Satchwell

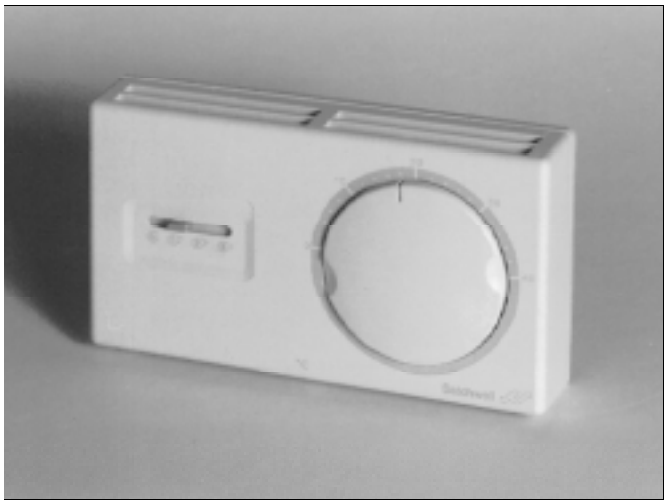
DRTE

AIR ROOM TEMPERATURE SENSOR with fan speed control switches

Specification No. 528-X-XXX*

The DRTE Active Room Temperature sensor incorporating fan speed control switches is designed to give a proportional 0 to 10 Volt dc output for control of rooms or small zones. The room occupant is provided with local adjustment of room temperature and also fan speed for optimum comfort settings.

The active sensor will control actuators such as the Satchwell ALE and ARE. Alternatively, the output can be used as a reset signal to other controllers.



* For the full specification number replace the 4Xs with the appropriate figures from the TYPE column in the table overleaf.

Associated Controllers
DS 2.55/2.120 - KMC
DS 2.701/2.751 - MMC
DS 2.801/2.951 - IAC
Associated Actuators
DS 3.001 - AVUE
DS 3.215 - ARE
DS 3.301 - ARES
DS 3.401 - ALE
DS 3.501 - ALES

SIEBE

A Siebe Group Product

SPECIFICATION

Type	Adjustable Scale 10 to 40°C	Number of Switch Positions	Switch Position	Switch Function
DRT 2801	●	2	0 1	OFF ON
DRT 2851	●	4	0 1 2 3	OFF LOW MEDIUM HIGH

Power Supply: 24V (±10%) 50/60Hz

Consumption: 3VA plus actuators connected

Fuse: Supply should be externally fused.

Sensing Element: Built-in negative temperature coefficient thermistor.

Output: One reversible 0 to 10 Volt dc control signal for heating or cooling.
One fixed 10 Volt dc output.

Temperature Sensing Range: 0 to 40°C

Proportional Band: 2 to 15K

Associated Controllers: MMC and IAC can be reset, the DRTE can be used as a low limit on the former and also on the following KMC

Associated Actuators: ALE, ALES, ARE, ARES, AVUE, ARUE

Ambient Temperature Limits: Operating: 0 to 45°C
Storage/Transport: -40 to 55°C

Max. Ambient Humidity: Operating & Storage: 95% rh non condensing

Switch Rating: 3A 230Vac. Motor full load current.
12A motor starting, 250Vac
Note: Manual switches suitable for choke controlled or capacitor controlled fan motors only.
Slide switch.

CONSTRUCTION

Case: Tough fire resistant plastic case and backplate.

Protection Class: IP 20

Terminals: Accept 1 x 2.5mm^2 wires. Larger sizes not recommended.

SETTING & ADJUSTMENTS

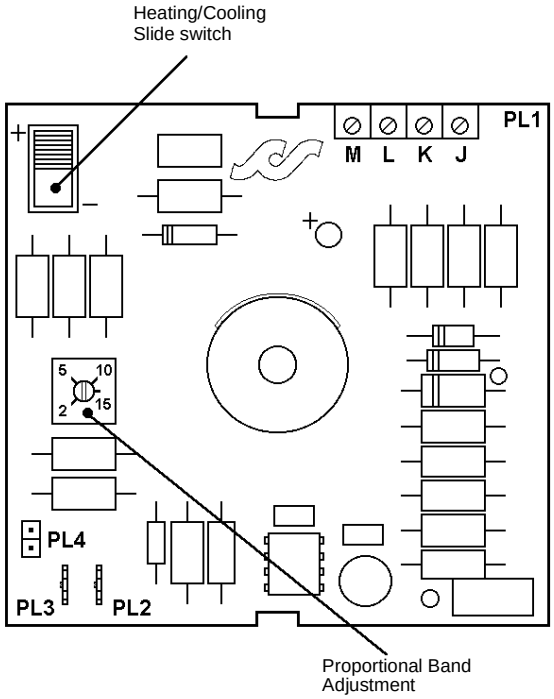


Fig.1

OUTPUT

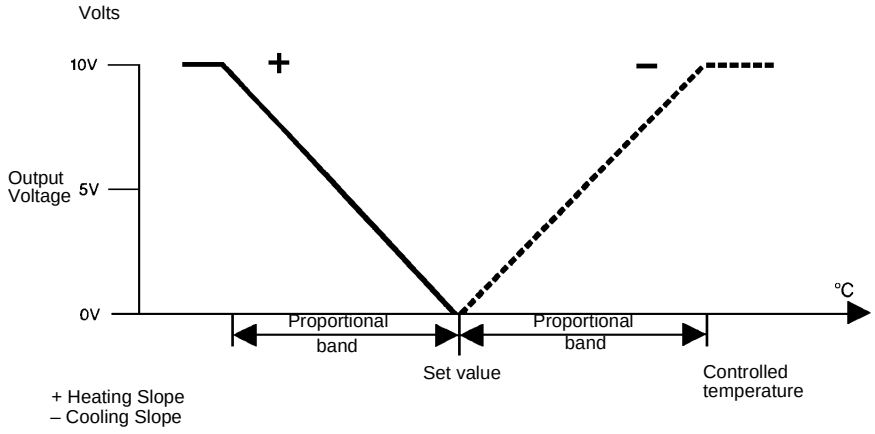


Fig.2

INSTALLATION

Room Sensor Type: DRTE

1. Select a location for the sensor which is representative of the space to be controlled and where it will be readily affected by changes in the general space temperature level. The sensor location should also be reasonably clean and free from damp and condensation.
2. Remove the backplate by pushing in the fixing lugs on the top and bottom of the sensor with a small screwdriver or similar tool.
3. Thread the wires through the backplate and baffle card and fix it to the wall or conduit box with the arrow pointing upwards. The baffle card is used to ensure that there are no draughts from the cable entries to influence the sensed temperature.
4. Unscrew the mains wiring cover screw and slide the cover away from the terminals on the backplate.
5. Wire the mains voltage wiring to switch terminals in accordance with the appropriate scheme diagram (See Fig.8). **This mains wiring must be suitably sized for load and comply with local regulations.**
6. Connect the wires to the sensor terminals on the sensor. See the data sheet for the controller the sensor is to be connected to for the terminal designations.
7. Slide the mains cover over the mains terminals and tighten the fixing screw.
8. Refit the sensor housing to the backplate

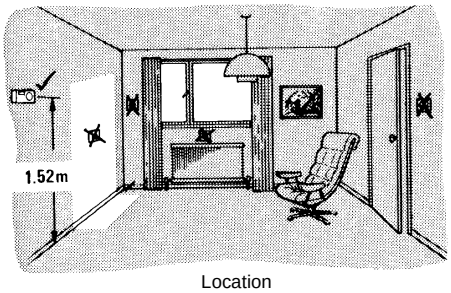


Fig.3
Location

DO NOT SWITCH ON THE POWER SUPPLY UNTIL COMMISSIONING STEPS 1 TO 6 HAVE BEEN COMPLETED.

COMMISSIONING

1. Ensure all power supplies are off.
2. Remove sensor cover as in the installation instructions.
3. Check all equipment is correctly located and wired in accordance with the system diagram.
4. Set the set-value and proportional band required. Set the selector switch to the slope required i.e. ‘+’ for a heating slope or ‘-’ for a cooling slope.
5. Refit sensor cover.
6. Turn on power supply.

FINE TUNING THE SYSTEM

If the output tends to be sluggish reduce the proportional band slightly. If it appears to hunt increase the proportional band. A typical proportional band setting for room control would be approximately 3 or 4K.

CONNECTION DIAGRAMS

BASIC DIAGRAM

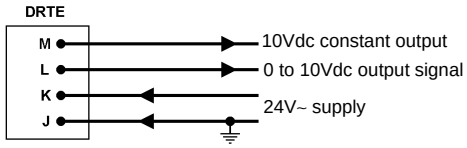
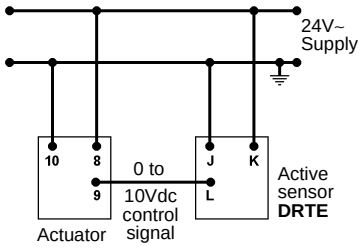


Fig.4

CONTROL OF ELECTRONIC ACTUATORS

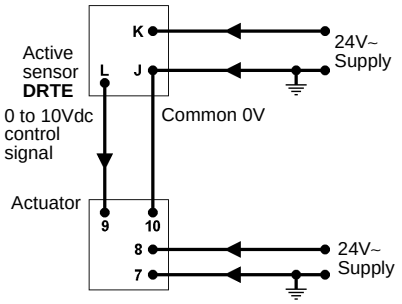
COMMON SUPPLY



ALE - DS3.20/3.401
ALES - DS3.21/3.501
AVUE - DS3.23/3.001
ARE - DS3.17/3.215

Fig.5

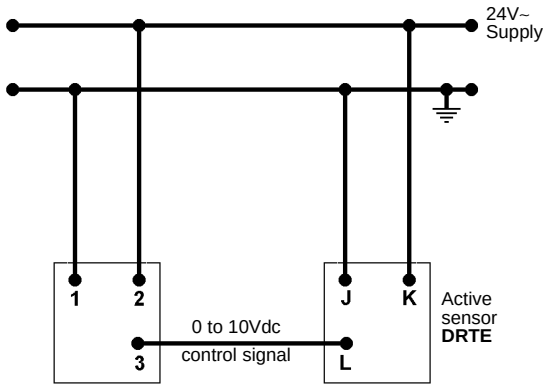
SEPARATE SUPPLY



ALE - DS3.20/3.401
ALES - DS3.21/3.501
AVUE - DS3.23/3.001
ARE - DS3.17/3.215

Fig.6

CONTROL OF ROTARY ELECTRONIC ACTUATOR



ARES - DS3.18/3.301

Fig.7

FAN SPEED SWITCH WIRING

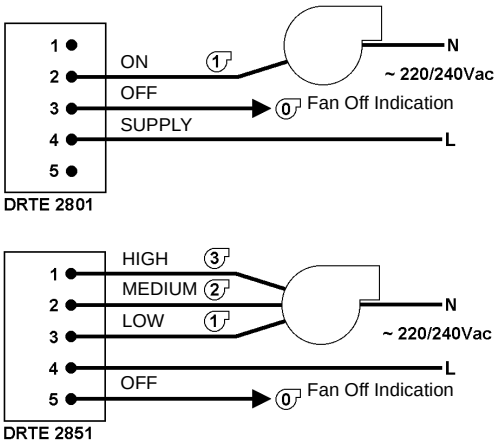


Fig.8

WIRING PRECAUTIONS

Wiring from active sensor to:	Maximum length for 1.5mm² core unscreened cable*	Maximum resistance per conductor
** Actuators		
24V~ supply	100m	3Ω
0-10Vdc signal	100m	50Ω
Controllers	100m	3Ω

IMPORTANT: Low Voltage unscreened signal wiring must be run in a separate loom or trunk from any mains wiring and spaced as far as possible away from it (220/240Vac 45cm Min, 415Vac 58cm Min both Voltages are with respect to earth and a maximum current of 15A). For other Voltages/currents refer to the IEE report titled "Electro Magnetic Interference" September 1987 (ISBN85296353X).

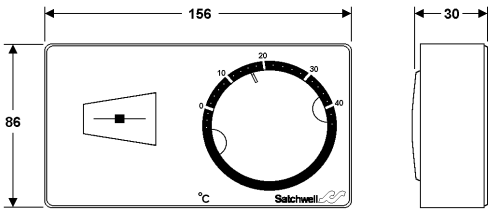
NOTES

* Where length exceeds figures in column 2 up to a maximum of 300m select cable size to comply with resistance in column 3 and use one of the following screening options.

- Screened cable. Earth screen at controller end only
- MICC. Earth sheath at controller end only

** Up to 20 actuators maximum may be connected to the DRTE (0-10V signal). 24V supply must be run separately.

DIMENSION DRAWING



Dimensions in mm

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CAUTION

- **This is a low and mains Voltage device: do not exceed rated Voltages. Local wiring regulations and usual safety precautions must be observed.**
- **The fan speed switches will be at mains potential, ensure that the power to the switches is isolated before opening the case.**
- **Observe wiring precautions - see page 5.**
- **Do not switch on the power supply until commissioning steps 1 to 6 have been carried out - see page 4.**
- Do not exceed maximum ambient temperature.
- Interference with parts under sealed covers invalidates guarantee.
- 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.

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