| 3 | 2 to 10 VDC | Direct 2 to 10 VDC |  | ES |
| | 24 VAC | - | | |
| 4 | Offset = 5 Span = 7 | Reverse 10 to 0 VDC |  | - |

Installation and Maintenance

6.0 COMMISSIONING

6.1 Calculating Maximum Water Flow Rate

The required valve opening setting for a coil to achieve its design conditions, is calculated from the use of the equation below.

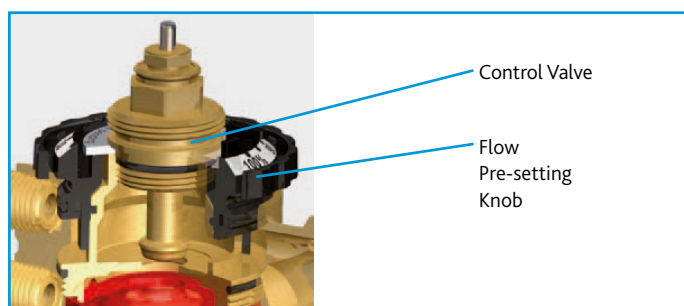
$$Setting = 100 \times \sqrt{\frac{design}{max}}$$

The design flow rate can be obtained from the catalogue information for common water flow/return temperatures and airflow rates.

Should your flow/return temperatures or airflow rates not be shown in the catalogue please contact nuair for further details.

6.2 Setting Maximum Water Flow Rate

Once calculated, the maximum water flow rate should be controlled to this value. This is done by setting the valve adjustment knob to the relevant value.



7.0 WARRANTY

A 5 year warranty is provided on EcoSmart models for peace of mind. The warranty starts from the day of delivery and includes parts and labour for the first year. The remaining period covers replacement parts only.

This warranty is void if the equipment is modified without authorisation, is incorrectly applied, misused, disassembled, or not installed, commissioned and maintained in accordance with the details contained in this manual and general good practice.

The product warranty applies to the UK mainland and in accordance with Clause 14 of our Conditions of Sale. Customers purchasing from outside of the UK should contact Nuair International Sales office for further details.

8.0 AFTER SALES

For technical assistance or further product information, including spare parts and replacement components, please contact the After Sales Department.

Telephone 02920 858 400
TechnicalSupport@Nuair.co.uk