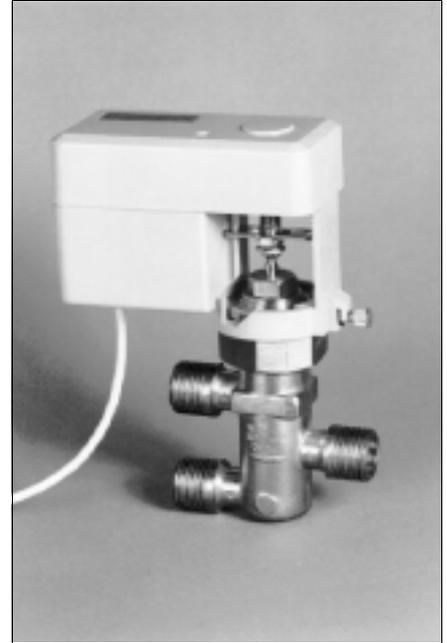


### ZONEMASTER CONTROL SYSTEM

Specification No. 478-2-201

The AVU Mk 2, 24Vac valve actuator is specifically designed for use on Satchwell zone valves such as the VEU, MEU and FEU – see DS 4.02/4.101. The AVU has a linear output and is suitable for use on hot or chilled water applications on terminal units. The AVU is controlled by the Satchwell CZU, IAC and URC controllers.



### FEATURES

- Neat compact design eases fitting in terminal units
- Approved to European EMC standards
- Simple installation and commissioning (self stroking)
- Fly lead simplifies wiring to the controller
- Direct coupling to VEU, MEU and FEU Zonemaster valves without the need for linkage kits or mounting brackets
- Actuator fits to the valve without the use of tools
- Built-in Manual operator supplied as standard (screwdriver operated for security)
- Connect up to 7 AVU actuators in parallel from one CZU or IAC controller output



MLI 3.26/3.010 - Mounting Details  
Valves  
DS 4.02/4.101 - VEU, MEU, FEU



**SPECIFICATION**

|                                |  |
|--------------------------------|--|
| <b>Type:</b>                   | <b>AVU 2201</b> – Reversing Motor. Specification no. 478-2-201               |
| <b>Power Supply:</b>           | 24Vac, 50/60Hz   |
| <b>Consumption:</b>            | 2 VA   |
| <b>Stroke:</b>                 | 11.5mm (9.5mm valve stroke plus spring over travel).                         |
| <b>Stroke Time:</b>            | 60 seconds   |
| <b>Thrust:</b>                 | 105N   |
| <b>Action:</b>                 | Reversing-modulating   |
| <b>Mounting Attitude:</b>      | See installation on page 3 for details                                       |
| <b>Ambient Temperatures:</b>   | Operating: 0 to 50°C<br>Storage/Transit: -40 to 70°C                         |
| <b>Max. Ambient Humidity:</b>  | Operation & Storage: 95% rh non-condensing                                   |
| <b>Associated Controllers:</b> | CZU - DS 2.80/2.201<br>IAC - DS 2.10/2.951, DS 2.81/2.801<br>URC - DS 13.301 |

**CONSTRUCTION**

|                          |  |
|--------------------------|--|
| <b>Case:</b>             | Moulded plastic housing (fire resistant to UL94V-0).   |
| <b>Protection Class:</b> | IP41   |
| <b>Drive:</b>            | Operates on a screw jack principle, driven by a reversible synchronous motor via a gear train and magnetic clutch. |
| <b>Motor:</b>            | Split phase, capacitor reversing type, continuously rated.   |
| <b>Spindle Coupling:</b> | Claw coupling.   |
| <b>Wiring:</b>           | Fly lead, 1.5m long, 3 core.   |
| <b>Manual Override:</b>  | Adjusted by means of a screwdriver slot in the top of the cover.   |

**INSTALLATION**

**Location**

Select a location that is reasonably clean and free from damp and condensation. The actuator should not be located directly under the valve.

1. Unscrew thumb screw "A" in the mounting frame until it is flush with the inside of the frame. Withdraw valve spindle "B" fully.
2. Tilt actuator towards front end so that retaining lugs clear the valve bonnet. Lower the actuator over the valve so that claw coupling "C" on the actuator spindle engages the grooved bush on top of valve spindle "B".
3. Now lower the actuator frame onto the valve clamping face, bias towards the rear so that the retaining lugs engage in the valve bonnet clamping groove. When the actuator is correctly located tighten thumb screw "A" to finger tight.
4. Connect the colour coded fly lead to the controller in accordance with the appropriate wiring diagram. Observe Wiring Precautions shown on page 3.

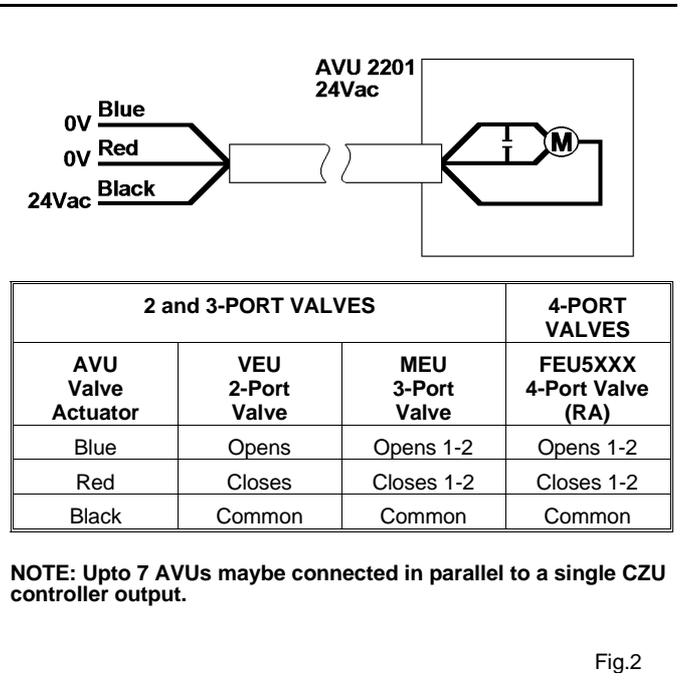
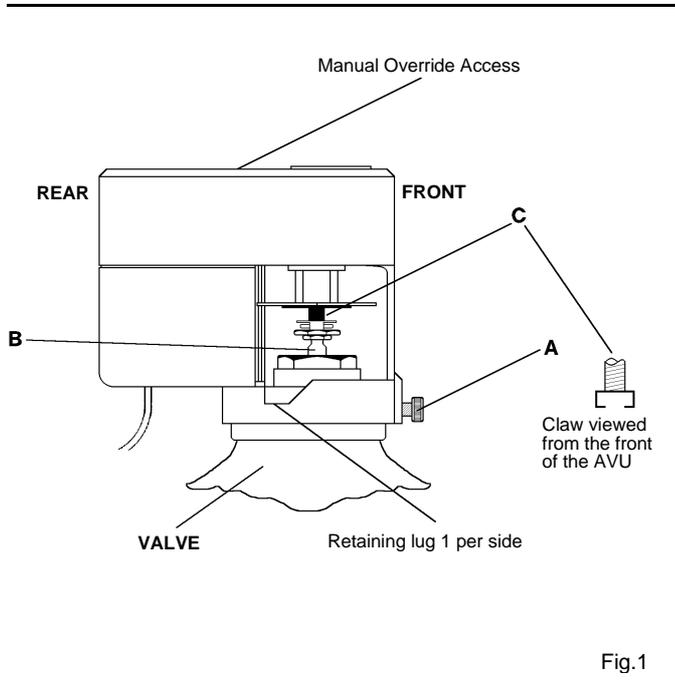
**DO NOT SWITCH ON POWER SUPPLY UNTIL COMMISSIONING STEPS HAVE BEEN COMPLETED.**

**NEVER RUN THE AVU WITHOUT A VALVE ATTACHED TO IT.**

**COMMISSIONING**

1. Check that all control equipment is correctly located and fitted.
2. Check ambient temperature conditions.
3. Check that the actuator has been correctly assembled to the valve as directed in the installation instructions and that the fly lead is routed clear of the valve body and pipework.
4. Check for control circuit wiring is correct and in accordance with the overall control system wiring diagram.
5. Switch on power supply and check for correct valve and actuator operation.

**CONNECTION DIAGRAMS**



**WIRING PRECAUTIONS**

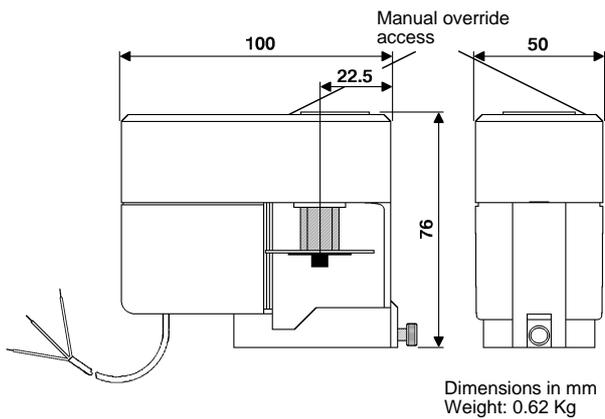
| Wiring from AVU to controller*: | Max. length<br>1.5mm <sup>2</sup> cable<br>unscreened | Max. resistance per<br>conductor |
|---------------------------------|---|----------------------------------|
| 24Vac supply                    | 50m   | 1 Ohm                            |

\* When wiring to BAS outstations refer to the appropriate outstation Data Sheet for the wiring precautions.

For longer lengths, increase cable size and observe maximum resistance also screen wiring and earth the screen at the controller only.

**NOTE: Upto 7 AVUs maybe connected in parallel to a single CZU controller output.**

## DIMENSION DRAWING



**Satchwell** 

### CAUTION

- The actuator is a low Voltage (24Vac) device and should only be used with the appropriate Satchwell controllers. Local wiring precautions and usual safety precautions must be observed.
- Observe wiring precautions on page 3.
- Observe installation instructions on page 3.
- Do not switch on power supply until commissioning checks have been carried out - see page 3.
- Observe maximum and minimum ambient temperatures.
- Check maximum differential pressure of valve to be driven. Do not exceed maximum differential pressure.
- Interference with parts under sealed covers invalidates the guarantee.
- Design and performance of Satchwell equipment is subject to continual improvement and therefore liable to alteration without notice.
- Information is given for guidance only and Satchwell do not accept responsibility for the selection and installation of its products unless information has been given by the company in writing relating to a specific application.
- A periodic system and tuning check of the control system is recommended. Please contact your local Satchwell Service office for details.