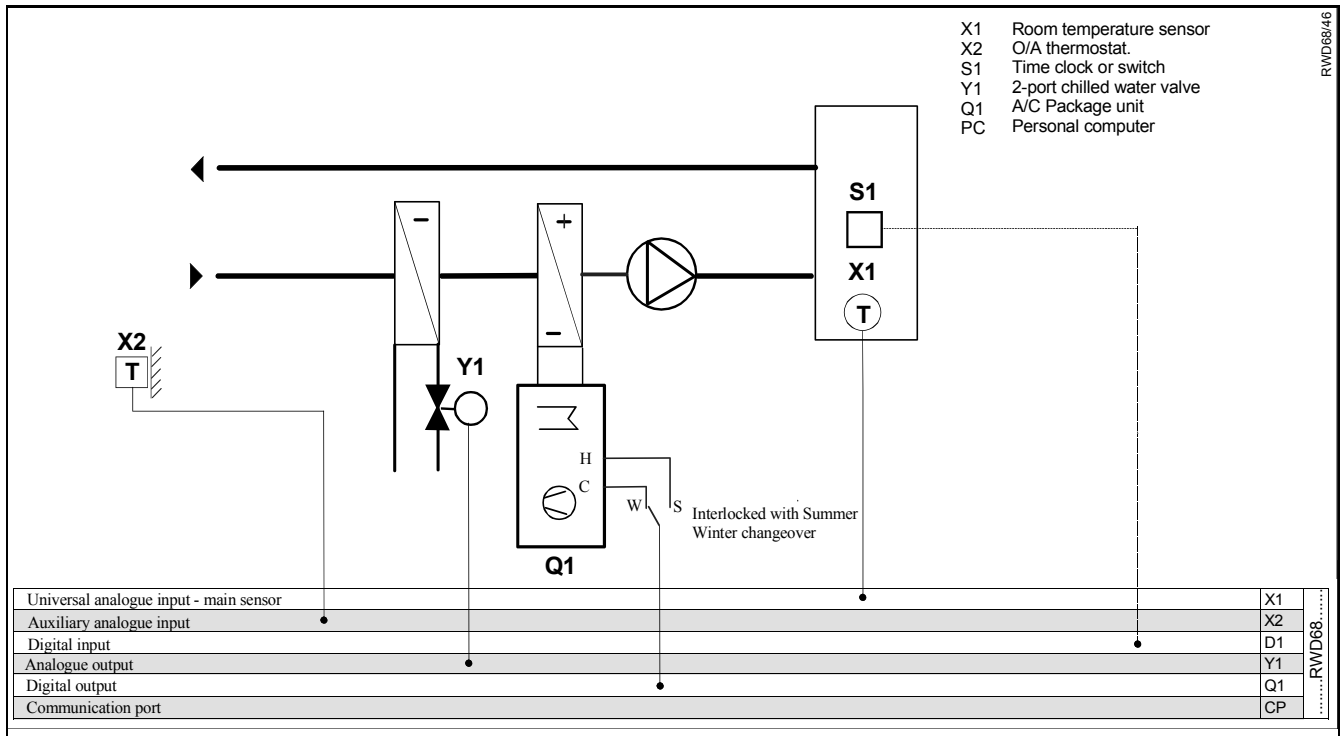


**RWD68 Universal Controller**  
**Application 46**  
**W / S mode selection - digital**

Room temperature control  
 Reverse cycle package unit  
 Chilled water control valve

- Control (P or PI)**
- Room temperature control**
- Heating / cooling control of the reverse cycle package unit**
- Proportional control ( 0..10Vdc ) of the chilled water valve.**
- Winter / summer mode selection of Y1 as determined by digital input (X2)**
- Optional day / night set point adjustment .**



**Supplemental features**

**Control**

- Room temperature sensor can be selected as Ni1000, Pt1000, or active sensor.(X1)
- Adjustable dead zone with separate heating and cooling set points.
- Adjustable differential of digital output Q1.
- Adjustable proportional band of analogue output Y1.
- Integral action function selection and adjustment.
- Outside air thermostat provides the digital input for winter / summer selection.
- Winter / summer selection of heating and cooling mode of the Q1 output as selected by digital input into auxiliary input X2 sensing outside air temperature.

**Operating modes**

- Day / night set points can be selected via time clock or switch.
- An external relay needs to be interlocked with the Winter/ Summer changeover to connect the Q1 output to cooling during summer.

**Description of operation**

The main temperature sensor senses the room conditions and on a fall in temperature the RWD68 via Q1 digital output switches the reverse cycle heating of the package unit on and off as determined by the heating set point and differential settings.

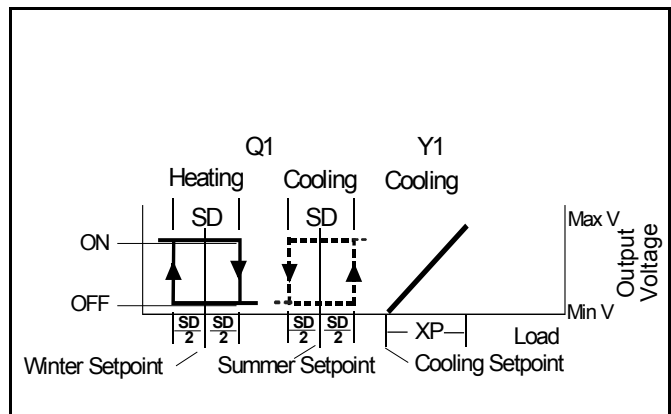
On a rise in temperature the RWD68 via the Y1 analogue output modulates the chilled water valve as determined by the cooling set point and proportional band settings.

When the outside air thermostat 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 and switches cooling of the package unit.

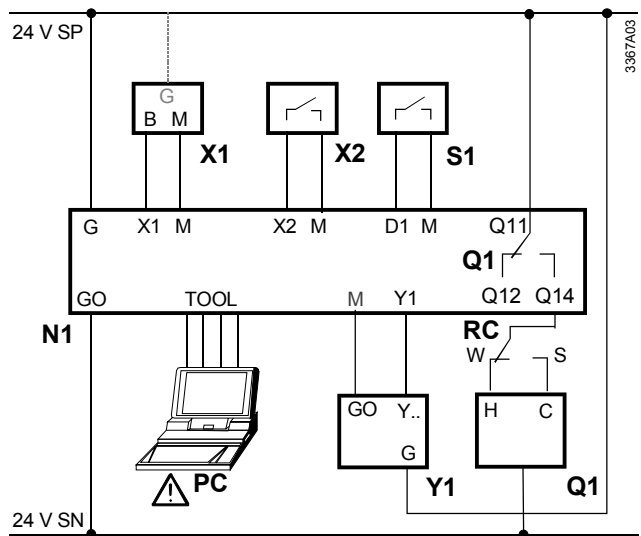
This application results in Q1 supplying heating during the winter, and supplementary cooling during summer.

**Function diagram**

Heating and cooling sequences



**Connection diagram**



**RWD68**

- N1 RWD68 controllers
- X1 Main temperature sensor
- X2 O/A thermostat
- S1 Time clock or switch
- Q1 Reverse cycle package unit
- Y1 Valve actuator with 0..10Vdc input
- RC Relay contact interlocked with W/S changeover
- PC Personal Computer

## Main Display

The main display shows ,

- Whether Q1 is On or Off (  = off,  = on )
- Y1 output in Volts dc. (0..10V = 0..100% range)
- 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.

Press buttons	Action	Current display	Selected display	Selected display comments
▲	Push + button	Q1 Y1 ☉ X1	Q1 SP – h ☉ 25.0c	Q1 heating day set point. ( winter)
▲	Push + button	Q1 SP – h ☉ 25.0c	Q1 SP – c ☉ 28.0c	Q1 cooling day set point. ( summer )
▲	Push + button	Q1 SP – c ☉ 28.0c	Y1 SP – c ☉ 28.0c	Y1 cooling day set point.
▲	Push + button	Y1 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 ☾ 16.0c	Q1 cooling night set point. (winter)
▲	Push + button	Q1 SP – c ☾ 16.0c	Y1 SP – c ☾ 32.0c	Y1 cooling night set point.
▲	Push + button	Y1 SP – c ☾ 32.0c	X1 26.0c	X1 - main temperature sensor reading
▲	Push + button	X1 26.0c	Y1 5.0	Y1 – cooling analogue output value in Vdc to one decimal point
▲	Push + button	Y1 5.0	Q1 OFF	Q1 – heating digital output, display on or off.
▲	Push + button	Q1 OFF	WIN/SUM 46 DIG	Control sequence diagram and application number display.
▲	Push + button	WIN/SUM 46 DIG	Q1 Y1 ☉ X1	Back to main display

Values shown are either default values or nominated for information only

## Alternatives

- 1) Modulating chilled water valve and two position heating valve.