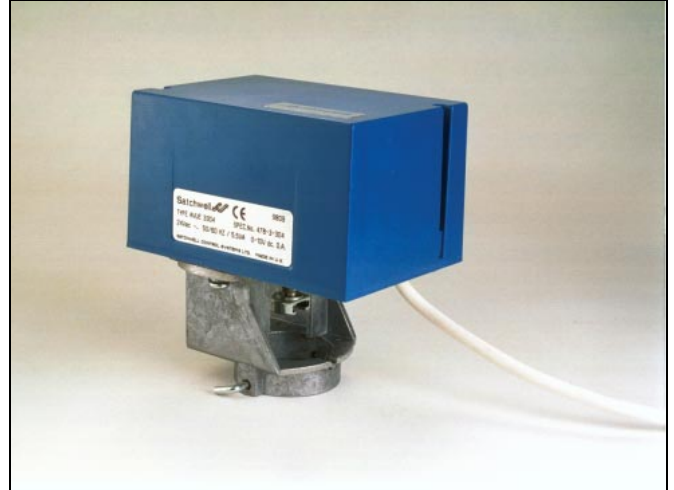


VALVE ACTUATOR

The AVUE Actuator is a 24V reversing actuator having a linear output drive and is used in conjunction with any controller providing a 0-10Vdc output signal, to operate Satchwell VZX 2-port, MZX 3-port, VEU (Mk 5) 2-port, MEU (Mk 5) 3 port or FEU (Mk 6) 4-port control valves. These control valves are applied, typically, to regulate the flow of either hot or chilled water supplying heating or cooling coils in various types of terminal unit, for example fan coils units, reheat coils associated with variable air volume units, also small air handling plants and heat exchangers.



FEATURES

- Simple to install. Direct coupling to valve without use of tools
- Minimal commissioning. No site adjustments required
- Compact size
- Universal for use with Satchwell VEU (Mk 5), MEU (Mk 5) and FEU (Mk 6) unit valves, sizes ½" and ¾" also ½" to 2" VZX and MZX valves
- Makes Satchwell unit valves compatible with any sensor, controller or building automation system providing a 0-10Vdc output control signal
- Choice of specifications, to suit control signal, type of valve and application



ACCESSORIES
 DS 5.200 - Rain Protection Cover
 VALVES
 DS 4.101 - VEU, MEU, FEU
 DS 4.18/4.401 - VZX
 DS 4.38/4.601 - MZX



SPECIFICATION

Type	AVUE 3304	AVUE 3354
Specification no.	478-3-304	478-3-354
Input control signal	0-10Vdc	0-10Vdc
Control action	Direct	Reverse

Note: Refer to 'Guide to Selection' to match control signal, valve and application.

Power Supply:	24V ±10%, 50/60 Hz
Power Consumption:	5VA
Action:	Reversing, modulating
Stroke:	12.7 mm (½")
Stroke Time:	150 secs - 50 Hz 125 secs - 60 Hz
Thrust:	220N
Electrical connection:	Fly lead, 3-core, 1.5m long
Ambient Temperature Limits:	Operating: -20 to 50°C Storage or Transit: -40 to 70°C
Maximum Ambient Humidity:	Operation and storage: 95% rh non-condensing

	Product	See Data Sheet
Associated Controllers:	DDTE, DWTE	DS 1.251
	DRTE	DS 1.101
	CZT	DS 2.23/2.105
	KMC	DS 2.55/2.120
	MMC	DS 2.701
	BAS	DS 13.51/13.351, DS 13.34/13.310
Associated Control Valves:	IAC	DS 2.951, DS 2.801
	VEU (Mk 5)	DS 4.101
	MEU (MK 5)	DS 4.101
	FEU (Mk 6)	DS 4.101
	VZX	DS 4.18/4.401
	MZX	DS 4.38/4.601

CONSTRUCTION

Case:	Mild steel baseplate with moulded plastic cover (Fire resistant to UL 94 V-0).
Mounting Bracket:	Diecast aluminium with angled fixing screws.
Motor:	Split-phase capacitor type, reversing. Continuously rated.
Spindle Coupling:	Simple claw-type engagement for quick assembly.
Manual Operator:	By thumb rotation of partially exposed gear wheel.
Protection class:	IP40
Accessories:	Rain Protection Cover - DS 5.200.

Table 3 is a comprehensive, but simple guide to ensure correct selection by logically checking through other known information, for example:-

- Application:** Single-stage heating cooling, or two-stage heating and cooling etc.
- Controller:** DRTE or BAS etc. as listed in left hand column. A controller output diagram is included for further guidance.
- Valve type:** VZX, VEU (Mk 5) 2-port, MZX, MEU (Mk 5) 3-port or FEU (Mk 6) 4-port as required.
- Actuator:** The type reference is given below each valve, relative to application. The colour refers to a prominent label affixed to the side of the actuator frame, for quick and easy identification on site (as illustrated below).

TABLE 3

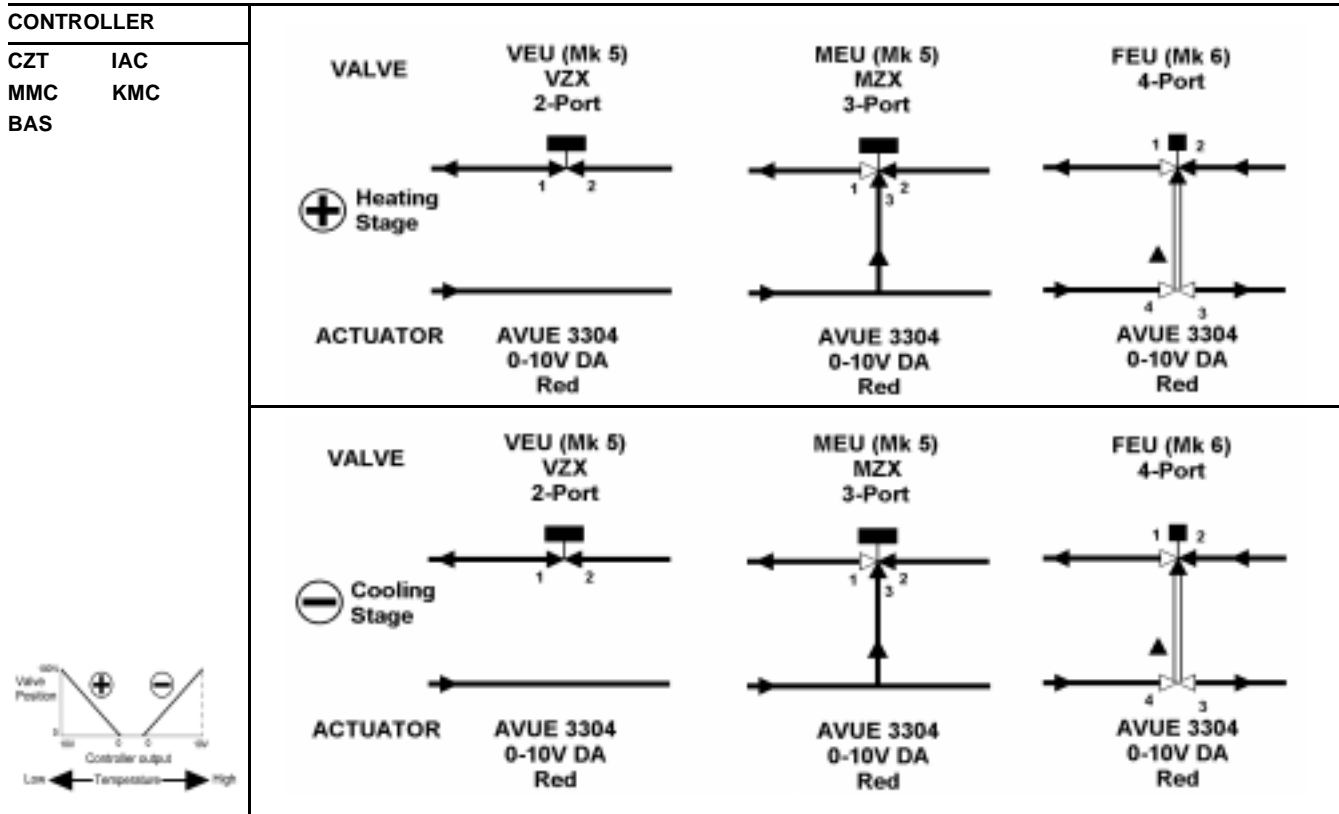
APPLICATION: Single-Stage Heating

CONTROLLER		VALVE	VALVE	VALVE
DRTE	MMC			
DDTE	BAS			
DWTE	IAC			
CZT	KMC			
		ACTUATOR AVUE 3304 0-10V DA Red	ACTUATOR AVUE 3304 0-10V DA Red	ACTUATOR AVUE 3304 0-10V DA Red

APPLICATION: Single-Stage Cooling

CONTROLLER		VALVE	VALVE	VALVE
DRTE	MMC			
DDTE	BAS			
DWTE	IAC			
CZT	KMC			
		ACTUATOR AVUE 3304 0-10V DA Red	ACTUATOR AVUE 3304 0-10V DA Red	ACTUATOR AVUE 3304 0-10V DA Red

APPLICATION: Two-Stage, Heating and Cooling (Two separate 0-10Vdc controller outputs)



INSTALLATION

Observe the following IMPORTANT points:-

- Ambient temperature must be within limits -20 to 50°C
- Ensure that location is reasonably clean and dry with adequate access for fitting and wiring
- Do not install with actuator below level of valve.

Note: There is not any need to remove the actuator cover.

1. Check that actuator specification number is correct for application, see commissioning Note 1.
2. Unscrew the two captive angled fixing screws in mounting frame and with the valve spindle fully withdrawn, tilt actuator and lower over valve so that the claw coupling on actuator spindle engages with the grooved bush on top of valve spindle.
3. Now lower actuator frame onto valve clamping face and tighten the two angled screws. Tools are not required.
4. Connect colour-coded flying lead to controller, as appropriate diagram, observing cable length and resistance limitations under 'Wiring Precautions'. Ensure cable is routed clear of valve and pipework. Refer to Typical Wiring Diagrams.

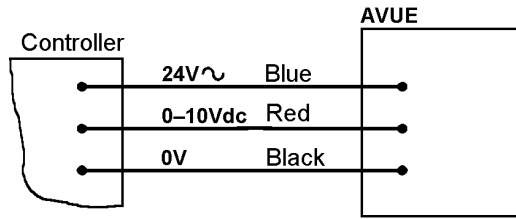
DO NOT SWITCH ON THE POWER SUPPLY UNTIL THE COMMISSIONING STEPS HAVE BEEN COMPLETED.

COMMISSIONING

1. Check that actuator specification number is correct for application by reference to coloured identification label. See 'Guide to Selection'.
2. Check that actuator is correctly fitted to valve, also that flying lead is routed clear of valve body and pipework and correctly connected to controller.
3. Switch on the 24Vac supply and adjust the controller set value to check that the actuator operates through its full stroke and in the correct direction with respect to high or low set value settings. Check that actuators and valves operate in the correct sequence with two-stage control systems. Refer to the actuator selection guide.

CONNECTION DRAWINGS

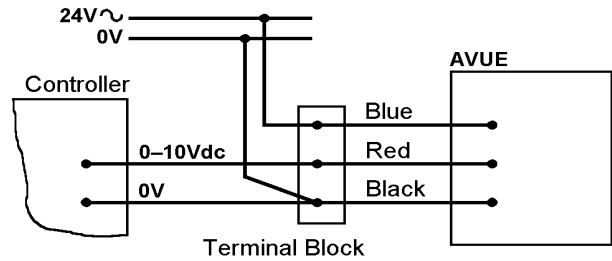
BASIC DIAGRAM FOR AVUE ACTUATORS



AVUE actuators can be connected in parallel. Ensure that the 24Vac supply is rated to operate the number of AVUEs connected to it.

Fig.1

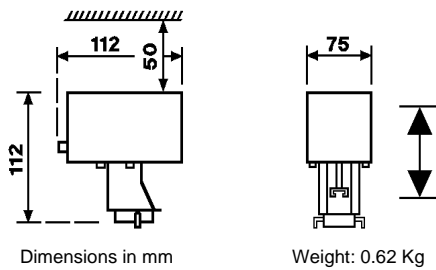
SEPARATE 24 VOLT POWER SUPPLY TO AVUE



AVUE actuators can be connected in parallel. Ensure that the 24Vac supply is rated to operate the number of AVUEs connected to it.

Fig.2

DIMENSION DRAWING



WIRING PRECAUTIONS

Wiring from actuator to controller*:	Max. length of 1.5mm ² cable unscreened	Max. resistance per conductor
24V~ supply	100m	3 Ohms
0-10Vdc signal	100m	50 Ohms

For longer lengths of 24 Volt supply wiring, increase cable size and observe maximum resistance, also run separate return from 0V connection (Black) as fig. 2.

When screening is required, use either screened cable or MICC.

***When wiring to BAS outstations refer to the appropriate outstation data sheet for the wiring precautions.**



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CAUTION

- Observe local wiring regulations and usual safety precautions. Note fusing and earthing requirements.
- These are low Voltage devices: do not exceed rated Voltages.
- Do not switch on power supply until commissioning checks have been completed - see page 5 for details.
- Observe limits of water temperature, system pressure and maximum differential pressure for control valves.
- Observe wiring precautions.
- Observe maximum and minimum ambient temperature.
- Interference with those parts under sealed covers renders the guarantee void.
- Design and performance of Satchwell equipment are 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 or 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.