Regulus

Hydraulic Variants
for IR 12 KRB Controller

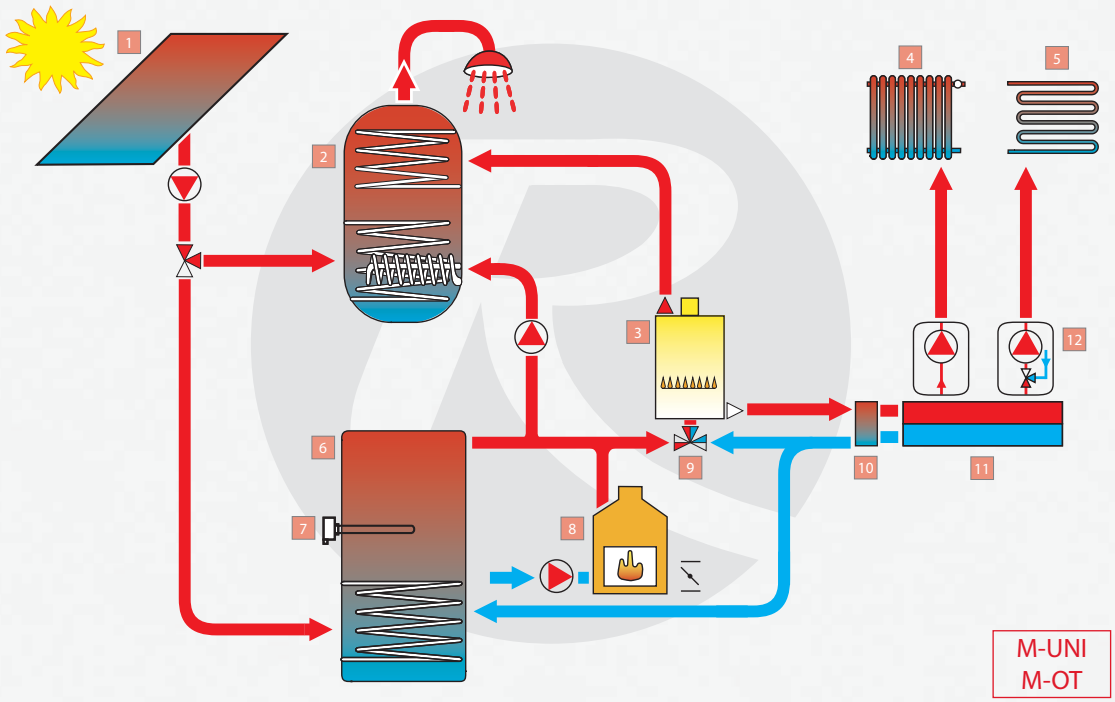
diagrams of typical hydraulic variants
with hydronic fireplace
or solid fuel boiler

Energy-saving solutions

www.regulus.eu

25
1992 – 2017

Key



1. SOLAR COLLECTOR
2. HOT WATER STORAGE TANK
3. GAS BOILER (ALT. ELECTRIC BOILER)
4. HEATING CIRCUIT 1
5. HEATING CIRCUIT 2
6. THERMAL STORE
7. EL. HEATING ELEMENT
8. FIREPLACE INSERT OR SOLID FUEL BOILER
9. MIXING VALVE (ALT. ZONE VALVE)
10. HYDRAULIC PRESSURE BALANCER
11. HEATING CIRCUIT MANIFOLD
12. PUMP STATION FOR HEATING CIRCUIT
13. M-UNI - Controller module - code 12419
14. M-OT - Controller module - code 10442

The variant enables	Hydraulic variant No.																																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
Heating circuit 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Independent heating circuit 2			✓	✓			✓	✓			✓			✓	✓			✓	✓			✓			✓	✓			✓	✓			✓	✓
Dependent heating circuit 2										✓											✓											✓		
Heating return diverting		✓		✓		✓		✓			✓		✓		✓		✓		✓			✓		✓		✓		✓		✓			✓	
Heting return mixing/diverting									✓	✓										✓	✓										✓	✓		
El. heating elements	✓	✓	✓	✓								✓	✓	✓	✓								✓	✓	✓	✓								
Switched boiler					✓	✓	✓	✓								✓	✓	✓	✓								✓	✓	✓	✓				
OpenTherm boiler									✓	✓	✓									✓	✓	✓									✓	✓	✓	✓
Thermal Store w/DHW, 1 HE+pool												✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓												
Thermal Store w/DHW, 2 HEs	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓																							
Thermal Store + separate DHW tank																							✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
HW storage tank, no th. store																																		✓

Regulus

Smart Controller
IR 12 KRB

diagrams of typical hydraulic variants with a hydronic fire or solid fuel boiler

IR 12 KRB Controller features 34 preset hydraulic variants. Detailed hydraulic and electric designs are available for separate hydraulic variants and can be obtained from our sales representatives for a specific installation of Regulus products.

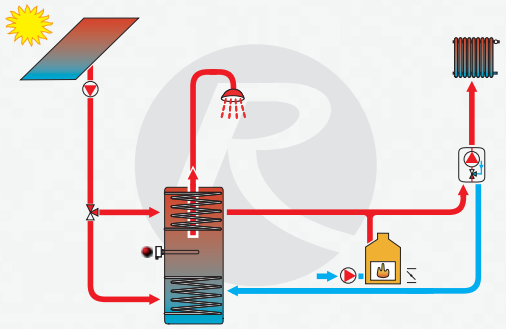
Contents

Hydraulic variants for Thermal Store with DHW and 2 solar coils

001

Simplified connection diagram of a fire, solar thermal system with Thermal Store w/DHW and 2 solar heat exchangers, and an el. heating element.

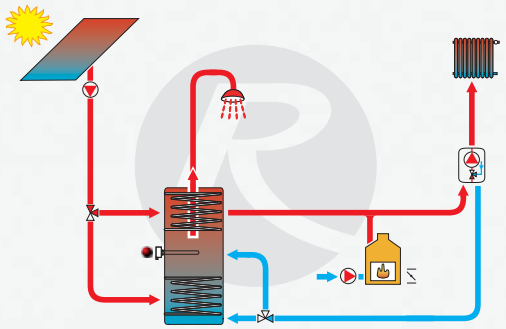
Suitable for **systems with 1 heating circuit**.



002

Simplified connection diagram of a fire, solar thermal system with Thermal Store w/DHW and 2 solar heat exchangers, and an el. heating element.

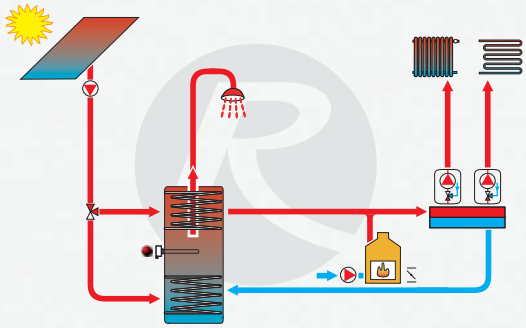
Suitable for **systems with 1 heating circuit, controlled** zone **valve** for **return** solar preheating / to prevent thermal store heating from the return line. If the return line temperature is higher than that in the Thermal Store bottom section, heating water returns to its upper section.



003

Simplified connection diagram of a fire, solar thermal system with Thermal Store w/DHW and 2 solar heat exchangers, and an el. heating element.

Suitable for heating **systems with 2 independent heating circuits**.

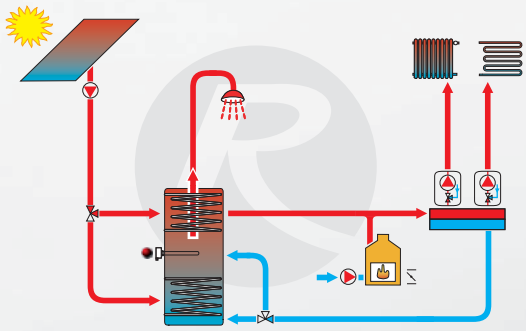


004

Simplified connection diagram of a fire, solar thermal system with Thermal Store w/DHW and 2 solar heat exchangers, and an el. heating element.

Suitable for **heating systems with 2 independent heating circuits, controlled** zone **valve** for **return** solar preheating / to prevent thermal store heating from the return line. If the return line temperature is higher than that in the Thermal Store bottom section, heating water returns to its upper section.

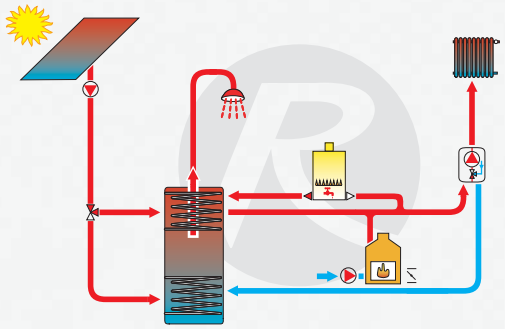
The Controller needs to be upgraded by adding an optional module, code 12419.



M-UNI

005

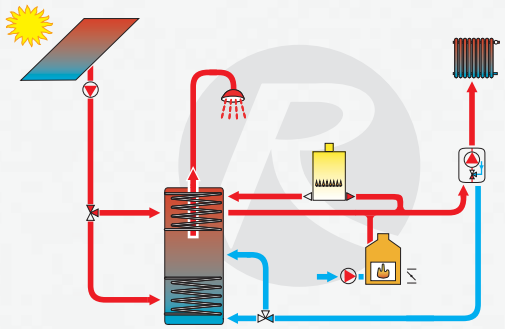
Simplified connection diagram of a fire, solar thermal system with Thermal Store w/DHW and 2 solar heat exchangers, and an automatic switched boiler (e.g. gas- or electric fired).



006

Simplified connection diagram of a fire, solar thermal system with Thermal Store w/DHW and 2 solar heat exchangers, and an automatic switched boiler (e.g. gas- or electric fired).

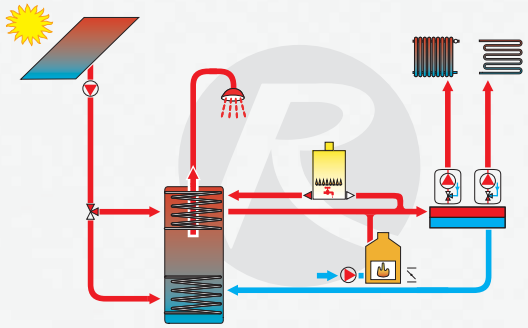
Suitable for **systems with 1 heating circuit, controlled** zone **valve** for **return** solar preheating / to prevent thermal store heating from the return line. If the return line temperature is higher than that in the Thermal Store bottom section, heating water returns to its upper section.



007

Simplified connection diagram of a fire, solar thermal system with Thermal Store w/DHW and 2 solar heat exchangers, and an automatic switched boiler (e.g. gas- or electric fired).

Suitable for **heating systems with 2 independent circuits**.

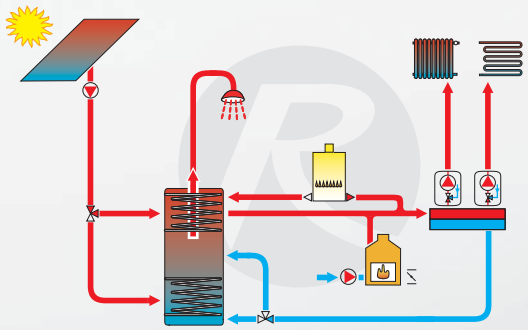


008

Simplified connection diagram of a fire, solar thermal system with Thermal Store w/DHW and 2 solar heat exchangers, and an automatic switched boiler (e.g. gas- or electric fired).

Suitable for **heating systems with 2 independent circuits, controlled** zone **valve** for **return** solar preheating / to prevent thermal store heating from the return line. If the return line temperature is higher than that in the Thermal Store bottom section, heating water returns to its upper section.

The Controller needs to be upgraded by adding an optional module, code 12419.



M-UNI

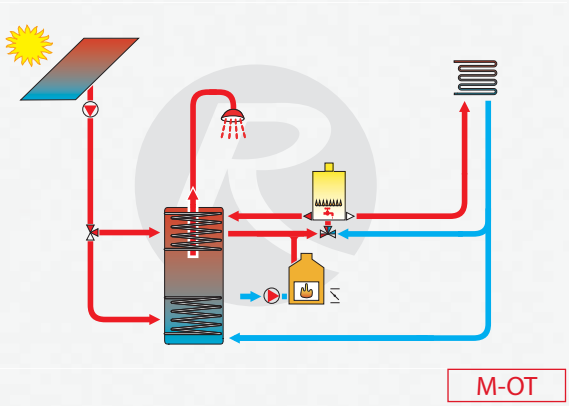
Hydraulic variants for Thermal Store with DHW and 2 solar coils

009

Simplified connection diagram of a fire, solar thermal system with Thermal Store w/DHW and 2 solar heat exchangers, and an OpenTherm boiler.

Suitable for **systems with 1 heating circuit, controlled** mixing **valve** for **return** solar preheating / to prevent thermal store heating from the return line. If the return line temperature is higher than that in the Thermal Store, the Thermal Store shuts off completely. Heating water returns directly to the gas boiler. The boiler circulation pump is utilized for heating water circulation and the boiler needs to be turned on and running to allow also heating from fire or solar thermal panels.

The Controller needs to be upgraded by adding an optional module, code 10442.



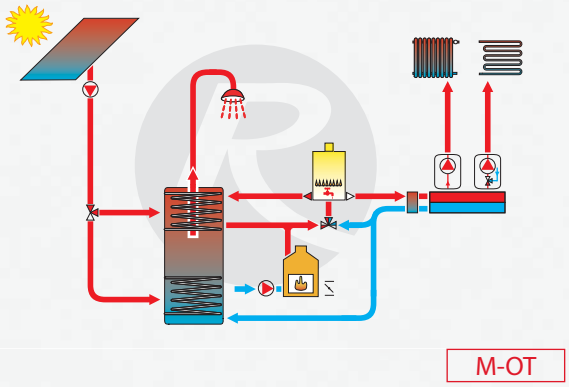
M-OT

010

Simplified connection diagram of a fire, solar thermal system with Thermal Store w/DHW and 2 solar heat exchangers, and an OpenTherm boiler.

Suitable for **heating systems with a second dependent heating circuit, controlled** mixing **valve** for **return** solar preheating / to prevent thermal store heating from the return line. If the return line temperature is higher than that in the Thermal Store, the Thermal Store shuts off completely.
Heating water returns directly to the gas boiler. The boiler needs to be turned on and running to allow proper system operation.

The Controller needs to be upgraded by adding an optional module, code 10442.



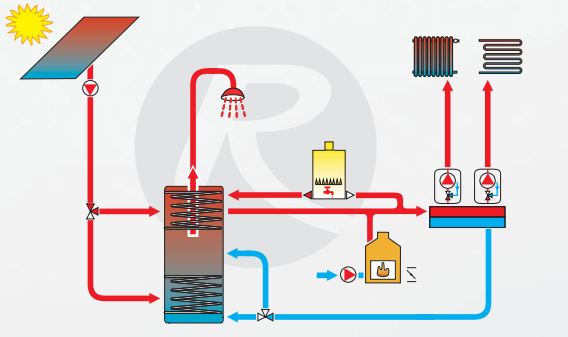
M-OT

011

Simplified connection diagram of a fire, solar thermal system with Thermal Store w/DHW and 2 solar heat exchangers, and an OpenTherm boiler.

Suitable for **heating systems with 2 independent circuits, controlled** zone **valve** for **return** solar preheating / to prevent thermal store heating from the return line. If the return line temperature is higher than that in the Thermal Store bottom section, heating water returns to its upper section. The system is fully operational even with the boiler off.

The Controller needs to be upgraded by adding optional modules, codes 10442 and 12419.



M-OT
M-UNI

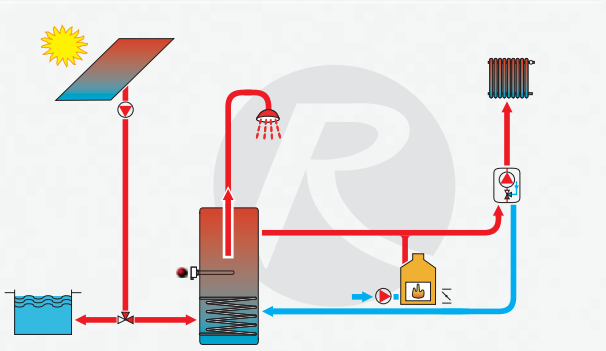
It is recommended to always use controlled return line preheating for OpenTherm boilers.

Hydraulic variants for Thermal Store with DHW, 1 solar coil and solar pool heating

012

Simplified connection diagram of a fire, solar thermal system with 2 solar consumers (Thermal Store with 1 heat exchanger + DHW heating and pool heating) and an el. heating element.

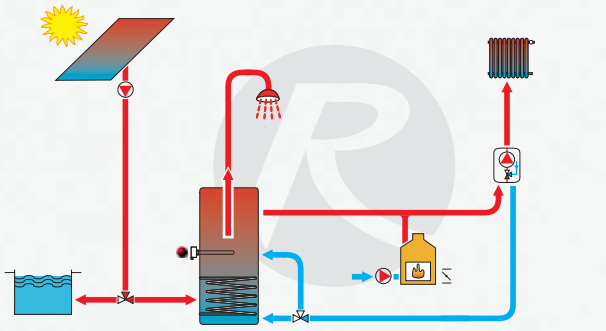
Suitable for **systems with 1 heating circuit**.



013

Simplified connection diagram of a fire, solar thermal system with 2 solar consumers (Thermal Store with 1 heat exchanger + DHW heating and pool heating) and an el. heating element.

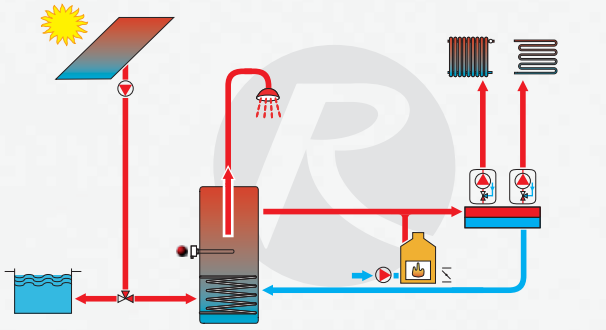
Suitable for **systems with 1 heating circuit, controlled** zone **valve** for **return** solar preheating / to prevent thermal store heating from the return line. If the return line temperature is higher than that in the Thermal Store bottom section, heating water returns to its upper section.



014

Simplified connection diagram of a fire, solar thermal system with 2 solar consumers (Thermal Store with 1 heat exchanger + DHW heating and pool heating) and an el. heating element.

Suitable for **heating systems with 2 independent heating circuits**.

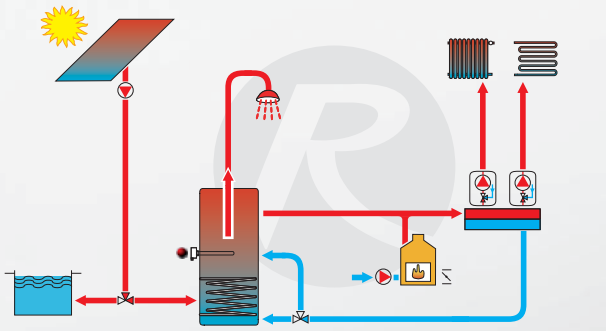


015

Simplified connection diagram of a fire, solar thermal system with 2 solar consumers (Thermal Store with 1 heat exchanger + DHW heating and pool heating) and an el. heating element.

Suitable for **heating systems with 2 independent circuits, controlled** zone **valve** for **return** solar preheating / to prevent thermal store heating from the return line. If the return line temperature is higher than that in the Thermal Store bottom section, heating water returns to its upper section.

The Controller needs to be upgraded by adding an optional module, code 12419.



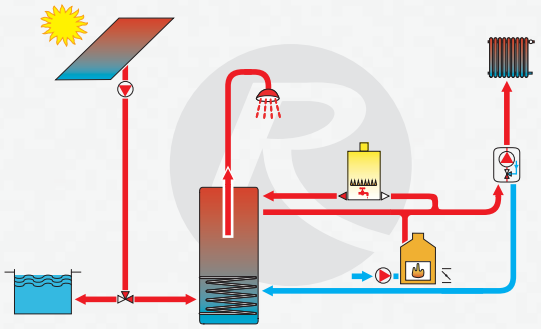
M-UNI

Hydraulic variants for Thermal Store with DHW, 1 solar coil and solar pool heating

016

Simplified connection diagram of a fire, solar thermal system with 2 solar consumers (Thermal Store with 1 heat exchanger + DHW heating and pool heating) and an automatic switched boiler (e.g. gas- or electric fired).

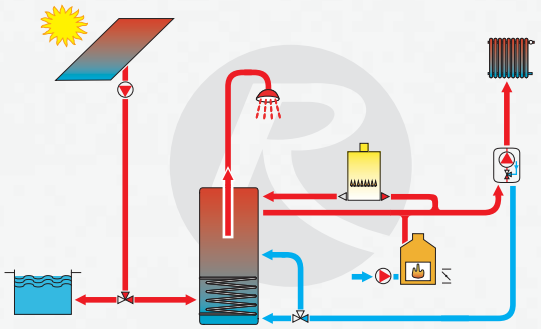
Suitable for **systems with 1 heating circuit**.



017

Simplified connection diagram of a fire, solar thermal system with 2 solar consumers (Thermal Store with 1 heat exchanger + DHW heating and pool heating) and an automatic switched boiler (e.g. gas- or electric fired).

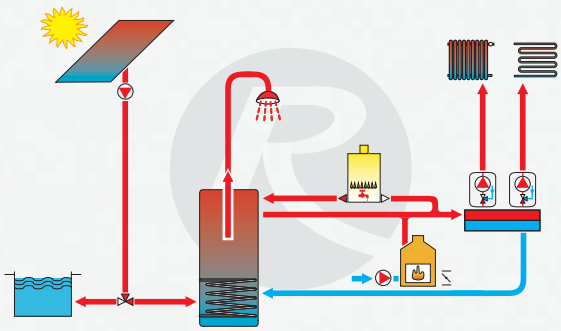
Suitable for **systems with 1 heating circuit, controlled** zone **valve** for **return** solar preheating / to prevent thermal store heating from the return line. If the return line temperature is higher than that in the Thermal Store bottom section, heating water returns to its upper section.



018

Simplified connection diagram of a fire, solar thermal system with 2 solar consumers (Thermal Store with 1 heat exchanger + DHW heating and pool heating) and an automatic switched boiler (e.g. gas- or electric fired).

Suitable for **heating systems with 2 independent circuits**.

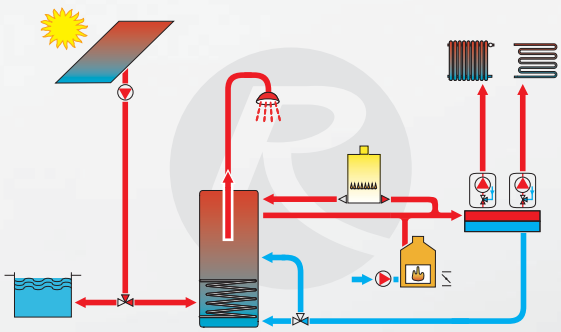


019

Simplified connection diagram of a fire, solar thermal system with 2 solar consumers (Thermal Store with 1 heat exchanger + DHW heating and pool heating) and an automatic switched boiler (e.g. gas- or electric fired).

Suitable for **heating systems with 2 independent circuits, controlled** zone **valve** for **return** solar preheating / to prevent thermal store heating from the return line. If the return line temperature is higher than that in the Thermal Store bottom section, heating water returns to its upper section.

The Controller needs to be upgraded by adding an optional module, code 12419.



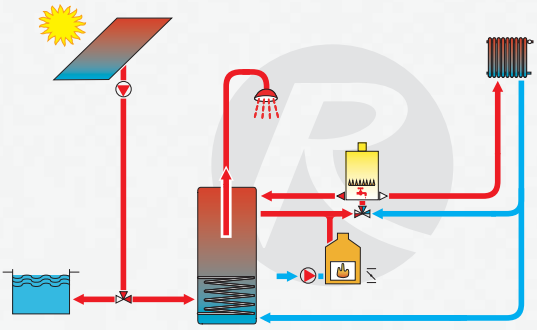
M-UNI

020

Simplified connection diagram of a fire, solar thermal system with 2 solar consumers (Thermal Store with 1 heat exchanger + DHW heating and pool heating) and an OpenTherm boiler.

Suitable for **systems with 1 heating circuit, controlled** mixing **valve** for **return** solar preheating / to prevent thermal store heating from the return line. If the return line temperature is higher than that in the Thermal Store, the Thermal Store shuts off completely. Heating water returns directly to the gas boiler.
The boiler needs to be turned on and running to allow proper system operation.

The Controller needs to be upgraded by adding an optional module, code 10442.



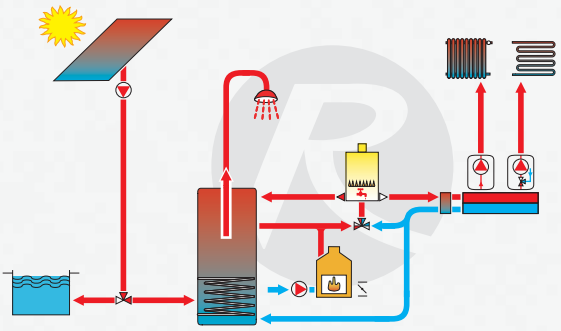
M-OT

021

Simplified connection diagram of a fire, solar thermal system with 2 solar consumers (Thermal Store with 1 heat exchanger + DHW heating and pool heating) and an OpenTherm boiler.

Suitable for **heating systems with 2 dependent circuits, controlled** mixing **valve** for **return** solar preheating / to prevent thermal store heating from the return line. If the return line temperature is higher than that in the Thermal Store, the Thermal Store shuts off completely. Heating water returns directly to the gas boiler.
The boiler needs to be turned on and running to allow proper system operation.

The Controller needs to be upgraded by adding an optional module, code 10442.



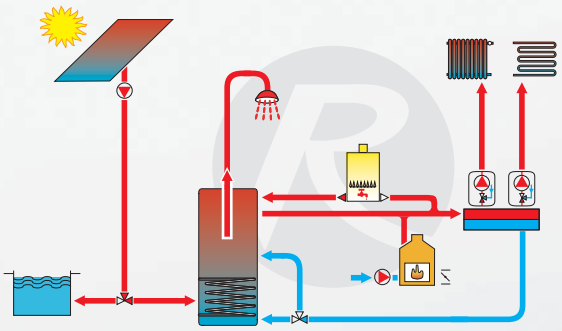
M-OT

022

Simplified connection diagram of a fire, solar thermal system with 2 solar consumers (Thermal Store with 1 heat exchanger + DHW heating and pool heating) and an OpenTherm boiler.

Suitable for **heating systems with 2 independent circuits, controlled** zone **valve** for **return** solar preheating / to prevent thermal store heating from the return line. If the return line temperature is higher than that in the Thermal Store bottom section, heating water returns to its upper section.
The system is fully operational even with the boiler off.

The Controller needs to be upgraded by adding optional modules, codes 10442 and 12419.



M-OT
M-UNI

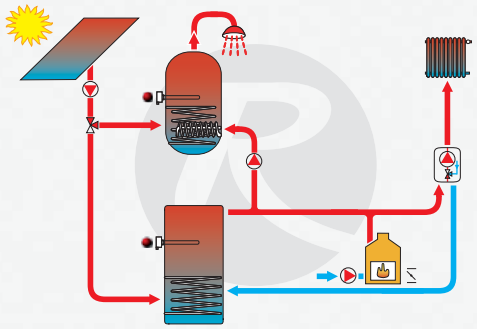
It is recommended to always use controlled return line preheating for OpenTherm boilers.

Hydraulic variants for Thermal Store and hot water storage tank

023

Simplified connection diagram of a fire, solar thermal system with 2 solar tanks - Thermal Store with 1 heat exchanger (PSxF) and a hot water storage tank (RxxC), and an el. heating element.

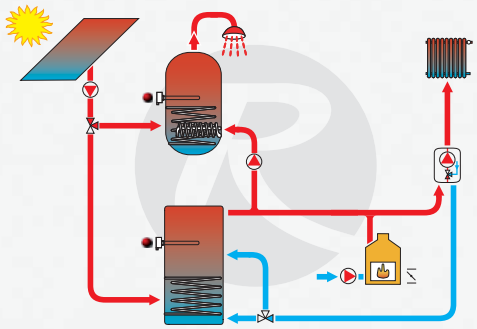
Suitable for **systems with 1 heating circuit**.



024

Simplified connection diagram of a fire, solar thermal system with 2 solar tanks - Thermal Store with 1 heat exchanger (PSxF) and a hot water storage tank (RxxC), and an el. heating element.

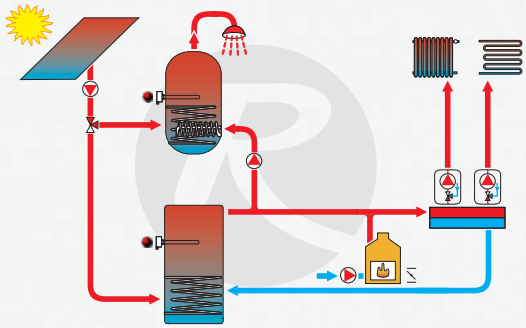
Suitable for **systems with 1 heating circuit, controlled** zone **valve** for **return** solar preheating / to prevent thermal store heating from the return line. If the return line temperature is higher than that in the Thermal Store bottom section, heating water returns to its upper section.



025

Simplified connection diagram of a fire, solar thermal system with 2 solar tanks - Thermal Store with 1 heat exchanger (PSxF) and a hot water storage tank (RxxC), and an el. heating element.

Suitable for **heating systems with 2 independent circuits**.

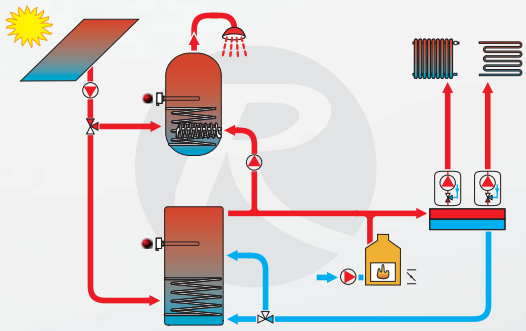


026

Simplified connection diagram of a fire, solar thermal system with 2 solar tanks - Thermal Store with 1 heat exchanger (PSxF) and a hot water storage tank (RxxC), and an el. heating element.

Suitable for **heating systems with 2 independent circuits, controlled** zone **valve** for **return** solar preheating / to prevent thermal store heating from the return line. If the return line temperature is higher than that in the Thermal Store bottom section, heating water returns to its upper section.

The Controller needs to be upgraded by adding an optional module, code 12419.

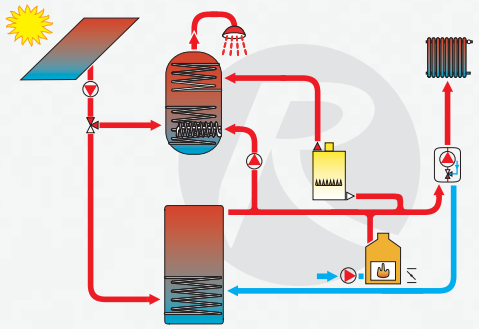


M-UNI

027

Simplified connection diagram of a fire, solar thermal system with 2 solar tanks - Thermal Store with 1 heat exchanger (PSxF) and a hot water storage tank (RxxC), and an automatic switched boiler (e.g. gas- or electric fired).

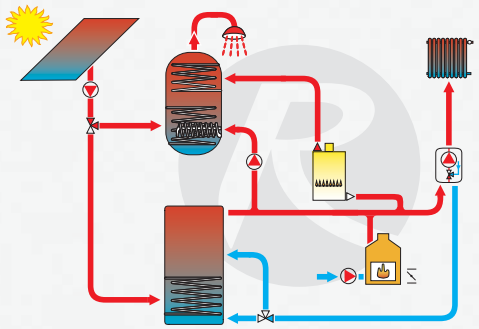
Suitable for **systems with 1 heating circuit**.



028

Simplified connection diagram of a fire, solar thermal system with 2 solar tanks - Thermal Store with 1 heat exchanger (PSxF) and a hot water storage tank (RxxC), and an automatic switched boiler (e.g. gas- or electric fired).

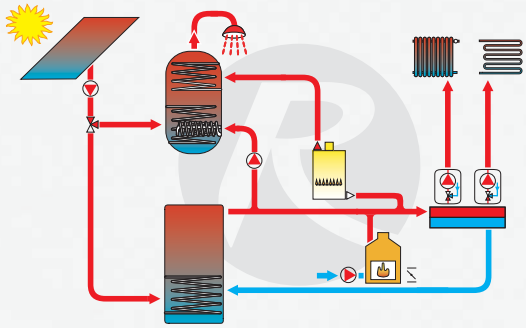
Suitable for **systems with 1 heating circuit, controlled** zone **valve** for **return** solar preheating / to prevent thermal store heating from the return line. If the return line temperature is higher than that in the Thermal Store bottom section, heating water returns to its upper section.



029

Simplified connection diagram of a fire, solar thermal system with 2 solar tanks - Thermal Store with 1 heat exchanger (PSxF) and a hot water storage tank (RxxC), and an automatic switched boiler (e.g. gas- or electric fired).

Suitable for **heating systems with 2 independent circuits**.

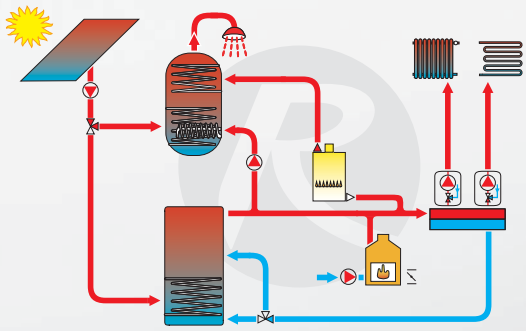


030

Simplified connection diagram of a fire, solar thermal system with 2 solar tanks - Thermal Store with 1 heat exchanger (PSxF) and a hot water storage tank (RxxC), and an automatic switched boiler (e.g. gas- or electric fired).

Suitable for **heating systems with 2 independent circuits, controlled** zone **valve** for **return** solar preheating / to prevent thermal store heating from the return line. If the return line temperature is higher than that in the Thermal Store bottom section, heating water returns to its upper section.

The Controller needs to be upgraded by adding an optional module, code 12419.



M-UNI

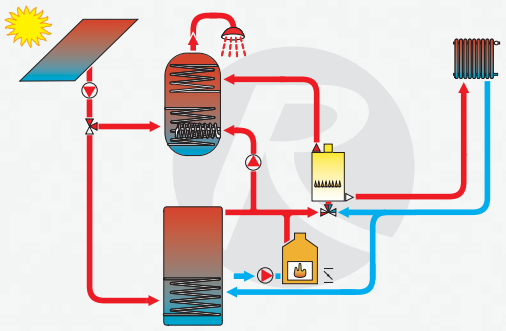
Hydraulic variants for Thermal Store and hot water storage tank

031

Simplified connection diagram of a fire, solar thermal system with 2 solar tanks - Thermal Store with 1 heat exchanger (PSxF) and a hot water storage tank (RxxC), and an OpenTherm boiler.

Suitable for **systems with 1 heating circuit, controlled** mixing **valve** for **return** solar preheating / to prevent thermal store heating from the return line. If the return line temperature is higher than that in the Thermal Store, the Thermal Store shuts off completely. Heating water returns directly to the gas boiler.
The boiler needs to be turned on and running to allow proper system operation.

The Controller needs to be upgraded by adding an optional module, code 10442.



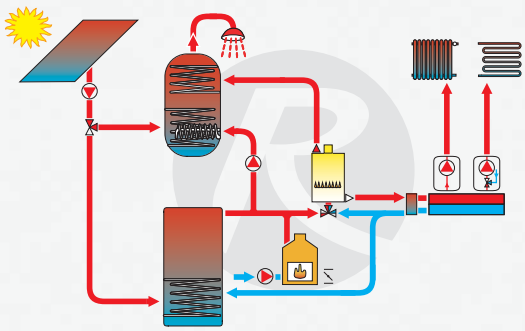
M-OT

032

Simplified connection diagram of a fire, solar thermal system with 2 solar tanks - Thermal Store with 1 heat exchanger (PSxF) and a hot water storage tank (RxxC), and an OpenTherm boiler.

Suitable for **heating systems with 2 dependent circuits, controlled** mixing **valve** for **return** solar preheating / to prevent thermal store heating from the return line. If the return line temperature is higher than that in the Thermal Store, the Thermal Store shuts off completely. Heating water returns directly to the gas boiler.
The boiler needs to be turned on and running to allow proper system operation.

The Controller needs to be upgraded by adding an optional module, code 10442.



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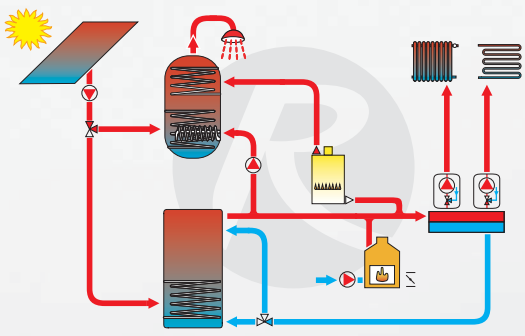
033

Simplified connection diagram of a fire, solar thermal system with 2 solar tanks - Thermal Store with 1 heat exchanger (PSxF) and a hot water storage tank (RxxC), and an OpenTherm boiler.

Suitable for **heating systems with 2 independent circuits, controlled** zone **valve** for **return** solar preheating / to prevent thermal store heating from the return line. If the return line temperature is higher than that in the Thermal Store bottom section, heating water returns to its upper section.
The system is fully operational even with the boiler off.

The Controller needs to be upgraded by adding optional modules, codes 10442 and 12419.



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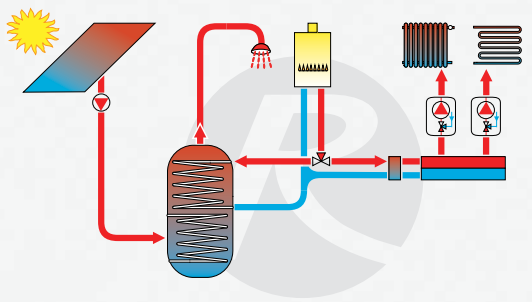
It is recommended to always use controlled return line preheating for OpenTherm boilers.

034

Simplified connection diagram of a solar thermal system and an Open-Therm gas boiler with a hot water storage tank with 2 heat exchangers (no fire, no solid fuel boiler, no thermal store).

This controls direct heating of **a heating system with 2 independent circuits.**



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v1.1-03/2017

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