

rosenthal design 



## DeltaSol Fresh® Modbus

RESOL offers a range of solutions for the control of DHW exchange modules. The new controller platform is equipped with an enhanced and faster control algorithm and enables the precise and energy-efficient control of the draw-off temperature.

In order to achieve the best possible control quality, our laboratories run a number of dimensioning tests and check measurements. Classification of control quality is conducted on the basis of research results of the Rapperswil Institute for Solar Technology and the Institute for Solar Energy Research in Hamelin (ISFH).

## DHW exchange controller platform

- Constantly high control quality by adaptation to the end user system by means of self-learning neural networks
- Customised control for systems with or without circulation
- Flexible circulation function for different user profiles, also available with thermal disinfection
- Reliable DHW heating even in the case of a fault condition
- Control of PWM pumps
- Adaptable to many commonly used flow rate sensors
- Cascades of up to 6 DHW exchange controllers or stations
- Numerous check measurements run by our laboratories
- Connection to a building management system via Modbus/RTU

RESOL develop and produce the right controller to suit your DHW exchange module, PLEASE CONTACT US!

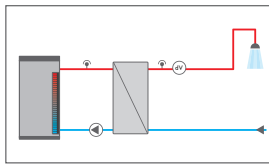
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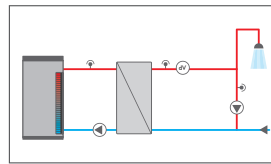
DeltaSol® Fresh Modbus – DHW exchange controller (solutions for the control of OEM DHW exchange modules)

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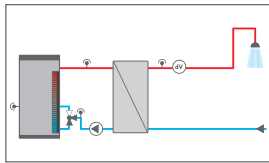
## EXAMPLES



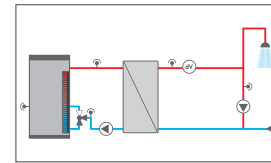
DHW heating



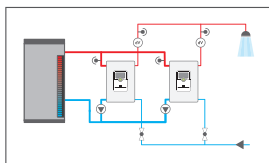
with circulation



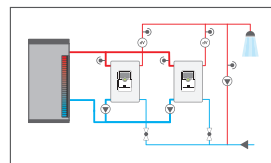
with stratified return



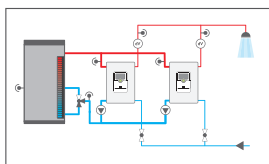
with circulation and stratified return



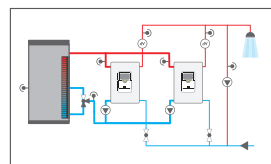
Cascade – DHW heating



Cascade – with circulation



Cascade – with stratified return



Cascade – with circulation and stratified return

## TECHNICAL DATA (EXAMPLE)

### Inputs:

6 Pt1000 temperature sensors, up to 3 flow rate sensors  
(1 x 0-500 Hz interface and up to 2 analogue Grundfos Direct Sensors™  
(depending on the product version))

### Outputs:

3 semiconductor relays, 2 PWM outputs,  
1 potential-free extra-low voltage relay

**PWM frequency:** 512 Hz

**PWM voltage:** 11 V

### Switching capacity:

1 (1) A 240 V~ (semiconductor relay)

1 (1) A 30 V== (potential-free relay)

**Total switching capacity:** 4 A 240 V~

**Power supply:** 100–240 V~ (50–60 Hz)

**Supply connection:** type X attachment

**Standby:** 0.97 W

**Mode of operation:** type 1.B.C.Y action

**Rated impulse voltage:** 2.5 kV

**Data interface:** VBus®, cascade bus, Modbus/RTU,  
MicroSD card slot

**VBus® current supply:** 60 mA

**Housing:** plastic, PC-ABS and PMMA

**Mounting:** wall mounting, mounting into patch panels is possible

### Indication / Display:

full graphic display, operating control LED (Lightwheel®)

**Operation:** 4 buttons and 1 adjustment dial (Lightwheel®)

**Ingress protection:** IP 20/EN 60529

**Protection class:** I

**Ambient temperature:** 0...40 °C

**Degree of pollution:** 2

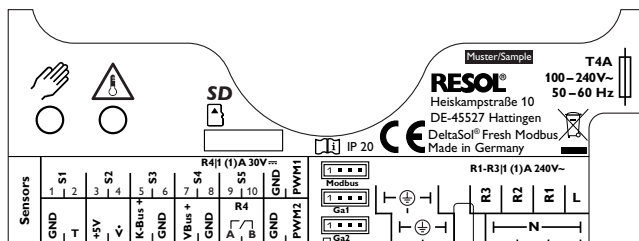
**Relative humidity:** 10...90 %

**Fuse:** T4A

**Maximum altitude:** 2000 m above MSL

**Dimensions:** 110 x 166 x 47 mm

## ELECTRICAL CONNECTION (EXAMPLE)



## FURTHER POSSIBLE SENSOR TYPES:

- Ultrasonic sensors
- Vortex sensors
- Turbine sensors

(On request)

## ACCESSORIES

### KM2 Communication module



For remote access to the controller via VBus.net

### DL2 Plus Datalogger



For remote access to 2 controllers, integrated data logging and connection to a BMS

### AM1



Alarm module for signalling system failures