RESOL®
CONTROL TECHNOLOGY


rosenthal design

VBus.net
RPT
HE pump control

# DeltaSol® CS series

The controllers of the DeltaSol® CS series are used for speed control of a HE pump in small standard solar thermal and heating systems.

They are equipped with up to 2 PWM outputs as well as with an input for a VFD Grundfos Direct Sensor™ which enables precise heat quantity measurement. The commissioning menu ensures an easy and quick configuration.

The DeltaSol® CS series is available in 3 versions, depending on the demands. Details concerning the number of the relays as well as additional functions are shown in the technical data.

## High-efficiency even for small systems!

DeltaSol® CS series

- 1 input for a VFD Grundfos Direct Sensor™
- Heat quantity measurement
- Commissioning menu
- Drainback option

DeltaSol® CS/4, CS Plus

- 3 basic system layouts (DeltaSol® CS/4), 10 basic system layouts (DeltaSol® CS Plus) to choose from
- Tube collector function, thermal disinfection function

A PWM adapter cable is included with the controller.

| Article no. | Article | Price bracket |
|---|---|---|
| 115 004 73 | DeltaSol® CS/2 – Solar controller | A |
| 115 004 63 | DeltaSol® CS/2 – Full kit » incl. 3 Pt1000 sensors (1 x FKP6, 2 x FRP6) | A |
| 115 004 53 | DeltaSol® CS/4 – Solar controller | A |
| 115 004 43 | DeltaSol® CS/4 – Full kit » incl. 3 Pt1000 sensors (1 x FKP6, 2 x FRP6) | A |
| 115 003 13 | DeltaSol® CS Plus – Solar controller | A |
| 115 003 03 | DeltaSol® CS Plus – Full kit » incl. 4 Pt1000 sensors (2 x FKP6, 2 x FRP6) | A |

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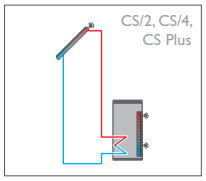
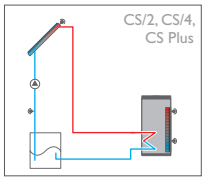
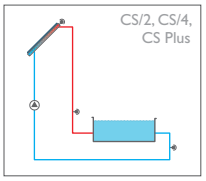
## EXAMPLES



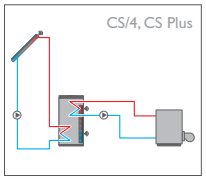
Solar system with 1 store



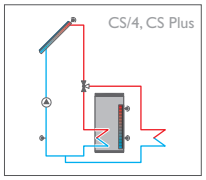
Solar drainback system *



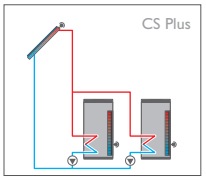
Solar system with swimming pool *



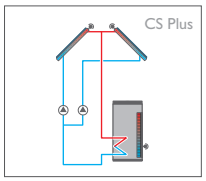
Solar system with 1 store and thermostatic backup heating



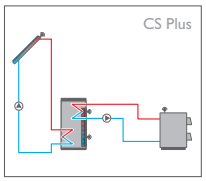
Solar system with 1 store and heat dump



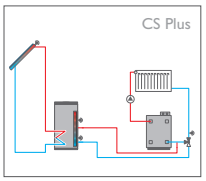
Solar system with 2 stores, pump logic



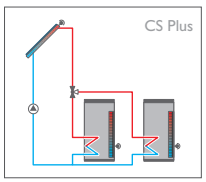
Solar system with east-/west collectors and 1 store



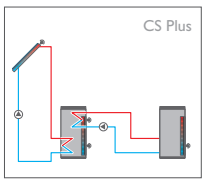
Solar system with 1 store and solid fuel boiler



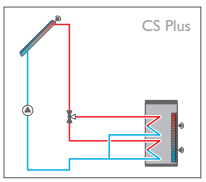
Solar system with heating circuit return preheating



Solar system with 2 stores, valve logic



Solar system with 1 store and heat exchange control

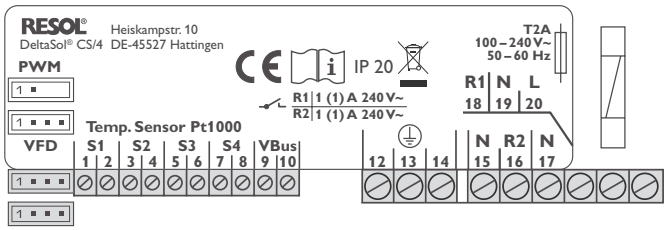


Solar system with store loading in layers

* Abstracted representation on the display

## ELECTRICAL CONNECTION

Example DeltaSol® CS/4




## TECHNICAL DATA

**Inputs:**
4 Pt1000 temperature sensors, 1 VFD Grundfos Direct Sensor™
**Outputs** 1 semiconductor relay, 1 PWM output (CS/2),
2 semiconductor relays, 1 PWM output (CS/4),
2 semiconductor relays, 2 PWM outputs (CS Plus)
**PWM frequency:** 512 Hz
**PWM voltage:** 10.5 V
**Switching capacity:** 1 (1) A 240 V~ (semiconductor relay)
**Total switching capacity:**
1 A 240 V~ (CS/2)
2 A 240 V~ (CS/4, CS Plus)
**Power supply:** 100–240 V~ (50–60 Hz)
**Supply connection:** type X attachment
**Standby:** 0.58 W (CS/2),
0.64 W (CS/4, CS Plus)
**Temperature controls class:**
I (CS/4, CS Plus)
**Energy efficiency contribution:**
1 % (CS/4, CS Plus)
**Mode of operation:** type 1.C.Y action
**Rated impulse voltage:** 2.5 kV
**Data interface:** VBus®
**VBus® current supply:** 35 mA
**Functions:** tube collector function and thermostat function (CS/4, CS Plus), function control, operating hours counter, speed control, drainback option and heat quantity measurement
**Housing:** plastic, PC-ABS and PMMA
**Mounting:** wall mounting, mounting into patch panels is possible
**Indication / Display:** System-Monitoring-Display for system visualisation, 16-segment and 7-segment display, 8 symbols for indication of system status
**Operation:** 3 buttons
**Ingress protection:** IP 20 / EN 60529
**Protection class:** I
**Ambient temperature:** 0 … 40 °C
**Degree of pollution:** 2
**Relative humidity:** 10 … 90 %
**Fuse:** T2A
**Maximum altitude:** 2000 m above MSL
**Dimensions:** 172 x 110 x 46 mm

## ACCESSORIES

### KM2 Communication module


For remote access to the controller via VBus.net

### VBus® / USB interface adapter


PC connection kit for RESOL controllers with VBus® incl. Service CD

### VFD Grundfos Direct Sensor™


Digital sensors in different versions

### SP10


Sensor overvoltage protection

### AM1


Alarm module for signalling system failures

### SD3 Smart Display


Display module with 3 displays for collector and store temperature as well as for heat quantity