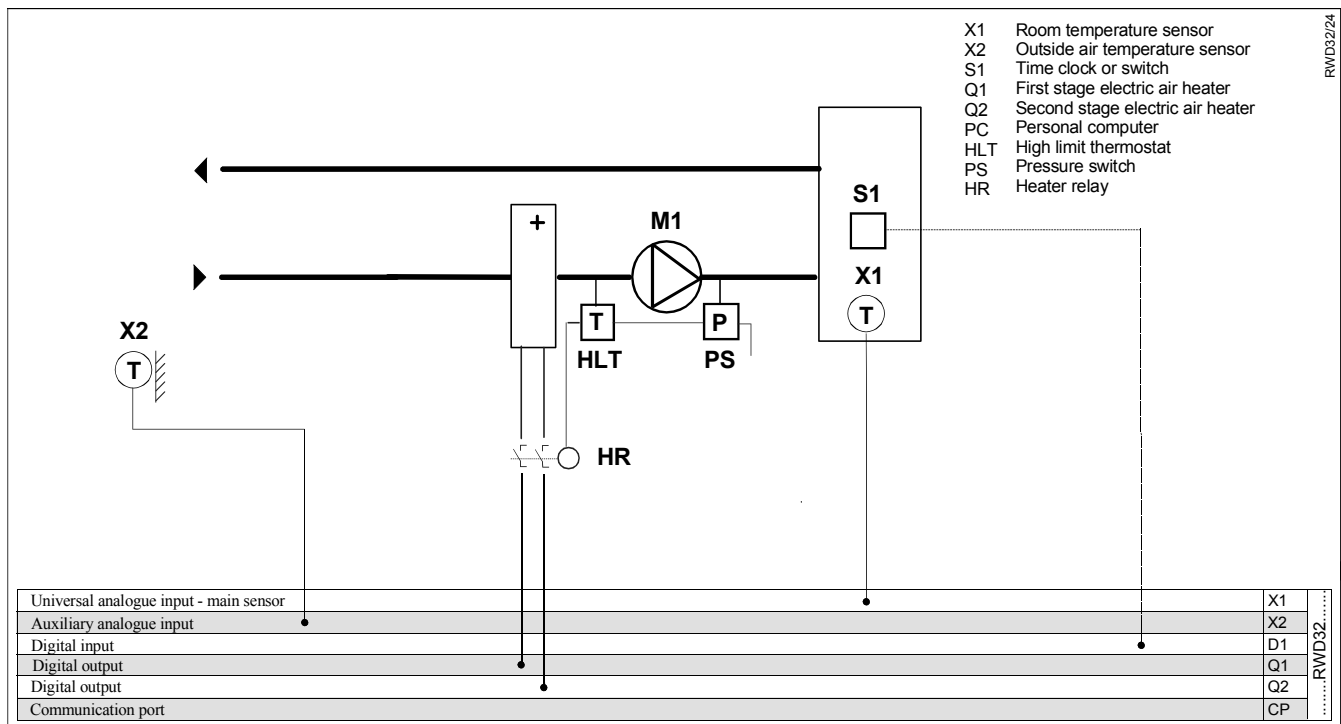


RWD32 Universal Controller
Application 27
W / S mode selection - analogue

Room temperature control
 One stage electric heating
 Package unit – 1 heat, 1 cool

- Control 2 stage digital
- Room temperature control
- One stage ON / OFF electrical heating
- One stage heat – one stage cool - package unit
- Winter / Summer selection of heating or cooling operation of Q1 output by X2
- Optional day / night set point adjustment .



Supplemental features
Control

- Room temperature sensor can be selected as Ni1000, Pt1000, or active sensor.
- Adjustable differential of digital output Q1.
- Adjustable set point of Q1.
- Adjustable differential of digital output Q2.
- Adjustable set point of Q2.
- 230Vac controller supply voltage
- Outside air temperature sensor can be selected as Ni1000, Pt1000, or active sensor.
- Winter / summer selection of heating or cooling mode of the Q1 output as selected by analogue input into auxiliary input X2 sensing outside air temperature.
- Day / night set points can be selected via time clock or switch.

Operating modes

Safety functions

- A high limit manual reset thermostat is mounted downstream of the air electric heater, and de-energises the heater on excessive duct temperatures. This thermostat has to be manually reset following detection of overheating. It is often supplied by the supplier of the electric heater.
- A pressure switch is also specified to detect loss of static pressure in the duct, indicating loss of fan. This also de-energises the electric heater but it is auto reset and allows electric heater function following the detection of fan operation .
- These safety units can be connected directly in series with small electric heaters, but for larger electric heaters they are connected to a heater contactor switching the electric heater.

Description of operation

The temperature sensor senses the room conditions and on a fall in temperature the RWD32 via Q1 digital output energises stage 1 controlling the heating output of the reverse cycle package unit.

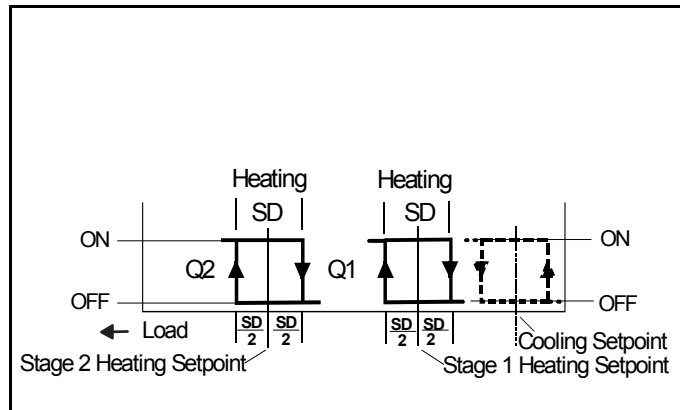
On a further fall in temperature, Q2 digital output energises stage 2 switching the electric heater.

When the outside air sensor senses the outside air temperature has exceeded summer set point, the controller set point for Q1 is adjusted to the summer set point, and the Q1 output reverses it's action from heating to cooling mode. The reverse cycle package unit requires a signal to switch to reverse cycle mode. .

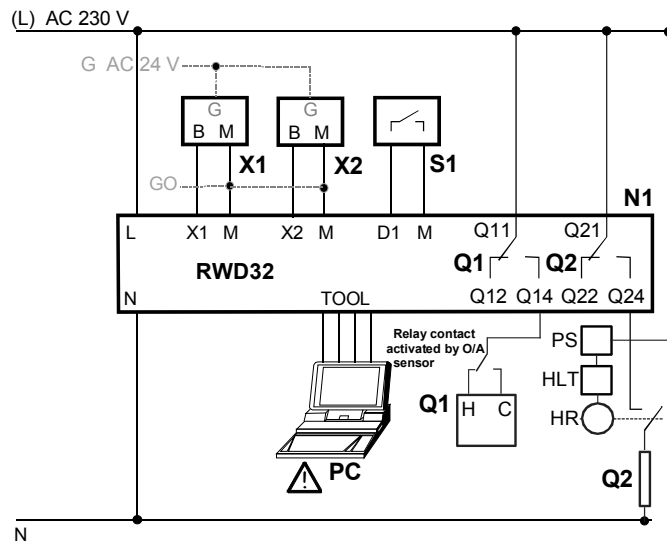
This application results in Q1 supplying heating during the winter, and cooling during summer.

Heating sequences

Function diagram



Connection diagram



RWD32

- N1 RWD32 controllers
- X1 Main temperature sensor
- X2 Outside air temperature sensor
- S1 Time clock or switch
- Q1 Reverse cycle package unit
- Q2 Stage 2 electric heater
- PS Pressure switch
- HLT High limit thermostat
- HR Heater relay
- PC Personal computer

Main Display

The main display shows ,

- Whether Q1 is On or Off (= off, = on)
- Whether Q2 is On or Off (= off, = on)
- Whether day or night set point is selected. (☐ = day, (= night)
- X1 value (room temperature) in ° C.

Other displays are available by pressing the + button, and the various displays are listed below in sequence from the main display.

On entering any of the four set point displays, the setpoint on display can be adjusted by pushing the ● enter/save button, increase value by pressing the ▲+ button or decrease the value by pressing the ▼- button, and when the required value is reached, press the ●enter/save button to save the new value.

The alternative displays return to the main display after 20 seconds duration.

Press buttons	Action	Current display	Selected display	Selected display comments
▲	Push + button	Q1 Q2 ☐ X1	Q1 SP – h ☐ 24.0c	Q1 heating day set point. (winter)
▲	Push + button	Q1 SP – h ☐ 24.0c	Q1 SP – c ☐ 21.0c	Q1 cooling day set point. (summer)
▲	Push + button	Q1 SP – c ☐ 21.0c	Q2 SP – c ☐ 28.0c	Q2 cooling day set point. (winter and summer)
▲	Push + button	Q2 SP – c ☐ 28.0c	Q1 SP – h (16.0c	Q1 heating night set point. (winter)
▲	Push + button	Q1 SP – h (16.0c	Q1 SP – c (13.0c	Q1 cooling night set point. (summer)
▲	Push + button	Q1 SP – c (13.0c	Q2 SP – c (32.0c	Q2 cooling night set point. (winter and summer)
▲	Push + button	Q2 SP – h (16.0c	X1 18.0c	X1 - main temperature sensor reading
▲	Push + button	X1 18.0c	X2 21.0c	X2 - outside air temperature sensor
▲	Push + button	X2 21.0c	Q1 ON	Q1 – heating digital output, display on or off.
▲	Push + button	Q1 ON	Q2 ON	Q2 – heating digital output, display on or off.
▲	Push + button	Q2 ON	WIN/SUM ☐ 27 ☐ ANLG	Control sequence diagram and application number display.
▲	Push + button	WIN/SUM ☐ 27 ☐ ANLG	Q1 Q2 ☐ X1	Back to main display

Values shown are either default values or nominated for information only.