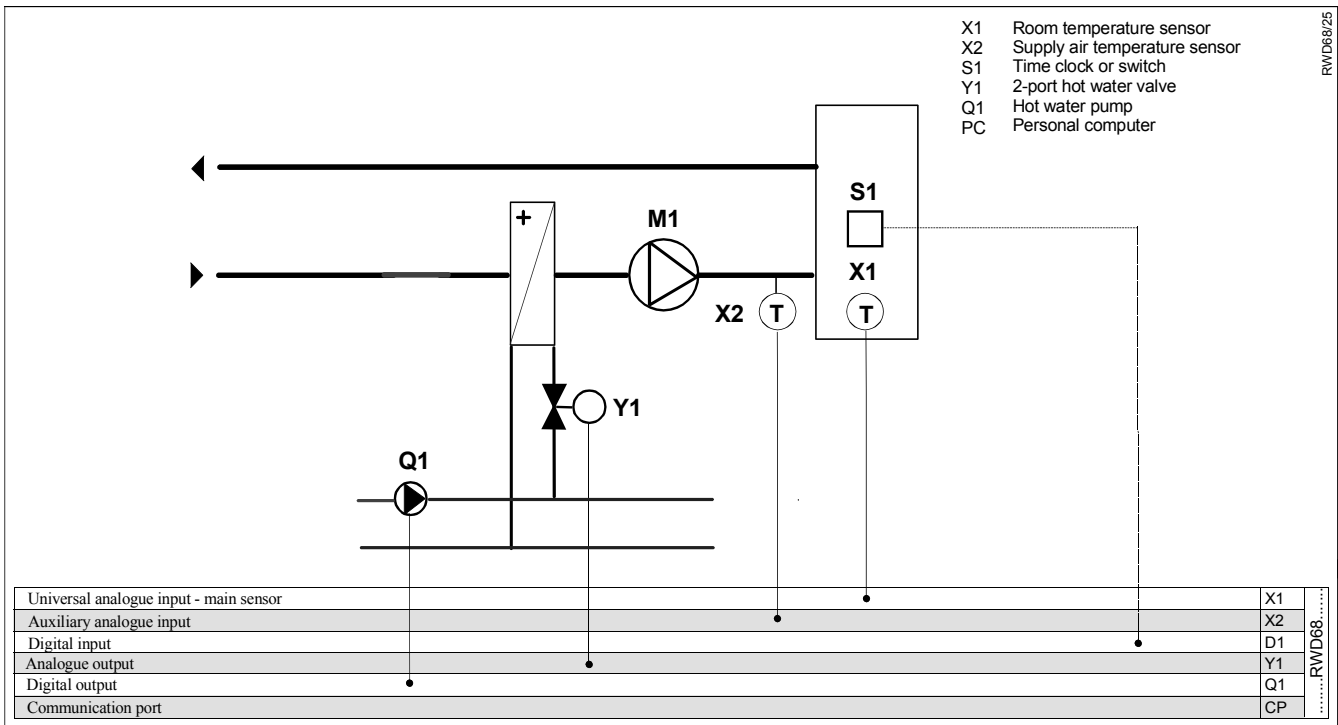


RWD68 Universal Controller
Application 25
Cascade control

Room temperature control
 Hot water control valve
 Hot water pump output

- Control (P or PI)
- Room temperature control
- Proportional control (0..10Vdc) of the hot water valve.
- Digital output to energise hot water pump
- Cascade control.
- 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 proportional band of analogue output Y1.
- Integral action function selection and adjustment for output Y1.
- 24Vac controller supply voltage
- 0..10Vdc modulating control valve
- Duct temperature sensor can be selected as Ni1000, Pt1000, or active sensor.(X2)
- Cascade control of the supply air by the room temperature sensor.

Operating modes

- Day / night set points can be selected via time clock or switch.
- Dependent mode for the two heating outputs, meaning that the digital output ON and OFF settings are set within the analogue output proportional band.

Description of operation

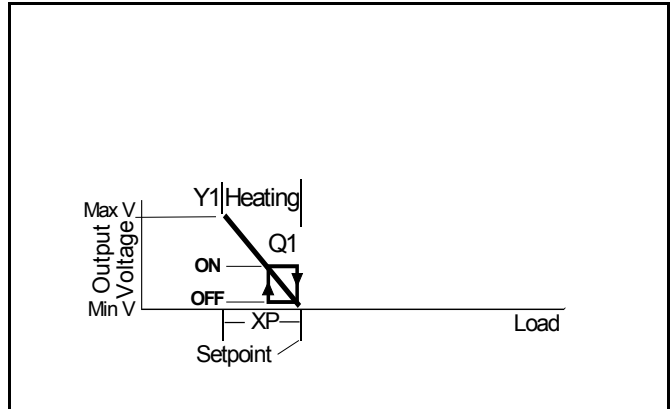
Cascade control is where deviation of room temperature from set point adjusts the control point of the leaving air temperature controlling heating .

The temperature sensor senses the room conditions and on a fall in temperature the RWD68 via Y1 analogue output modulates the hot water control valve as determined by the heating set point and proportional band settings.

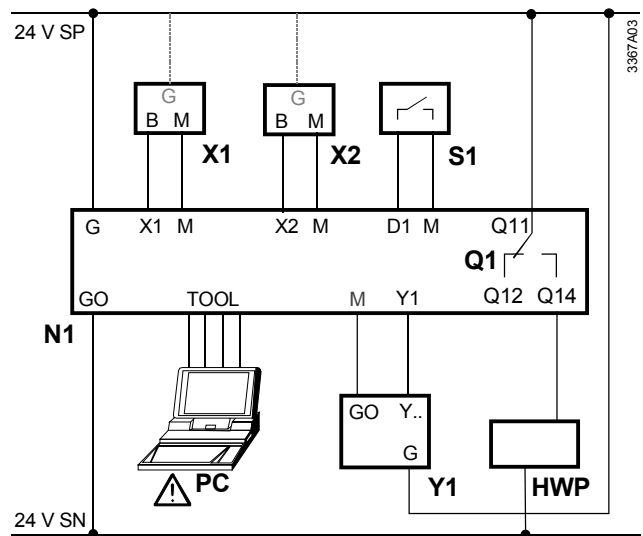
The Q1 digital output energises the hot water pump as determined by the Q1 ON and OFF settings as the hot water valve opens.

Function diagram

Heating sequences



Connection diagram



RWD68

- N1 RWD68 controllers
- X1 Main temperature sensor
- X2 Supply air temperature sensor
- S1 Time clock or switch
- Q1 Potential-free relay contacts for 2-position
- Y1 Valve actuator with 0..10Vdc input
- HWP Hot water pump contactor
- PC Personal computer

Main Display

The main display shows ,

- a) Whether Q1 is On or Off (◻ = off, ◼ = on)
- b) Y1 output in Volts dc. (0..10V = 0..100% range)
- c) Whether day or night set point is selected. (☒ = day, ☒ = night)
- d) 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 Y1 ☒ X1	SP – h ☒ 25.0c	heating day set point.
▲	Push + button	SP – h ☒ 25.0c	SP – h ☒ 16.0c	heating night set point.
▲	Push + button	SP – h ☒ 16.0c	X1 18.0c	X1 - main temperature sensor reading
▲	Push + button	X1 18.0c	X2 19.0c	X2 – supply air temperature sensor reading
▲	Push + button	X2 19.0c	Y1 5.0	Y1 – heating analogue output value in Vdc to one decimal point
▲	Push + button	Y1 5.0	Q1 ON	Q1 – heating digital output, display on or off.
▲	Push + button	Q1 ON	☒ CASC 25	Control sequence diagram and application number display.
▲	Push + button	☒ CASC 25	Q1 Y1 ☒ X1	Back to main display

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

Alternative

- 1) Energising and modulation of a fan speed inverter controller.