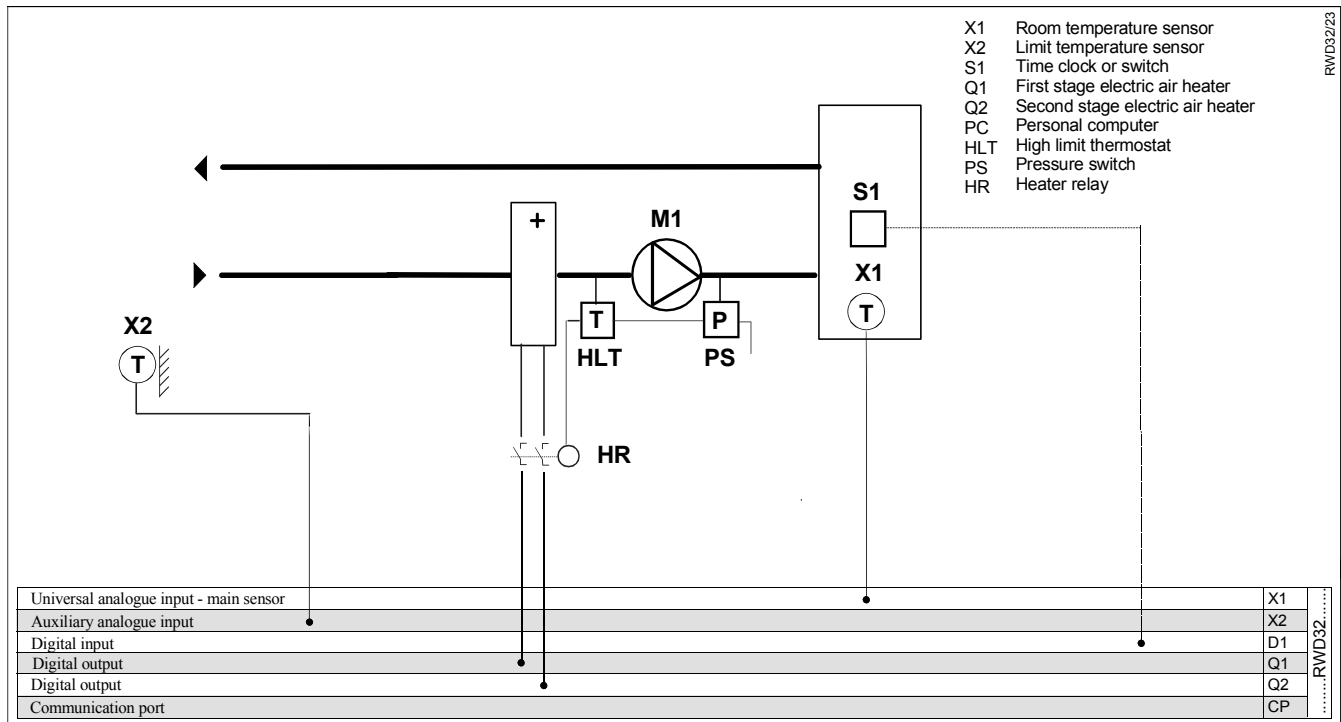


RWD32 Universal Controller

Room temperature control
Two stage electric heating

Application 24
Compensation shift

- Control (2 position)
- Room temperature control
- Two stage ON / OFF electrical heating
- Outside air compensation of the room temperature .
- 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
- O/A temperature sensor can be selected as Ni1000, Pt1000, or active sensor.

Operating modes

- Outside air compensation of the room temperature set point.
- Day / night set points can be selected via time clock or switch.
- Independent mode for the two heating outputs.
- 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.

Safety functions

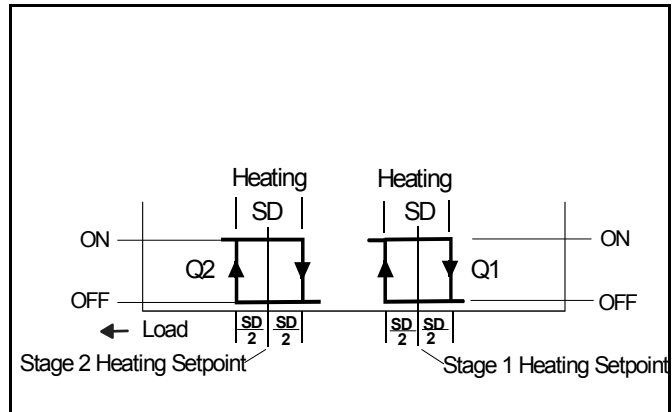
- A pressure switch is also specified to detect loss of static pressure in the duct, indicating loss of fan. This also de-energises the electric heater but it is auto reset and allows electric heater function following the detection of fan operation.
- These safety units can be connected directly in series with small electric heaters, but for larger electric heaters they are connected to a heater contactor switching the electric heater.

Description of operation

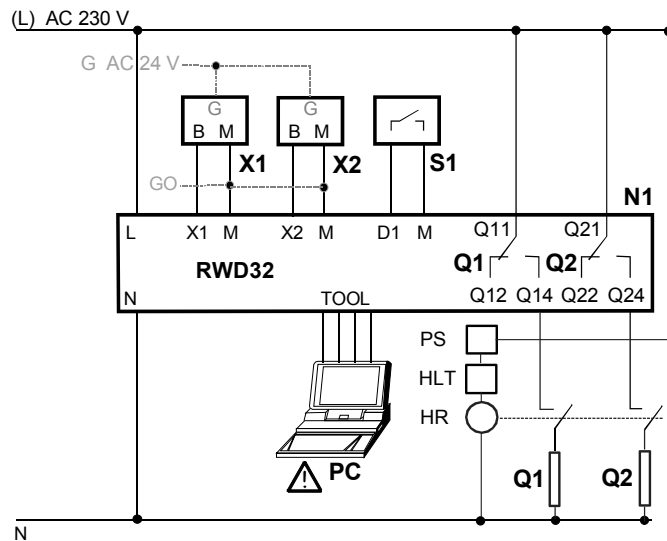
The temperature sensor senses the room conditions and on a fall in temperature the RWD32 via Q1 digital output energises stage 1 of the electric heater. On a further fall in temperature, Q2 digital output energises stage 2 of the electric heater. The auxiliary temperature sensor (X2) senses the outside air temperature, and adjusts the room temperature set point as per the temperature shift program set up in the controller.

Function diagram

Heating sequences



Connection diagram



RWD32

- N1 RWD32 controllers
- X1 Main temperature sensor
- X2 Limit temperature sensor
- S1 Time clock or switch
- Q1 Stage 1 electric heater
- 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 ☉ 25.0c	Q1 - heating day set point.
▲	Push + button	Q1 SP – h ☉ 25.0c	Q2 SP – h ☉ 25.0c	Q2 - heating day set point.
▲	Push + button	Q2 SP – h ☉ 25.0c	Q1 SP – h ☾ 16.0c	Q1 - heating night set point.
▲	Push + button	Q1 SP – h ☾ 16.0c	Q2 SP – h ☾ 16.0c	Q2 - heating night set point.
▲	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 reading
▲	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	COMP 24 <input type="checkbox"/> <input type="checkbox"/>	Control sequence diagram and application number display.
▲	Push + button	COMP 24 <input type="checkbox"/> <input type="checkbox"/>	Q1 Q2 ☉ X1	Back to main display

Values shown are either default values or nominated for information only

Alternatives

- One stage electric heating and one stage of refrigerated cooling.
- One stage of electric heating and two position control of chilled water valve.