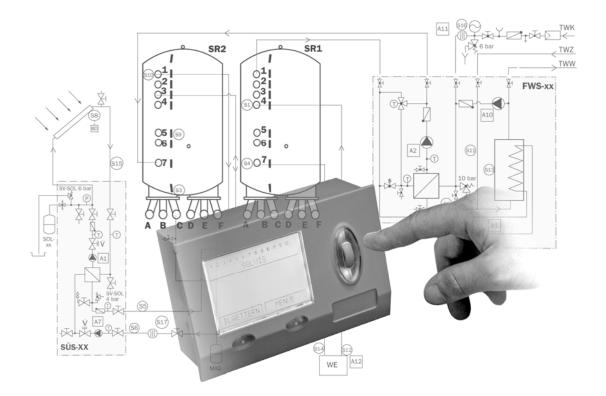
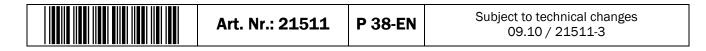


# SolvisVital 2 – Connection and System Diagrams





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# **1** Information about these Instructions

This brochure contains basic instructions for the proper installation and operation of the system and system components.

We will give you tips on how to ensure that the system operates in an economical and environmentally friendly manner.

We recommend that you participate in a Solvis training course to ensure safe and proper installation.

As we are interested in improving our technical documentation, we appreciate feedback of any kind.

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# 2 Notes

# 2.1 Safety notes

#### Observe the safety notes

This is for your own safety.

- Make sure that you are familiar with the safety notes before beginning work.
- Observe and adhere to the relevant safety regulations and the valid accident prevention regulations.
- You should also follow the safety notes and any other notes from the available system documentation.

# 2.2 System overview

The SolvisVital 2 system allows a variety of system combinations that are each addressed in a section. Each of these plant combinations can have one or two storage tanks. The connection tables and system diagrams of both systems are shown in each of the sections. The individual system combinations are summarised in the following main sections:

- Systems for hygienic drinking water heating up to 126 l/min
- · Heating systems up to 200 kW heating load

#### Systems for hygienic drinking water heating

consisting of the following Solvis components:

- SolvisStrato stratified buffer tank, SR-xxx (two storage tanks as an option)
- Fresh water station FWS-xx
- Solar transfer station SÜS-xx (optional)
- SolvisControl system controller, SC-FWS (integrated in the FWS)

as well as the following on-site components:

- Heat generator
- Hydraulic piping
- Electrical wiring

Another breakdown is according to usage profile:

- Constant usage
- Usage that fluctuates by a great amount

#### Heating systems up to 200 kW heating load

consisting of the following Solvis components:

- Components needed for a system for hygienic drinking water heating (as stated above)
- Heating circuit control console RK-SC-HK 2 (in conjunction with the system controller of fresh water station SC-FWS)

as well as the following on-site components:

- Heating circuit(s)
- Heat generator
- Hydraulic piping
- Electrical wiring

In addition to the SolvisControl system controller in the fresh water station, a second system controller is required (control console RK-SC-HK-2). It needs to be mounted on the wall and then connected to the system controller in the fresh water station via the "CAN bus" connection. A 4-wire cable is needed for this.

Another breakdown is made according to the type of heat supply:

- Modulating boiler (gas and oil)
- District heating
- More are available upon request.

# 2.3 Application areas

#### Selection according to application

Application	Hygienic drinking water heat- ing	Heating systems
Multi-family homes [residential units]	7 - 85	7 - 60
Hotels, guesthouses [rooms]	7 - 85	7 - 60
Sport facilities, commercial production [showers]	7 - 30	4 - 30
Nursing homes, residence halls [rooms]	Up to 85	Up to 60
Conference hotels [rooms]	Up to 30	Up to 30

# 2.4 Overview of the systems

System type	Layout	Solar system	Number of stor- age tanks	Starting on page
<b>Hygienic drinking water heating</b> Up to 126 I/min or 480 kW, user-defined heat generator and energy carrier	<b>Constant usage</b> , suitable for multi-family homes, hotels, conference venues, care facilities or residence halls	Optional Already provided	1	6 10
			1	10
			2	16
	Usage profile characterised by great fluc-	Optional	1	18
	tuations, suitable for sport facilities or show- ers in commercial production		2	22
		Already provided	1	24
			2	28
Heating systems Up to 200 kW heating load, constant us-	<b>Modulating boiler (gas/oil)</b> , 0-10 V inter- face; suitable for utilisation of useful heat	Optional	1	30
age profile, suitable for multi-family homes, hotels, conference venues, long- term care facilities or residence halls			2	34
<b>Hygienic drinking water heating</b> Up to 126 l/min or 480 kW		Already provided	1	36
	<b>District heating</b> , with 0-10 V signal to control		2	40 42
	the temperature (on-site power controller required)		2	46
		Already provided	1	48
			2	52
	Modulating boiler (gas/oil) plus BHKW or solid fuel boiler (wood), 0-10 V interface;	Optional Already provided	1	54
	suitable for utilisation of useful heat, BHKW self-regulated		2	58
	Local heating, decentralised solar-assisted systems are shown		1	60
			2	64
	BHKW or solid fuel boiler (gas/oil/wood), BHKW self-regulated; systems with solid fuel	Optional	1	66
	boilers must be designed with correspond- ingly high HW standby volumes (due the longer startup delay); provision must be		2	70
	made for assigning responsibility to person- nel	Already provided	1	72
	Non-modulating law tomporature or oter	Optional	2	76 78
	Non-modulating low-temperature or stan- dard boilers (gas/oil/pellets), systems with pellet boilers must be designed with corre-	Optional	2	82
	spondingly high HW standby volumes (due to the longer startup delay); it is often a good	Already provided	1	84
	solution to use two storage tanks.		2	88

# 3 Hygienic drinking water heating up to 126 l/min

# 3.1 Constant usage profile

- Hygienic drinking water heating
- Hot water standby volumes designed for constant use
- User-defined heat generator and energy carrier
- Suitable for multi-family homes, hotels, conference venues, care facilities or residence halls, for example
- Optional solar support

# 3.1.1 Connection diagram

#### Inputs and outputs of control console SC-FWS

Sensors	(temperature sensor and volume flow encoder)	Actuators	Actuators (pumps, signals and control valves)		
Des.	Name	Des.	Name		
<b>S1</b>	Top buffer sensor	A1	Load pump*		
S2	Hot water sensor	A2	Hot water production pump*		
<b>S</b> 3	Storage tank reference sensor	A3	Pump transfer (for systems with two storage tanks)		
<b>S</b> 4	Hot water buffer sensor	A4	Unused		
<b>S</b> 5	Unused	A5	Circulation pump		
<b>S</b> 6	Unused	A6	Unused		
<b>S</b> 7	Unused	A7	Unused		
<b>S</b> 8	Unused	<b>A8</b>	Mixer return (open)		
<b>S</b> 9	Middle buffer sensor	A9	Mixer return (closed)		
<b>S1</b> 0	Transfer/mix function sensor	A10	Pump balancing		
<b>S11</b>	Circulation return sensor	A11	Boiler alarm signal		
<b>S12</b>	Heat generator flow sensor	A12	Hot water priority signal		
<b>S1</b> 3	Middle tank sensor	A13	Charge pump*		
<b>S1</b> 4	Heat generator return sensor	A14	Data transfer signal		
<b>S1</b> 5	Unused	A15	(Unused)		
<b>S1</b> 6	Drinking water volume flow encoder	CAN bus	(Unused)		

\* Outputs speed-controlled: Do not connect any electronically-controlled pumps or pumps with three-phase motors.

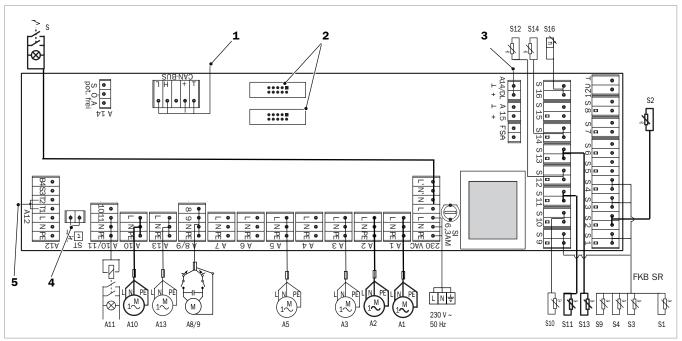


Fig. 1: Mains module of control console SC-FWS

- 1 CAN BUS (communication interface)
- 2 Ribbon cable for control unit
- 3 Data line (for the data logger, for example)
- 4 Terminal ST open = A12 floating
- 5  $A12 = 230 V^{\sim}$  if the jumper is on terminal ST

### 3.1.2 System diagram of a system with one storage tank

#### Connections

From		То		
Component	Connec- tion	Connec- tion	Component	
	1	1	FWS fresh water station, flow HW-PHE (1)	
	2*	WV	Heat generator, flow <sup>(2)</sup>	
SR-xxx	3*	10	FWS fresh water station, return CB <sup>(1)</sup>	
SolvisStrato	5*	WR	Heat generator, return <sup>(2)</sup>	
	7*	2	FWS fresh water station, return HW-PHE <sup>(1)</sup>	
	С	BM	Admixture to the heat generator return and drain valve $(on-site)^{(3)}$	
SolvisControl SC-FWS	Sensor S12	Immersion tube	Flow near the heat generator	
Drinking water network	TWK	3	FWS fresh water station, drinking water cold	
Drinking water network	TWZ	4	FWS fresh water station, drinking water circulation	
Drinking water network TWW		5	FWS fresh water station, drinking water hot	

\* Installation of a charging lance required

<sup>(1)</sup> For dimensions, see installation instructions P45

 (2) Dimensions: up to 100 kW DN32 and up to 200 kW DN40
 (3) Connection to the fast mixing valve on control output A8/A9 (up to 120 kW: Kvs = 10; up to 200 kW: Kvs = 14)

#### Abbreviations

BM	Admixture to the heat generator return	Residential
SiV	Safety valve	units
TWK	Drinking water network, cold connection	BLL
TWW	Drinking water network, warm connection	FWS-xx
TWK	Drinking water network, circulation connection	HK
WR	Heat generator return	SR-xxx
WV	Heat generator flow	

esidential nits	Heat generator (on-site)
.L	Charging lance
VS-xx	Fresh water station
<	Heating circuit(s) (on-site)
R-xxx	SolvisStrato stratified buffer tank

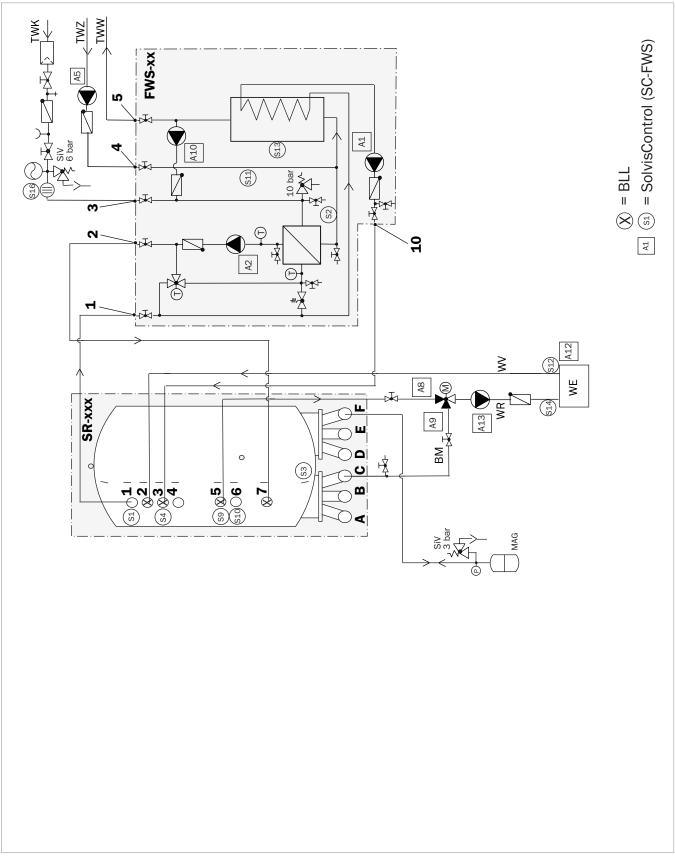


Fig. 2: SolvisVital 2 drinking water heating with heat generator and storage tank

This diagram is not a substitute for detailed technical planning. To ensure the correct function of the system, our installation, operating and maintenance instructions must be followed. When connecting a third-party boiler, do not rely solely on the information provided – consult the manufacturer of the boiler.

# 3.1.3 System diagram of a system with two storage tanks

#### Connections

From		То		
Component	Connec- tion	Connec- tion	Component	
	1	1	FWS fresh water station, flow HW-PHE $^{(1)}$	
	4*	WV	Heat generator, flow <sup>(2)</sup>	
1. SR-xxx	7*	WR	Heat generator, return <sup>(2)</sup>	
SolvisStrato, storage tank 1	В	10	FWS fresh water station, return $CB^{(1)}$	
	с	1	Storage tank SR2, connection 1 and drain valve (on- site, DN40)	
2. SR-xxx	7*	2	FWS fresh water station, return HW-PHE <sup>(1)</sup>	
SolvisStrato, storage tank 2	с	BM	Admixture to the heat generator return and drain valve $(on-site)^{(3)}$	
SolvisControl SC-FWS	Sensor S12	Immersion tube	Flow near the heat generator	
Drinking water network	тwк	3	FWS fresh water station, drinking water cold	
Drinking water network	TWZ	4	FWS fresh water station, drinking water circulation	
Drinking water network	TWW	5	FWS fresh water station, drinking water hot	

\* Installation of a charging lance required

<sup>(1)</sup> For dimensions, see installation instructions P45

<sup>(2)</sup> Dimensions: up to 100 kW DN32 and up to 200 kW DN40

 <sup>(3)</sup> Connection to the fast mixing valve on control output A8/A9 (up to 120 kW: Kvs = 10; up to 200 kW: Kvs = 14)

#### Abbreviations

BM	Admixture to the heat generator return
SiV	Safety valve
TWK	Drinking water network, cold connection
TWW	Drinking water network, warm connection
TWK	Drinking water network, circulation connection
WR	Heat generator return
WV	Heat generator flow

Residential units	Heat generator (on-site)
BLL	Charging lance
FWS-xx	Fresh water station
НК	Heating circuit(s) (on-site)
SR-xxx	SolvisStrato stratified buffer tank

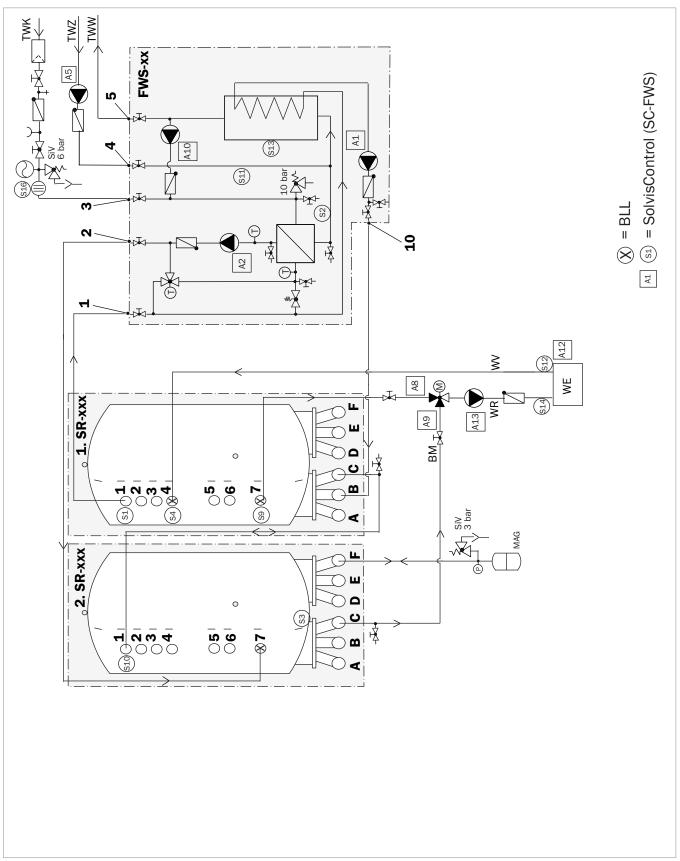


Fig. 3: SolvisVital 2 drinking water heating with heat generator and two storage tanks

This diagram is not a substitute for detailed technical planning. To ensure the correct function of the system, our installation, operating and maintenance instructions must be followed. When connecting a third-party boiler, do not rely solely on the information provided – consult the manufacturer of the boiler.

# 3.2 Constant usage profile with solar connection

- Hygienic drinking water heating
- Hot water standby volumes designed for constant use
- User-defined heat generator and energy carrier
- Suitable for multi-family homes, hotels, conference venues, care facilities or residence halls, for example
- With solar support

### 3.2.1 Connection diagram

#### Inputs and outputs of control console SC-FWS

Sensors	(temperature sensor and volume flow encoder)	Actuators (pumps, signals and control valves)		
Des.	Name	Des.	Name	
<b>S1</b>	Top buffer sensor	A1	Load pump*	
S2	Hot water sensor	A2	Hot water production pump*	
<b>S</b> 3	Storage tank reference sensor	A3	Pump transfer (for systems with two storage tanks)	
S4	Hot water buffer sensor	A4	Unused	
<b>S</b> 5	Solar flow sensor, secondary	A5	Circulation pump	
<b>S</b> 6	Solar return sensor, secondary	A6	Solar circuit pump, primary*	
S7	Solar flow sensor, primary	A7	Solar circuit pump, secondary*	
<b>S</b> 8	Solar collector sensor	A8	Mixer return (open)	
<b>S</b> 9	Middle buffer sensor	A9	Mixer return (closed)	
<b>S1</b> 0	Transfer/mix function sensor	A10	Pump balancing	
S11	Circulation return sensor	A11	Boiler alarm signal	
S12	Heat generator flow sensor	A12	Hot water priority signal	
<b>S1</b> 3	Middle tank sensor	A13	Charge pump*	
<b>S1</b> 4	Heat generator return sensor	A14	Data transfer signal	
<b>S1</b> 5	Solar circuit volume flow encoder (e.g. VSG-S-2,5)	A15	Unused	
<b>S1</b> 6	Drinking water volume flow encoder	CAN bus	(Unused)	

\* Outputs speed-controlled: Do not connect any electronically-controlled pumps or pumps with three-phase motors.

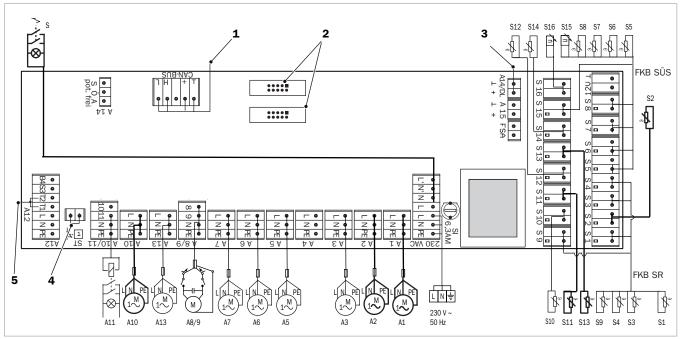


Fig. 4: Mains module of control console SC-FWS

- 1 CAN BUS (communication interface)
- 2 Ribbon cable for control unit
- 3 Data line (for the data logger, for example)
- 4 Terminal ST open = A12 floating
- 5  $A12 = 230 V^{\sim}$  if the jumper is on terminal ST

### 3.2.2 System diagram of a system with one storage tank

#### Connections

From		То		
Component	Connec- tion	Connec- tion	Component	
	1	1	FWS fresh water station, flow HW-PHE (1)	
	2*	WV	Heat generator, flow <sup>(2)</sup>	
	3*	10	FWS fresh water station, return CB <sup>(1)</sup>	
SR-xxx	5*	WR	Heat generator, return <sup>(2)</sup>	
SolvisStrato	7*	2	FWS fresh water station, return HW-PHE <sup><math>(1)</math></sup>	
	с	BM	Admixture to the heat generator return and drain valve (on-site) <sup>(3)</sup>	
	E	SV	Solar heat transfer station, flow <sup>(4)</sup>	
	F	SR	Solar heat transfer station, return <sup>(4)</sup>	
SolvisControl SC-FWS	Sensor S12	Immersion tube	Flow near the heat generator	
Drinking water network	ТWK	3	FWS fresh water station, drinking water cold	
Drinking water network	TWZ	4	FWS fresh water station, drinking water circulation	
Drinking water network	TWW	5	FWS fresh water station, drinking water hot	

\* Installation of a charging lance required

<sup>(1)</sup> For dimensions, see installation instructions P45

<sup>(2)</sup> Dimensions: up to 100 kW DN32 and up to 200 kW DN40

 <sup>(3)</sup> Connection to the fast mixing valve on control output A8/A9 (up to 120 kW: Kvs = 10; up to 200 kW: Kvs = 14)

<sup>(4)</sup> Dimensions such as piping of the primary circuit

#### Abbreviations

BM	Admixture to the heat generator return	Residential	
SiV	Safety valve	units	
SR	Solar return	BLL	
SV	Solar flow	FWS-xx	
TWK	Drinking water network, cold connection	НК	
TWW	Drinking water network, warm connection	SR-xxx	
TWK	Drinking water network, circulation connection	MAG	
WR	Heat generator return	SOL	
WV	Heat generator flow	SÜS-xx	
		SV-SOL	

Residential units	Heat generator (on-site)
BLL	Charging lance
FWS-xx	Fresh water station
НК	Heating circuit(s) (on-site)
SR-xxx	SolvisStrato stratified buffer tank
MAG	Membrane expansion vessel (on-site)
SOL	Solar pressure compensation vessel
SÜS-xx	Solar heat transfer station
SV-SOL	Solar safety valve
V	Volume flow adjusting valve

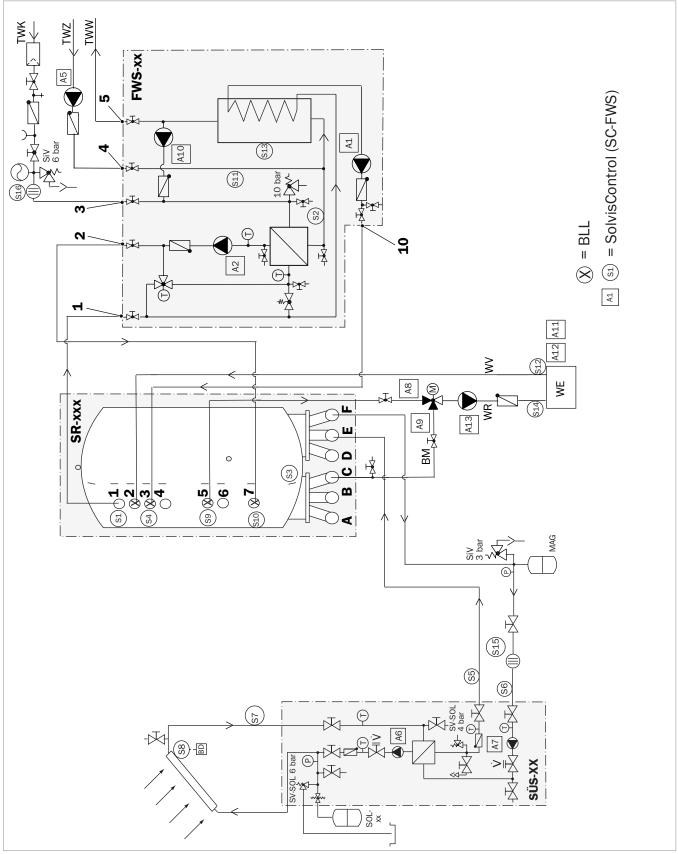


Fig. 5: SolvisVital 2 drinking water heating with heat generator, storage tank and solar system

This diagram is not a substitute for detailed technical planning. To ensure the correct function of the system, our installation, operating and maintenance instructions must be followed. When connecting a third-party boiler, do not rely solely on the information provided – consult the manufacturer of the boiler.

# 3.2.3 System diagram of a system with two storage tanks

#### Connections

From		То	
Component	Connec- tion	Connec- tion	Component
	1	1	FWS fresh water station, flow HW-PHE (1)
	4*	WV	Heat generator, flow <sup>(2)</sup>
	7*	WR	Heat generator, return <sup>(2)</sup>
1. SR-xxx	В	10	FWS fresh water station, return $CB^{(1)}$
SolvisStrato, storage tank 1	С	3*	Storage tank SR2, connection 3* and drain valve (on-site, DN40)
	E	1/SV	Storage tank SR2, connection $1^{(5)}$ and solar heat transfer station, flow^{(4)}
	7*	2	FWS fresh water station, return HW-PHE <sup>(1)</sup>
2. SR-xxx SolvisStrato, storage tank 2	С	BM	Admixture to the heat generator return and drain valve $(on-site)^{(3)}$
	F	SR	Solar transfer station SÜS-xx, return <sup>(4)</sup>
SolvisControl SC-FWS	Sensor S12	Immersion tube	Flow near the heat generator
Drinking water network	ТWК	3	FWS fresh water station, drinking water cold
Drinking water network	TWZ	4	FWS fresh water station, drinking water circulation
Drinking water network TWW		5	FWS fresh water station, drinking water hot

\* Installation of a charging lance required

<sup>(1)</sup> For dimensions, see installation instructions P45

(2) Dimensions: up to 100 kW DN32 and up to 200 kW DN40
 (3) Connection to the fast mixing valve on control output A8/A9

(up to 120 kW: Kvs = 10; up to 200 kW: Kvs = 14)

 $^{(4)}\,$  Dimensions such as piping of the primary circuit

<sup>(5)</sup> Pump A3 maximum 2,000 l/h

#### Abbreviations

BM	Admixture to the heat generator return
SiV	Safety valve
SR	Solar return
SV	Solar flow
TWK	Drinking water network, cold connection
TWW	Drinking water network, warm connection
TWK	Drinking water network, circulation connection
WR	Heat generator return
WV	Heat generator flow

Residential units	Heat generator (on-site)
BLL	Charging lance
FWS-xx	Fresh water station
НК	Heating circuit(s) (on-site)
SR-xxx	SolvisStrato stratified buffer tank
MAG	Membrane expansion vessel (on-site)
SOL	Solar pressure compensation vessel
SÜS-xx	Solar heat transfer station
SV-SOL	Solar safety valve
V	Volume flow adjusting valve

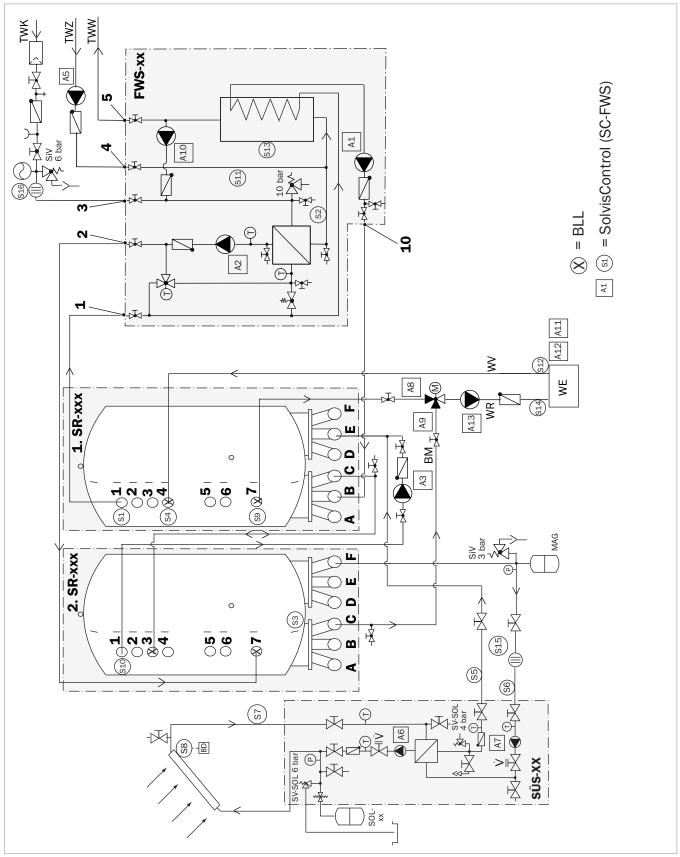


Fig. 6: SolvisVital 2 drinking water heating with heat generator, two storage tanks and solar system

This diagram is not a substitute for detailed technical planning. To ensure the correct function of the system, our installation, operating and maintenance instructions must be followed. When connecting a third-party boiler, do not rely solely on the information provided – consult the manufacturer of the boiler.

# 3.3 Usage profile characterised by great fluctuations

- Hygienic drinking water heating
- Hot water standby volumes designed for usage that fluctuates a great amount
- User-defined hot water standby
- User-defined heat generator and energy carrier
- Suitable for sport facilities or showers in commercial production, for example
- Optional solar support

# 3.3.1 Connection diagram

#### Inputs and outputs of control console SC-FWS

Sensors (temperature sensor and volume flow encoder)		Actuators	Actuators (pumps, signals and control valves)	
Des.	Name	Des.	Name	
S1	Top buffer sensor	A1	Load pump*	
S2	Hot water sensor	A2	Hot water production pump*	
<b>S</b> 3	Storage tank reference sensor	A3	Pump transfer (for systems with two storage tanks)	
<b>S</b> 4	Hot water buffer sensor	A4	Unused	
<b>S</b> 5	Unused	A5	Circulation pump	
<b>S</b> 6	Unused	A6	Unused	
S7	Unused	A7	Unused	
<b>S</b> 8	Unused	A8	Mixer return (open)	
<b>S</b> 9	Middle buffer sensor	A9	Mixer return (closed)	
S10	Transfer/mix function sensor	A10	Pump balancing	
<b>S11</b>	Circulation return sensor	A11	Boiler alarm signal	
S12	Heat generator flow sensor	A12	Hot water priority signal	
<b>S1</b> 3	Middle tank sensor	A13	Charge pump*	
<b>S1</b> 4	Heat generator return sensor	A14	Data transfer signal	
<b>S1</b> 5	Unused	A15	(Unused)	
<b>S1</b> 6	Drinking water volume flow encoder	CAN bus	(Unused)	

\* Outputs speed-controlled: Do not connect any electronically-controlled pumps or pumps with three-phase motors.

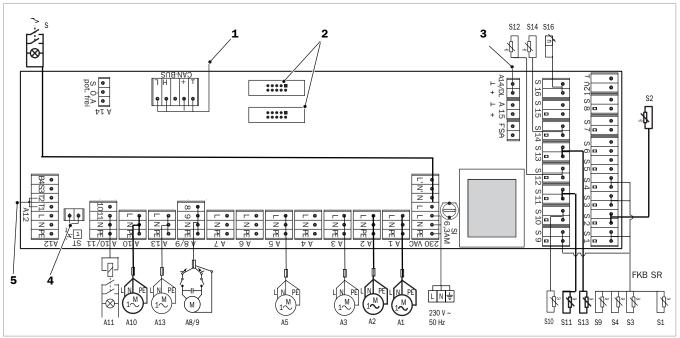


Fig. 7: Mains module of control console SC-FWS

- 1 CAN BUS (communication interface)
- 2 Ribbon cable for control unit
- 3 Data line (for the data logger, for example)
- 4 Terminal ST open = A12 floating
- 5  $A12 = 230 V^{\sim}$  if the jumper is on terminal ST

### 3.3.2 System diagram of a system with one storage tank

#### Connections

From		То		
Component	Connec- tion	Connec- tion	Component	
	1	1	FWS fresh water station, flow HW-PHE (1)	
	2*	WV	Heat generator, flow <sup>(2)</sup>	
SR-xxx	3*	10	FWS fresh water station, return CB <sup>(1)</sup>	
SolvisStrato	5*	WR	Heat generator, return <sup>(2)</sup>	
	7*	2	FWS fresh water station, return HW-PHE <sup>(1)</sup>	
	С	BM	Admixture to the heat generator return and drain valve (on-site) <sup>(3)</sup>	
SolvisControl SC-FWS	Sensor S12	Immersion tube	Flow near the heat generator	
Drinking water network	TWK	3	FWS fresh water station, drinking water cold	
Drinking water network	TWZ	4	FWS fresh water station, drinking water circulation	
Drinking water network TWW		5	FWS fresh water station, drinking water hot	

\* Installation of a charging lance required

<sup>(1)</sup> For dimensions, see installation instructions P45

 (2) Dimensions: up to 100 kW DN32 and up to 200 kW DN40
 (3) Connection to the fast mixing valve on control output A8/A9 (up to 120 kW: Kvs = 10; up to 200 kW: Kvs = 14)

#### Abbreviations

BM	Admixture to the heat generator return	Residential	Н
SiV	Safety valve	units	
TWK	Drinking water network, cold connection	BLL	С
TWW	Drinking water network, warm connection	FWS-xx	Fi
TWK	Drinking water network, circulation connection	НК	Н
WR	Heat generator return	SR-xxx	S
WV	Heat generator flow		

sidential its	Heat generator (on-site)
L	Charging lance
VS-xx	Fresh water station
(	Heating circuit(s) (on-site)
R-xxx	SolvisStrato stratified buffer tank

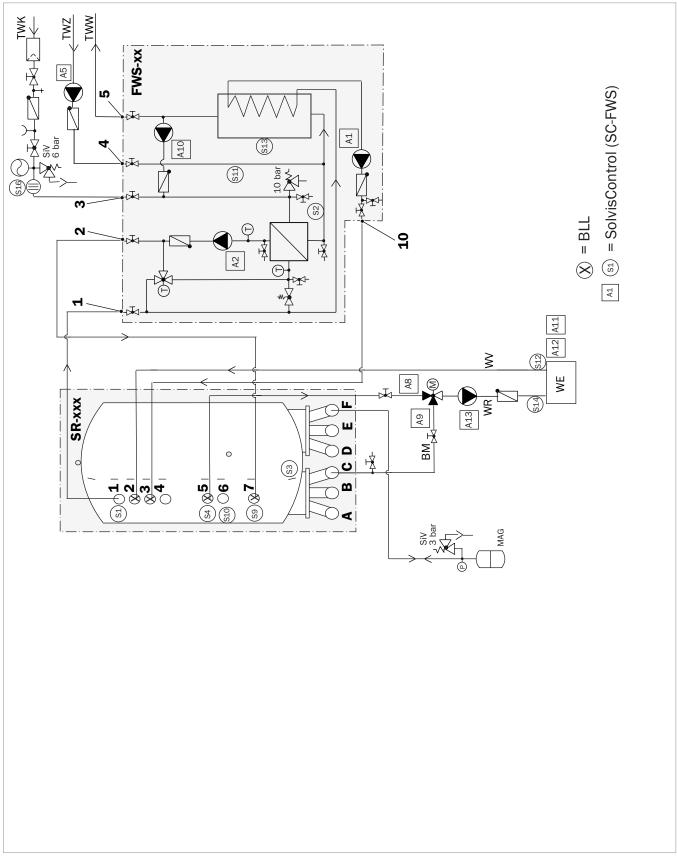


Fig. 8: SolvisVital 2 drinking water heating with heat generator and storage tank

This diagram is not a substitute for detailed technical planning. To ensure the correct function of the system, our installation, operating and maintenance instructions must be followed. When connecting a third-party boiler, do not rely solely on the information provided – consult the manufacturer of the boiler.

# 3.3.3 System diagram of a system with two storage tanks

#### Connections

From		То	
Component	Connec- tion	Connec- tion	Component
	1	1	FWS fresh water station, flow HW-PHE $^{(1)}$
	4*	WV	Heat generator, flow <sup>(2)</sup>
1. SR-xxx	7*	WR	Heat generator, return <sup>(2)</sup>
SolvisStrato, storage tank 1	В	10	FWS fresh water station, return $CB^{(1)}$
	с	1	Storage tank SR2, connection 1 and drain valve (on- site, DN40)
2. SR-xxx	7*	2	FWS fresh water station, return HW-PHE <sup>(1)</sup>
SolvisStrato, storage tank 2	с	BM	Admixture to the heat generator return and drain valve $(on-site)^{(3)}$
SolvisControl SC-FWS	Sensor S12	Immersion tube	Flow near the heat generator
Drinking water network	тwк	3	FWS fresh water station, drinking water cold
Drinking water network	TWZ	4	FWS fresh water station, drinking water circulation
Drinking water network TWW		5	FWS fresh water station, drinking water hot

\* Installation of a charging lance required

<sup>(1)</sup> For dimensions, see installation instructions P45

<sup>(2)</sup> Dimensions: up to 100 kW DN32 and up to 200 kW DN40

 <sup>(3)</sup> Connection to the fast mixing valve on control output A8/A9 (up to 120 kW: Kvs = 10; up to 200 kW: Kvs = 14)

#### Abbreviations

BM	Admixture to the heat generator return
SiV	Safety valve
TWK	Drinking water network, cold connection
TWW	Drinking water network, warm connection
TWK	Drinking water network, circulation connection
WR	Heat generator return
WV	Heat generator flow

Residential units	Heat generator (on-site)
BLL	Charging lance
FWS-xx	Fresh water station
НК	Heating circuit(s) (on-site)
SR-xxx	SolvisStrato stratified buffer tank

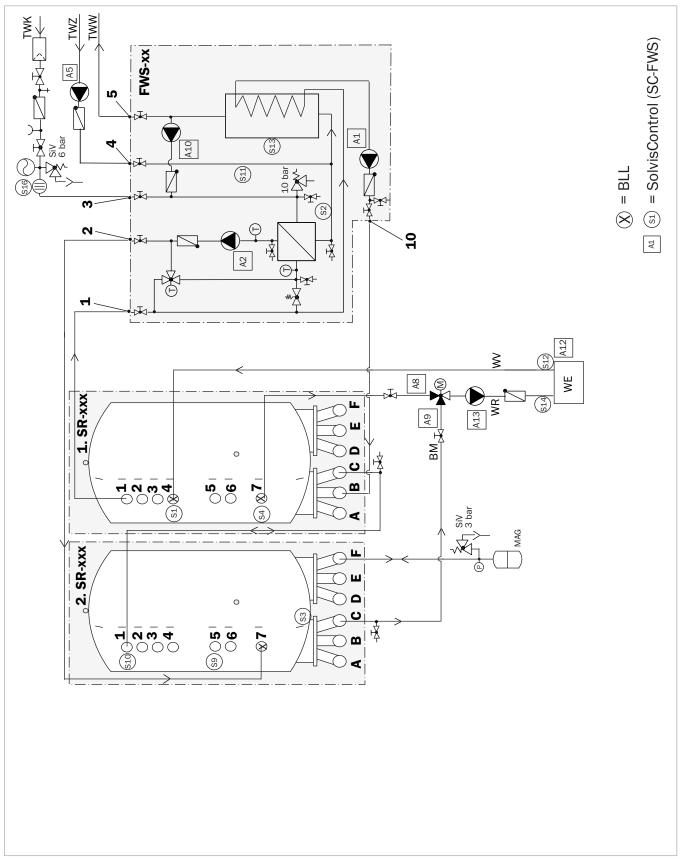


Fig. 9: SolvisVital 2 drinking water heating with heat generator and two storage tanks

This diagram is not a substitute for detailed technical planning. To ensure the correct function of the system, our installation, operating and maintenance instructions must be followed. When connecting a third-party boiler, do not rely solely on the information provided – consult the manufacturer of the boiler.

# 3.4 Usage profile characterised by great fluctuations with solar connection

- Hygienic drinking water heating
- Hot water standby volumes designed for usage that fluctuates a great amount
- User-defined hot water standby
- User-defined heat generator and energy carrier
- Suitable for sport facilities or showers in commercial production, for example
- With solar support

# 3.4.1 Connection diagram

#### Inputs and outputs of control console SC-FWS

Sensors (temperature sensor and volume flow encoder)			Actuators (pumps, signals and control valves)		
Des.	Name	Des.	Name		
<b>S1</b>	Top buffer sensor	A1	Load pump*		
S2	Hot water sensor	A2	Hot water production pump*		
<b>S</b> 3	Storage tank reference sensor	A3	Pump transfer (for systems with two storage tanks)		
S4	Hot water buffer sensor	A4	Unused		
<b>S</b> 5	Solar flow sensor, secondary	A5	Circulation pump		
<b>S</b> 6	Solar return sensor, secondary	A6	Solar circuit pump, primary*		
S7	Solar flow sensor, primary	A7	Solar circuit pump, secondary*		
<b>S</b> 8	Solar collector sensor	A8	Mixer return (open)		
<b>S</b> 9	Middle buffer sensor	A9	Mixer return (closed)		
<b>S1</b> 0	Transfer/mix function sensor	A10	Pump balancing		
S11	Circulation return sensor	A11	Boiler alarm signal		
S12	Heat generator flow sensor	A12	Hot water priority signal		
<b>S1</b> 3	Middle tank sensor	A13	Charge pump*		
S14	Heat generator return sensor	A14	Data transfer signal		
<b>S1</b> 5	Solar circuit volume flow encoder (e.g. VSG-S-2,5)	A15	Unused		
<b>S1</b> 6	Drinking water volume flow encoder	CAN bus	(Unused)		

\* Outputs speed-controlled: Do not connect any electronically-controlled pumps or pumps with three-phase motors.

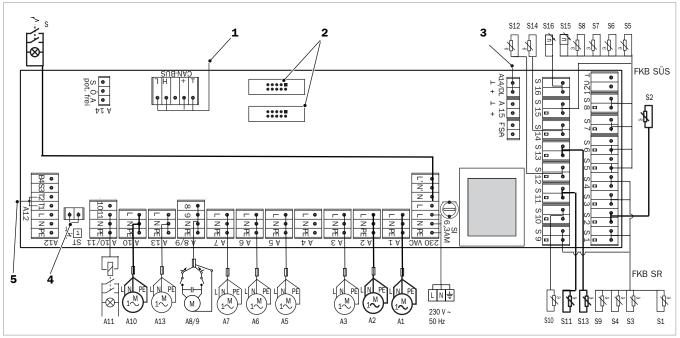


Fig. 10: Mains module of control console SC-FWS

- 1 CAN BUS (communication interface)
- 2 Ribbon cable for control unit
- 3 Data line (for the data logger, for example)
- 4 Terminal ST open = A12 floating
- 5  $A12 = 230 V^{\sim}$  if the jumper is on terminal ST

### 3.4.2 System diagram of a system with one storage tank

#### Connections

From		То		
Component	Connec- tion	Connec- tion	Component	
	1	1	FWS fresh water station, flow HW-PHE (1)	
	2*	WV	Heat generator, flow <sup>(2)</sup>	
	3*	10	FWS fresh water station, return CB <sup>(1)</sup>	
SR-xxx	5*	WR	Heat generator, return <sup>(2)</sup>	
SolvisStrato	7*	2	FWS fresh water station, return HW-PHE <sup><math>(1)</math></sup>	
	с	BM	Admixture to the heat generator return and drain valve (on-site) <sup>(3)</sup>	
	E	SV	Solar heat transfer station, flow <sup>(4)</sup>	
	F	SR	Solar heat transfer station, return <sup>(4)</sup>	
SolvisControl SC-FWS	Sensor S12	Immersion tube	Flow near the heat generator	
Drinking water network	ТWK	3	FWS fresh water station, drinking water cold	
Drinking water network TWZ		4	FWS fresh water station, drinking water circulation	
Drinking water network	TWW	5	FWS fresh water station, drinking water hot	

\* Installation of a charging lance required

<sup>(1)</sup> For dimensions, see installation instructions P45

<sup>(2)</sup> Dimensions: up to 100 kW DN32 and up to 200 kW DN40

<sup>(3)</sup> Connection to the fast mixing valve on control output A8/A9 (up to 120 kW: Kvs = 10; up to 200 kW: Kvs = 14)

<sup>(4)</sup> Dimensions such as piping of the primary circuit

#### Abbreviations

Abbreviations		Modules:	
BM	Admixture to the heat generator return	Residential	Heat generator (on-site)
SiV	Safety valve	units	
SR	Solar return	BLL	Charging lance
SV	Solar flow	FWS-xx	Fresh water station
TWK	Drinking water network, cold connection	HK	Heating circuit(s) (on-site)
TWW	Drinking water network, warm connection	SR-xxx	SolvisStrato stratified buffer tank
TWK	Drinking water network, circulation connection	MAG	Membrane expansion vessel (on-site)
WR	Heat generator return	SOL	Solar pressure compensation vessel
WV	Heat generator flow	SÜS-xx	Solar heat transfer station
		SV-SOL	Solar safety valve
		V	Volume flow adjusting valve

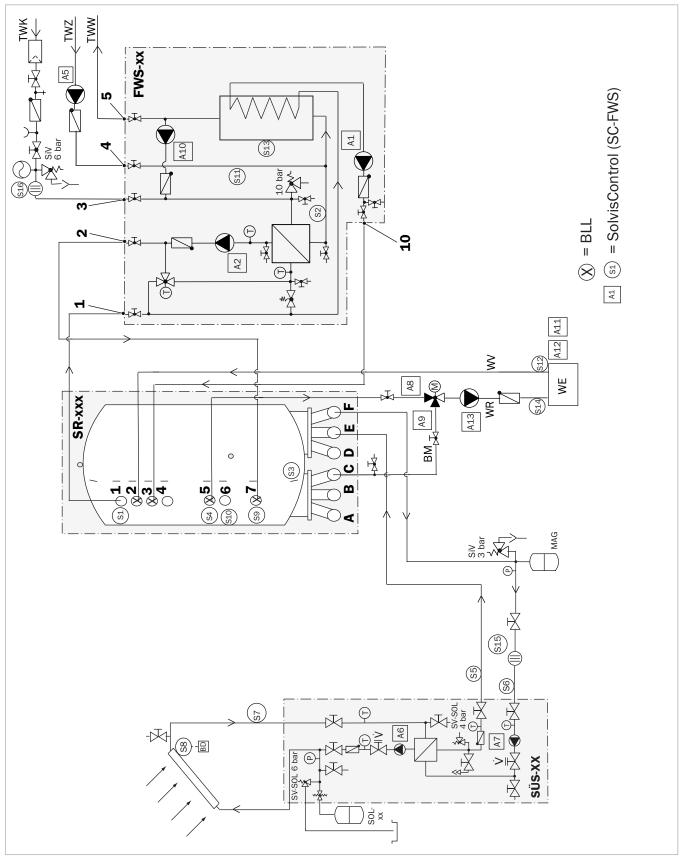


Fig. 11: SolvisVital 2 drinking water heating with heat generator, storage tank and solar system

This diagram is not a substitute for detailed technical planning. To ensure the correct function of the system, our installation, operating and maintenance instructions must be followed. When connecting a third-party boiler, do not rely solely on the information provided – consult the manufacturer of the boiler.

# 3.4.3 System diagram of a system with two storage tanks

#### Connections

From		То		
Component	Connec- tion	Connec- tion	Component	
	1	1	FWS fresh water station, flow HW-PHE (1)	
	4*	WV	Heat generator, flow <sup>(2)</sup>	
	7*	WR	Heat generator, return <sup>(2)</sup>	
1. SR-xxx	В	10	FWS fresh water station, return $CB^{(1)}$	
SolvisStrato, storage tank 1	с	3*	Storage tank SR2, connection 3* and drain valve (on-site, DN40)	
	E	1/SV	Storage tank SR2, connection $1^{(5)}$ and solar heat transfer station, $flow^{(4)}$	
	7*	2	FWS fresh water station, return HW-PHE $^{(1)}$	
2. SR-xxx SolvisStrato, storage tank 2	С	BM	Admixture to the heat generator return and drain valve $(on-site)^{(3)}$	
	F	SR	Solar transfer station SÜS-xx, return <sup>(4)</sup>	
SolvisControl SC-FWS	Sensor S12	Immersion tube	Flow near the heat generator	
Drinking water network	TWK	3	FWS fresh water station, drinking water cold	
Drinking water network	TWZ	4	FWS fresh water station, drinking water circulation	
Drinking water network	TWW	5	FWS fresh water station, drinking water hot	

\* Installation of a charging lance required

<sup>(1)</sup> For dimensions, see installation instructions P45

(2) Dimensions: up to 100 kW DN32 and up to 200 kW DN40
 (3) Connection to the fast mixing valve on control output A8/A9

- (up to 120 kW: Kvs = 10; up to 200 kW: Kvs = 14)
- <sup>(4)</sup> Dimensions such as piping of the primary circuit

<sup>(5)</sup> Pump A3 maximum 2,000 l/h

#### Abbreviations

BM	Admixture to the heat generator return
SiV	Safety valve
SR	Solar return
SV	Solar flow
TWK	Drinking water network, cold connection
TWW	Drinking water network, warm connection
TWK	Drinking water network, circulation connection
WR	Heat generator return
WV	Heat generator flow

Residential units	Heat generator (on-site)
BLL	Charging lance
FWS-xx	Fresh water station
НК	Heating circuit(s) (on-site)
SR-xxx	SolvisStrato stratified buffer tank
MAG	Membrane expansion vessel (on-site)
SOL	Solar pressure compensation vessel
SÜS-xx	Solar heat transfer station
SV-SOL	Solar safety valve
V	Volume flow adjusting valve

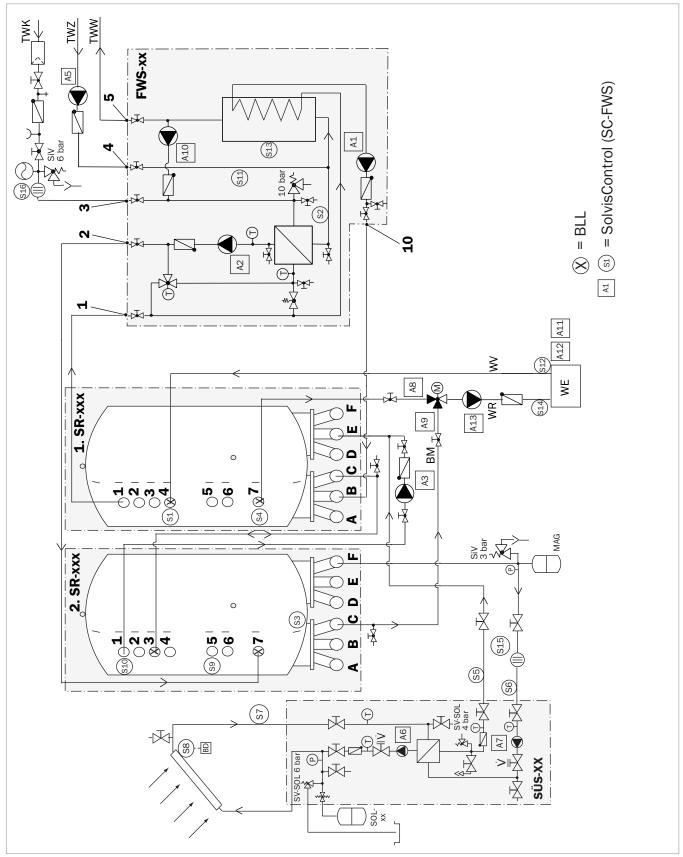


Fig. 12: SolvisVital 2 drinking water heating with heat generator, two storage tanks and solar system

This diagram is not a substitute for detailed technical planning. To ensure the correct function of the system, our installation, operating and maintenance instructions must be followed. When connecting a third-party boiler, do not rely solely on the information provided – consult the manufacturer of the boiler.

# 4 Heating systems up to 200 kW heating load

# 4.1 Modulating gas/oil boiler

- Complete system up to 200 kW heating load
- Hygienic drinking water heating
- Suitable for multi-family homes, hotels, conference venues, care facilities or residence halls, for example

### 4.1.1 Connection diagrams

#### Inputs and outputs of control console SC-FWS

- Modulated gas or oil boiler with 0 to 10 V gating signal
- Optional solar support

Sensors	(temperature sensor and volume flow encoder)	Actuators	Actuators (pumps, signals and control valves)		
Des.	Name	Des.	Name		
<b>S1</b>	Top buffer sensor	A1	Load pump*		
S2	Hot water sensor	A2	Hot water production pump*		
<b>S</b> 3	Storage tank reference sensor	A3	Pump transfer (for systems with two storage tanks)		
S4	Hot water buffer sensor	A4	Unused		
<b>S</b> 5	Unused	A5	Circulation pump		
<b>S</b> 6	Unused	A6	Unused		
S7	Unused	A7	Unused		
<b>S</b> 8	Unused	A8	Mixer return (open)		
<b>S</b> 9	Middle buffer sensor	A9	Mixer return (closed)		
<b>S1</b> 0	Transfer/mix function sensor	A10	Pump balancing		
S11	Circulation return sensor	A11	Boiler alarm signal		
S12	Heat generator flow sensor	A12	Hot water priority signal		
<b>S1</b> 3	Middle tank sensor	A13	Charge pump*		
S14	Heat generator return sensor	A14	Data transfer signal		
<b>S1</b> 5	Unused	A15	Unused		
<b>S1</b> 6	Drinking water volume flow encoder	CAN bus	Connect with control console RK-SC-HK-2		

\* Outputs speed-controlled: Do not connect any electronically-controlled pumps or pumps with three-phase motors.

#### Inputs and outputs of control console RK-SC-HK-2

Sensors (temperature sensor and volume flow encoder)		Actuators (pumps and control valves)		
Des.	Name	Des.	Name	
<b>S1</b>	Heating circuit 1 flow sensor	A1	Buffer alarm signal*	
S2	Heating circuit 2 flow sensor	A2	Drinking water heating alarm signal*	
<b>S</b> 3	Heating circuit 3 flow sensor	A3	Mixer for heating circuit 3 (open)	
S4	Unused	A4	Mixer for heating circuit 3 (closed)	
<b>S</b> 5	Unused	A5	Pump for heating circuit 1	
<b>S</b> 6	Unused/FW return display**	A6	Pump for heating circuit 3	
<b>S</b> 7	Unused	A7	Boiler alarm signal*	
<b>S</b> 8	Exhaust temperature sensor (optional)	A8	Mixer for heating circuit 1 (open)	
<b>S</b> 9	Unused	A9	Mixer for heating circuit 1 (closed)	
<b>S1</b> 0	Outdoor temperature sensor	A10	Mixer for heating circuit 2 (open)	
S11	Unused	A11	Mixer for heating circuit 2 (closed)	
S12	Unused	A12	Heating requirement signal for boiler, floating or 230 V~	
<b>S1</b> 3	Unused	A13	Pump for heating circuit 2	
<b>S1</b> 4	Unused	A14	Data transfer signal	
<b>S1</b> 5	Volume flow encoder, heating circuits (optional)	A15	Analogue 0-10 V signal (boiler tempera- ture/performance)	
<b>S1</b> 6	Unused	CAN BUS	Connection with fresh water station controller	

\* Outputs speed-controlled: Do not connect any electronically-controlled pumps or pumps with three-phase motors.

\*\* Only applicable for heat generators = district heating (FW)

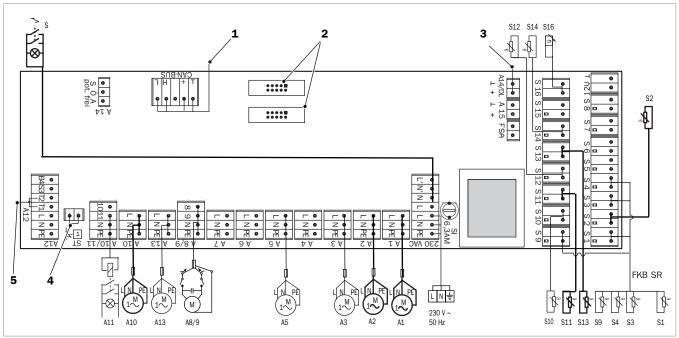


Fig. 13: Mains module of control console SC-FWS

- 1 CAN BUS (communication interface)
- 2 Ribbon cable for control unit
- 3 Data line (for the data logger, for example)
- 4 Terminal ST open = A12 floating
- 5 A12 = 230 V~ if the jumper is on terminal ST

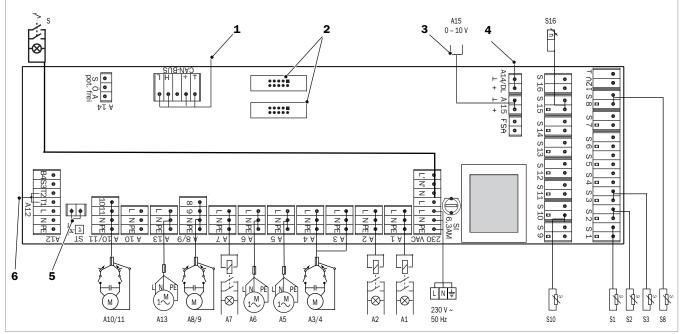


Fig. 14: Mains module of control console RK-SC-HK-2

- 1 CAN BUS (communication interface)
- 2 Ribbon cable for control unit
- 3 Analogue signal (flow temperature/performance setpoint)
- 4 Data line (for the data logger, for example)
- 5 Terminal ST open = A12 floating
- 6 A12 = 230 V~ if the jumper is on terminal ST

# 4.1.2 System diagram of a system with one storage tank

#### Connections

From		То		
Component	Connec- tion	Connec- tion	Component	
	1	1	FWS fresh water station, flow HW-PHE (1)	
	2*	WV	Heat generator, flow <sup>(2)</sup>	
	3*	10	FWS fresh water station, return $CB^{(1)}$	
SR-xxx	4*	HV	Heating circuit(s), flow <sup>(2)</sup>	
SolvisStrato	5*	HR	Heating circuit(s), return <sup>(2)</sup>	
	6*	WR	Heat generator, return <sup>(2)</sup>	
	7*	2	FWS fresh water station, return HW-PHE $^{(1)}$	
	с	BM	Admixture to the heat generator return and drain valve $(on-site)^{(3)}$	
SolvisControl SC-FWS	Sensor S12	Immersion tube	Flow near the heat generator	
Drinking water network	ТWK	3	FWS fresh water station, drinking water cold	
Drinking water network TW		4	FWS fresh water station, drinking water circulation	
Drinking water network TWW		5	FWS fresh water station, drinking water hot	

Modules:

\* Installation of a charging lance required

<sup>(1)</sup> For dimensions, see installation instructions P45

<sup>(2)</sup> Dimensions: up to 100 kW DN32 and up to 200 kW DN40

 <sup>(3)</sup> Connection to the fast mixing valve on control output A8/A9 (up to 120 kW: Kvs = 10; up to 200 kW: Kvs = 14)

#### Abbreviations

		modulooi	
BM	Admixture to the heat generator return	KE	Modulating boiler (on-site)
SiV	Safety valve	BLL	Charging lance
TWK	Drinking water network, cold connection	FWS-xx	Fresh water station
TWW	Drinking water network, warm connection	HK	Heating circuit(s) (on-site)
TWK	Drinking water network, circulation connection	SR-xxx	SolvisStrato stratified buffer
WR	Heat generator return		
WV	Heat generator flow		

buffer tank

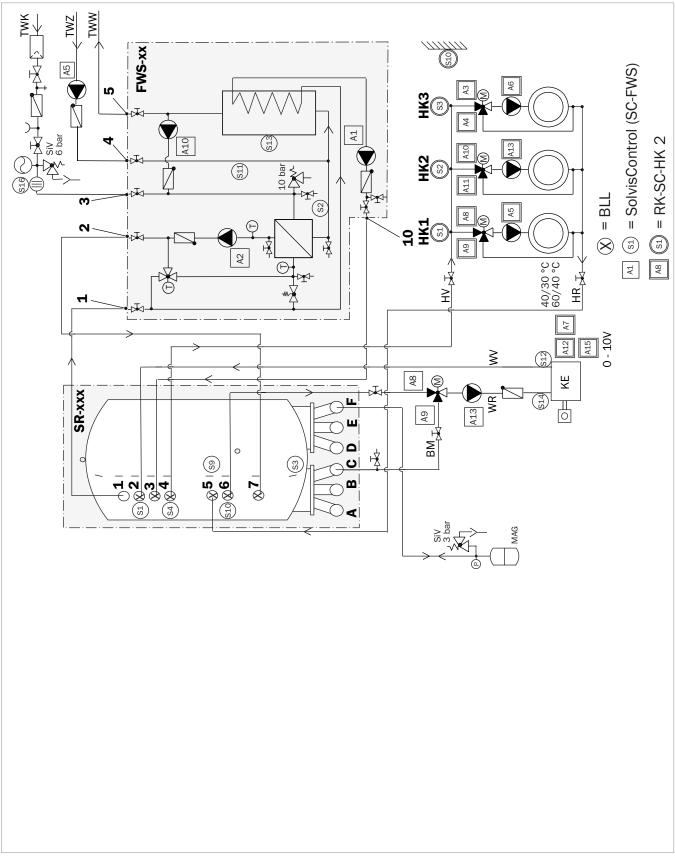


Fig. 15: SolvisVital 2 with modulating gas or oil boiler and storage tank

This diagram is not a substitute for detailed technical planning. To ensure the correct function of the system, our installation, operating and maintenance instructions must be followed. When connecting a third-party boiler, do not rely solely on the information provided – consult the manufacturer of the boiler.

# 4.1.3 System diagram of a system with two storage tanks

#### Connections

From		То		
Component	Connec- tion	Connec- tion	Component	
	1	1	FWS fresh water station, flow HW-PHE (1)	
	3*	WV	Heat generator, flow <sup>(2)</sup>	
1.00	4*	HV	Heating circuit(s), flow <sup>(2)</sup>	
1. SR-xxx SolvisStrato, storage tank 1	7*	HR	Heating circuit(s), return <sup>(2)</sup>	
	В	10	FWS fresh water station, return $CB^{(1)}$	
	С	1	Storage tank SR2, connection 1 (DN40)	
	F	WR	Heat generator, return <sup>(2)</sup>	
2. SR-xxx	7*	2	FWS fresh water station, return HW-PHE <sup>(1)</sup>	
SolvisStrato, storage tank 2	С	BM	Admixture to the heat generator return and drain valve (on-site) <sup>(3)</sup>	
SolvisControl SC-FWS	Sensor S12	Immersion tube	Flow near the heat generator	
Drinking water network TWK		3	FWS fresh water station, drinking water cold	
Drinking water network TWZ		4	FWS fresh water station, drinking water circulation	
Drinking water network TWW		5	FWS fresh water station, drinking water hot	

\* Installation of a charging lance required

<sup>(1)</sup> For dimensions, see installation instructions P45

 $^{(2)}\,$  Dimensions: up to 100 kW DN32 and up to 200 kW DN40  $\,$ 

 $^{(3)}\,$  Connection to the fast mixing valve on control output A8/A9  $\,$ (up to 120 kW: Kvs = 10; up to 200 kW: Kvs = 14)

#### Abbreviations

Abbreviations		Modules:	
BM	Admixture to the heat generator return	KE	Modulating boiler (on-site)
SiV	Safety valve	BLL	Charging lance
TWK	Drinking water network, cold connection	FWS-xx	Fresh water station
TWW	Drinking water network, warm connection	HK	Heating circuit(s) (on-site)
TWK	Drinking water network, circulation connection	SR-xxx	SolvisStrato stratified buffer tank
WR	Heat generator return		
WV	Heat generator flow		

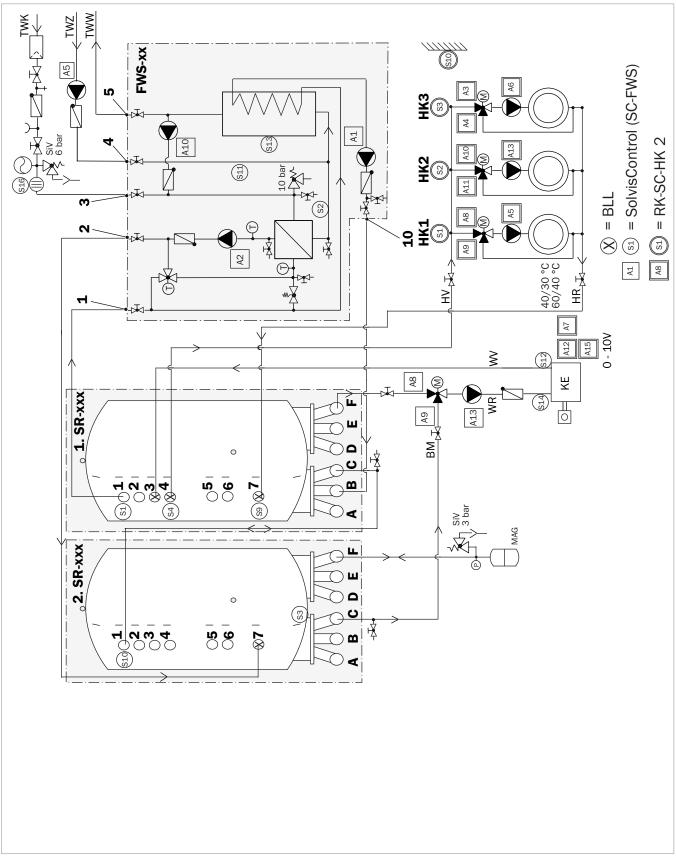


Fig. 16: SolvisVital 2 with modulating gas or oil boiler and two storage tanks

This diagram is not a substitute for detailed technical planning. To ensure the correct function of the system, our installation, operating and maintenance instructions must be followed. When connecting a third-party boiler, do not rely solely on the information provided – consult the manufacturer of the boiler.

# 4.2 Modulating gas/oil boiler with solar connection

- Complete system up to 200 kW heating load
- Hygienic drinking water heating
- Suitable for multi-family homes, hotels, conference venues, care facilities or residence halls, for example

### 4.2.1 Connection diagrams

#### Inputs and outputs of control console SC-FWS

Sensors (temperature sensor and volume flow encoder)			Actuators (pumps, signals and control valves)	
Des.	Name	Des.	Name	
<b>S1</b>	Top buffer sensor	A1	Load pump*	
S2	Hot water sensor	A2	Hot water production pump*	
<b>S</b> 3	Storage tank reference sensor	A3	Pump transfer (for systems with two storage tanks)	
S4	Hot water buffer sensor	A4	Unused	
<b>S</b> 5	Solar flow sensor, secondary	A5	Circulation pump	
<b>S</b> 6	Solar return sensor, secondary	A6	Solar circuit pump, primary*	
S7	Solar flow sensor, primary	A7	Solar circuit pump, secondary*	
<b>S</b> 8	Solar collector sensor	A8	Mixer return (open)	
<b>S</b> 9	Middle buffer sensor	A9	Mixer return (closed)	
S10	Transfer/mix function sensor	A10	Pump balancing	
S11	Circulation return sensor	A11	Boiler alarm signal	
S12	Heat generator flow sensor	A12	Hot water priority signal	
<b>S1</b> 3	Middle tank sensor	A13	Charge pump*	
S14	Heat generator return sensor	A14	Data transfer signal	
<b>S1</b> 5	Solar circuit volume flow encoder (e.g. VSG-S-2,5)	A15	Unused	
<b>S1</b> 6	Drinking water volume flow encoder	CAN bus	Connect with control console RK-SC-HK-2	

\* Outputs speed-controlled: Do not connect any electronically-controlled pumps or pumps with three-phase motors.

#### Inputs and outputs of control console RK-SC-HK-2

Sensors (temperature sensor and volume flow encoder) Actuators (pumps and control valves)				
Des.	Name	Des.	Name	
<b>S1</b>	Heating circuit 1 flow sensor	A1	Buffer alarm signal*	
S2	Heating circuit 2 flow sensor	A2	Drinking water heating alarm signal*	
<b>S</b> 3	Heating circuit 3 flow sensor	A3	Mixer for heating circuit 3 (open)	
S4	Unused	A4	Mixer for heating circuit 3 (closed)	
<b>S</b> 5	Unused	A5	Pump for heating circuit 1	
<b>S</b> 6	Unused/FW return display**	A6	Pump for heating circuit 3	
S7	Unused	A7	Boiler alarm signal*	
<b>S</b> 8	Exhaust temperature sensor (optional)	A8	Mixer for heating circuit 1 (open)	
<b>S</b> 9	Unused	A9	Mixer for heating circuit 1 (closed)	
<b>S1</b> 0	Outdoor temperature sensor	A10	Mixer for heating circuit 2 (open)	
<b>S11</b>	Unused	A11	Mixer for heating circuit 2 (closed)	
S12	Unused	A12	Heating requirement signal for boiler, floating or 230 V~	
<b>S1</b> 3	Unused	A13	Pump for heating circuit 2	
<b>S1</b> 4	Unused	A14	Data transfer signal	
<b>S1</b> 5	Volume flow encoder, heating circuits (optional)	A15	Analogue 0-10 V signal (boiler tempera- ture/performance)	
<b>S1</b> 6	Unused	CAN BUS	Connection with fresh water station controller	

\* Outputs speed-controlled: Do not connect any electronically-controlled pumps or pumps with three-phase motors.

\*\* Only applicable for heat generators = district heating (FW)

- Modulated gas or oil boiler with 0 to 10 V gating signal
- Solar support

### 4 Heating systems up to 200 kW heating load

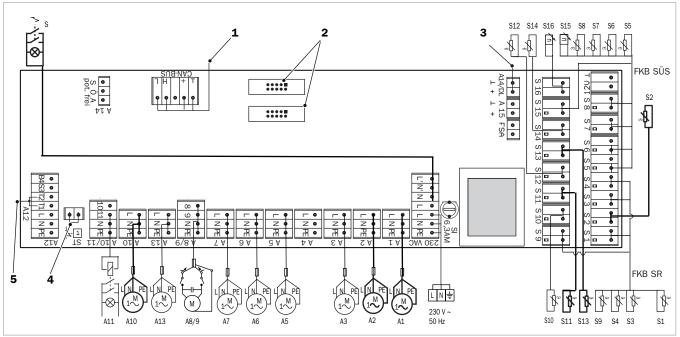


Fig. 17: Mains module of control console SC-FWS

- 1 CAN BUS (communication interface)
- 2 Ribbon cable for control unit
- 3 Data line (for the data logger, for example)
- 4 Terminal ST open = A12 floating
- 5 A12 = 230 V~ if the jumper is on terminal ST

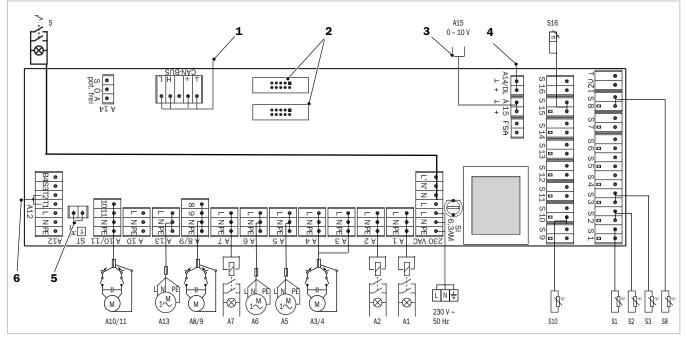


Fig. 18: Mains module of control console RK-SC-HK-2

- 1 CAN BUS (communication interface)
- 2 Ribbon cable for control unit
- 3 Analogue signal (flow temperature/performance setpoint)
- 4 Data line (for the data logger, for example)
- 5 Terminal ST open = A12 floating
- 6 A12 = 230 V~ if the jumper is on terminal ST

# 4.2.2 System diagram of a system with one storage tank

## Connections

From		То		
Component Connec- tion Connec- tion Connec-		Component		
	1	1	FWS fresh water station, flow HW-PHE <sup>(1)</sup>	
	tion           1           2*           3*           4*           5*           6*           7*           C           E           F           ol SC-FWS	WV	Heat generator, flow <sup>(2)</sup>	
	3*	10	FWS fresh water station, return $CB^{(1)}$	
	4*	HV	Heating circuit(s), flow <sup>(2)</sup>	
SR-xxx	5*	HR	Heating circuit(s), return <sup>(2)</sup>	
SolvisStrato	6*	WR	Heat generator, return <sup>(2)</sup>	
	7*	2	FWS fresh water station, return HW-PHE $^{(1)}$	
	с	BM	Admixture to the heat generator return and drain valve (on-site) $^{(3)}$	
	E	SV	Solar transfer station, flow <sup>(4)</sup>	
	F	SR	Solar transfer station, return <sup>(4)</sup>	
SolvisControl SC-FWS	Sensor S12	Immersion tube	Flow near the heat generator	
Drinking water network	TWK	3	FWS fresh water station, drinking water cold	
Drinking water network	TWZ	4	FWS fresh water station, drinking water circulation	
Drinking water network	TWW	5	FWS fresh water station, drinking water hot	

\* Installation of a charging lance required

<sup>(1)</sup> For dimensions, see installation instructions P45

<sup>(2)</sup> Dimensions: up to 100 kW DN32 and up to 200 kW DN40

 $^{(3)}$  Connection to the fast mixing valve on control output A8/A9

(up to 120 kW: Kvs = 10; up to 200 kW: Kvs = 14) <sup>(4)</sup> Dimensions such as piping of the primary circuit

#### Abbreviations

Abbiotiati		mouulooi	
BM	Admixture to the heat generator return	KE	
SiV	Safety valve	BLL	
SR	Solar return	FWS-xx	
SV	Solar flow	HK	
TWK	Drinking water network, cold connection	SR-xxx	
TWW	Drinking water network, warm connection	MAG	
TWK	Drinking water network, circulation connection	SOL	
WR	Heat generator return	SÜS-xx	
WV	Heat generator flow	SV-SOL	
		V	

#### Modules:

Έ	Modulating boiler (on-site)
LL	Charging lance
WS-xx	Fresh water station
IK	Heating circuit(s) (on-site)
R-xxx	SolvisStrato stratified buffer tank
1AG	Membrane expansion vessel (on-site)
OL	Solar pressure compensation vessel
ÜS-xx	Solar heat transfer station
V-SOL	Solar safety valve
,	Volume flow adjusting valve

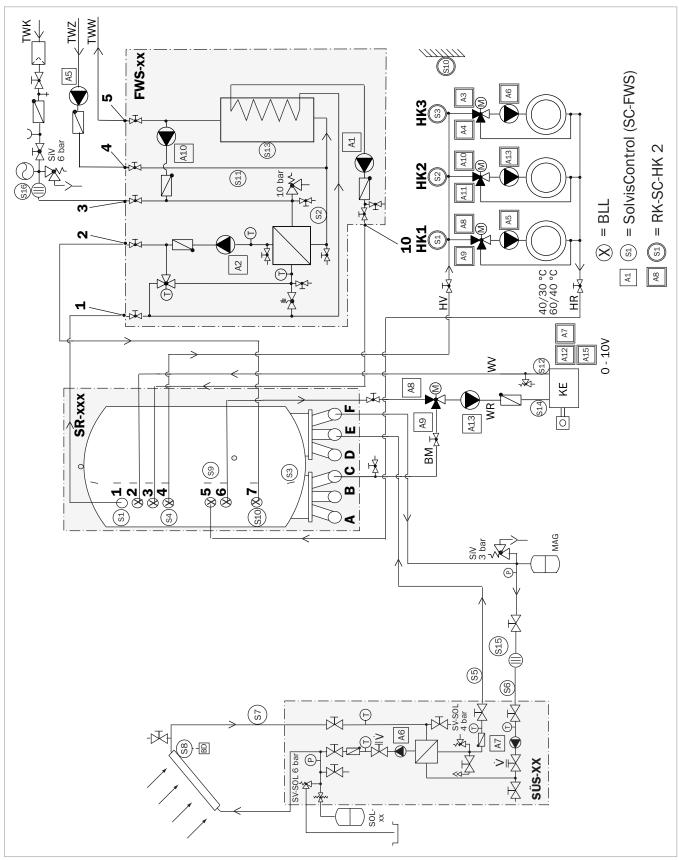


Fig. 19: SolvisVital 2 with modulating gas or oil boiler, storage tank and solar system

This diagram is not a substitute for detailed technical planning. To ensure the correct function of the system, our installation, operating and maintenance instructions must be followed. When connecting a third-party boiler, do not rely solely on the information provided – consult the manufacturer of the boiler.

## 4.2.3 System diagram of a system with two storage tanks

## Connections

From		То	
Component	Connec- tion	Connec- tion	Component
	1	1	FWS fresh water station, flow HW-PHE $^{(1)}$
	ConnectionConnectionCom11FWS3*WVHeat4*HVHeat7*HRHeat7*HRHeatC3*StoraC3*StoraC3*StoraFWRHeat7*2FWSCBMAdmi7*2FWSFSRSolarWSSensor S12Immersion tubeFlowworkTWK3FWSworkTWZ4FWSworkTWW5FWS	WV	Heat generator, flow <sup>(2)</sup>
		HV	Heating circuit(s), flow <sup>(2)</sup>
		Heating circuit(s), return <sup>(2)</sup>	
1. SR-xxx		FWS fresh water station, return $CB^{(1)}$	
SolvisStrato, storage tank 1	с	C 3* Stora (on-si	Storage tank SR2, connection 3* and drain valve (on-site, DN40)
	Connec- tion         Connec- tion           1         1           3*         WV           4*         HV           7*         HR           B         10           C         3*           E         1/SV           F         WR           7*         2           C         BM           F         SR           Sensor S12         Immersion tube           TWK         3           TWZ         4	1/SV	Storage tank SR2, connection $1^{(5)}$ and solar heat transfer station, $flow^{(4)}$
		WR	Heat generator, return <sup>(2)</sup>
	7*	2	FWS fresh water station, return HW-PHE <sup>(1)</sup>
2. SR-xxx SolvisStrato, storage tank 2	С	Connec- tionConnec- tionCom1FWS*WVHeat*HVHRHeat*10FWS3*Stora (on-s1/SVStora trans1/SVStora transSRSolar ensor S12WK34FWS	Admixture to the heat generator return and drain valve (on-site) <sup>(3)</sup>
	F		Solar transfer station SÜS-xx, return <sup>(4)</sup>
SolvisControl SC-FWS	Sensor S12		Flow near the heat generator
Drinking water network	TWK	3	FWS fresh water station, drinking water cold
Drinking water network	TWZ	4	FWS fresh water station, drinking water circulation
Drinking water network	TWW	5	FWS fresh water station, drinking water hot

\* Installation of a charging lance required

<sup>(1)</sup> For dimensions, see installation instructions P45

<sup>(2)</sup> Dimensions: up to 100 kW DN32 and up to 200 kW DN40

<sup>(3)</sup> Connection to the fast mixing valve on control output A8/A9

(up to 120 kW: Kvs = 10; up to 200 kW: Kvs = 14)

<sup>(4)</sup> Dimensions such as piping of the primary circuit

<sup>(5)</sup> Pump A3 maximum 2,000 l/h

### Abbreviations

Abbreviatio	ns	Modules:	
BM	Admixture to the heat generator return	KE	Modulating boiler (on-site)
SiV	Safety valve	BLL	Charging lance
SR	Solar return	FWS-xx	Fresh water station
SV	Solar flow	HK	Heating circuit(s) (on-site)
TWK	Drinking water network, cold connection	SR-xxx	SolvisStrato stratified buffer tank
TWW	Drinking water network, warm connection	MAG	Membrane expansion vessel (on-site)
TWK	Drinking water network, circulation connection	SOL	Solar pressure compensation vessel
WR	Heat generator return	SÜS-xx	Solar heat transfer station
WV	Heat generator flow	SV-SOL	Solar safety valve
		Ý	Volume flow adjusting valve

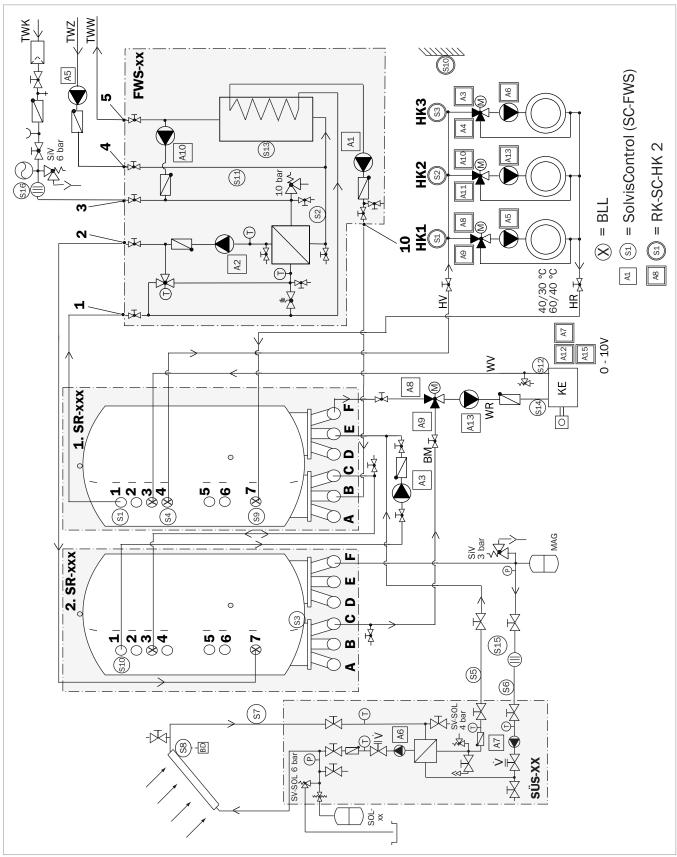


Fig. 20: SolvisVital 2 with modulating gas or oil boiler, two storage tanks and solar system

This diagram is not a substitute for detailed technical planning. To ensure the correct function of the system, our installation, operating and maintenance instructions must be followed. When connecting a third-party boiler, do not rely solely on the information provided – consult the manufacturer of the boiler.

# 4.3 District heating

- Complete system up to 200 kW heating load
- Hygienic drinking water heating
- Suitable for multi-family homes, hotels, conference venues, care facilities or residence halls, for example

## 4.3.1 Connection diagram

### Inputs and outputs of control console SC-FWS

- District heating coupling controlled according to need using an on-site power controller
- Optional solar support

Sensors	Sensors (temperature sensor and volume flow encoder) Actuators (pumps, signals and control valves)		
Des.	Name	Des.	Name
<b>S1</b>	Top buffer sensor	A1	Load pump*
S2	Hot water sensor	A2	Hot water production pump*
<b>S</b> 3	Storage tank reference sensor	A3	Pump transfer (for systems with two storage tanks)
S4	Hot water buffer sensor	A4	Unused
<b>S</b> 5	Unused	A5	Circulation pump
<b>S</b> 6	Unused	A6	Unused
<b>S</b> 7	Unused	A7	Unused
<b>S</b> 8	Unused	A8	Mixer return (open)
<b>S</b> 9	Middle buffer sensor	A9	Mixer return (closed)
<b>S1</b> 0	Transfer/mix function sensor	A10	Pump balancing
S11	Circulation return sensor	A11	Boiler alarm signal
S12	Heat generator flow sensor	A12	Hot water priority signal
<b>S1</b> 3	Middle tank sensor	A13	Charge pump*
<b>S1</b> 4	Heat generator return sensor	A14	Data transfer signal
<b>S1</b> 5	Unused	A15	Unused
<b>S1</b> 6	Drinking water volume flow encoder	CAN bus	Connect with control console RK-SC-HK-2

\* Outputs speed-controlled: Do not connect any electronically-controlled pumps or pumps with three-phase motors.

## Inputs and outputs of control console RK-SC-HK-2

Sensors (temperature sensor and volume flow encoder) Actuators (pumps and control valves)			(pumps and control valves)
Des.	Name	Des.	Name
<b>S1</b>	Heating circuit 1 flow sensor	A1	Buffer alarm signal*
S2	Heating circuit 2 flow sensor	A2	Drinking water heating alarm signal*
<b>S</b> 3	Heating circuit 3 flow sensor	A3	Mixer for heating circuit 3 (open)
S4	Unused	A4	Mixer for heating circuit 3 (closed)
<b>S</b> 5	Unused	A5	Pump for heating circuit 1
<b>S</b> 6	Unused/FW return display**	A6	Pump for heating circuit 3
<b>S</b> 7	Unused	A7	Boiler alarm signal*
<b>S</b> 8	Exhaust temperature sensor (optional)	A8	Mixer for heating circuit 1 (open)
<b>S</b> 9	Unused	A9	Mixer for heating circuit 1 (closed)
<b>S1</b> 0	Outdoor temperature sensor	A10	Mixer for heating circuit 2 (open)
S11	Unused	A11	Mixer for heating circuit 2 (closed)
S12	Unused	A12	Heating requirement signal for boiler, floating or 230 V~
<b>S1</b> 3	Unused	A13	Pump for heating circuit 2
S14	Unused	A14	Data transfer signal
<b>S1</b> 5	Volume flow encoder, heating circuits (optional)	A15	Analogue 0-10 V signal (boiler tempera- ture/performance)
<b>S1</b> 6	Unused	CAN BUS	Connection with fresh water station controller

\* Outputs speed-controlled: Do not connect any electronically-controlled pumps or pumps with three-phase motors.

\*\* Only applicable for heat generators = district heating (FW)

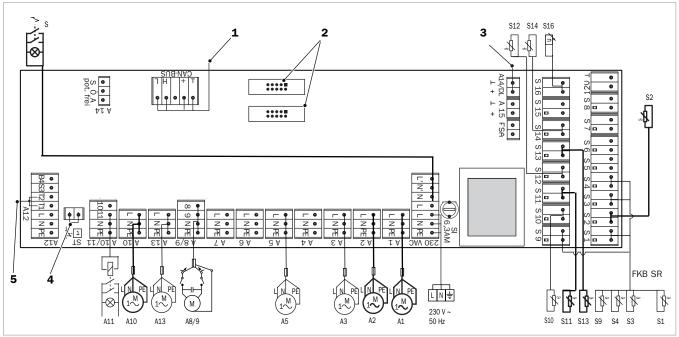


Fig. 21: Mains module of control console SC-FWS

- 1 CAN BUS (communication interface)
- 2 Ribbon cable for control unit
- 3 Data line (for the data logger, for example)
- 4 Terminal ST open = A12 floating
- 5 A12 = 230 V~ if the jumper is on terminal ST

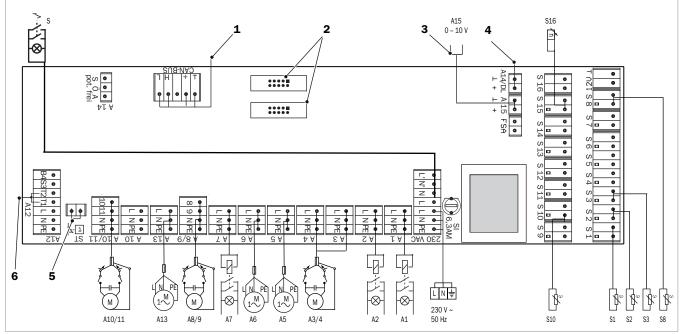


Fig. 22: Mains module of control console RK-SC-HK-2

- 1 CAN BUS (communication interface)
- 2 Ribbon cable for control unit
- 3 Analogue signal (flow temperature/performance setpoint)
- 4 Data line (for the data logger, for example)
- 5 Terminal ST open = A12 floating
- 6 A12 = 230 V~ if the jumper is on terminal ST

# 4.3.2 System diagram of a system with one storage tank

### Connections

From		То		
Component Connection Connection Connection Connection		Component		
	1	1	FWS fresh water station, flow HW-PHE (1)	
	2*	WV	Heat generator, flow <sup>(2)</sup>	
	3*	10	FWS fresh water station, return $CB^{(1)}$	
SR-xxx	4*	HV	Heating circuit(s), flow <sup>(2)</sup>	
SolvisStrato	5*	HR	Heating circuit(s), return <sup>(2)</sup>	
	6*	WR	Heat generator, return <sup>(2)</sup>	
	7*	2	FWS fresh water station, return HW-PHE $^{(1)}$	
	с	BM	Admixture to the heat generator return and drain valve $(on-site)^{(3)}$	
SolvisControl SC-FWS	Sensor S12	Immersion tube	Flow near the heat generator	
Drinking water network	TWK	3	FWS fresh water station, drinking water cold	
Drinking water network	TWZ	4	FWS fresh water station, drinking water circulation	
Drinking water network	TWW	5	FWS fresh water station, drinking water hot	

\* Installation of a charging lance required

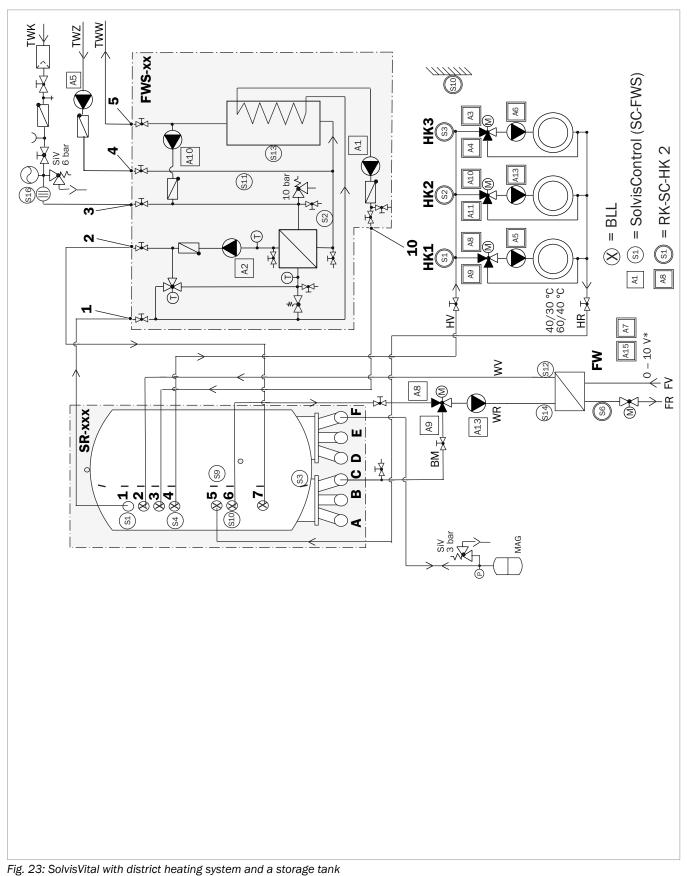
(1) For dimensions, see installation instructions P45

<sup>(2)</sup> Dimensions: up to 100 kW DN32 and up to 200 kW DN40

<sup>(3)</sup> Connection to the fast mixing valve on control output A8/A9 (up to 120 kW: Kvs = 10; up to 200 kW: Kvs = 14)

## Abbreviations

Abbreviat	ions	Modules:	
BM	Admixture to the heat generator return	FW	District heating (on-site)
SiV	Safety valve	BLL	Charging lance
TWK	Drinking water network, cold connection	FWS-xx	Fresh water station
TWW	Drinking water network, warm connection	HK	Heating circuit(s) (on-site)
TWK	Drinking water network, circulation connection	SR-xxx	SolvisStrato stratified buffer tank
WR	Heat generator return		
WV	Heat generator flow		



\* 0 - 10 V signal on analogue output A15 provides the on-site controller of the district heating station with a temperature setpoint.

This diagram is not a substitute for detailed technical planning. To ensure the correct function of the system, our installation, operating and maintenance instructions must be followed. When connecting a third-party boiler, do not rely solely on the information provided – consult the manufacturer of the boiler.

# 4.3.3 System diagram of a system with two storage tanks

## Connections

From		То			
Component	Connec- tion tion		Component		
	1	1	FWS fresh water station, flow HW-PHE $^{(\ensuremath{1})}$		
	3*	WV	Heat generator, flow <sup>(2)</sup>		
1.50 your	4*	HV	Heating circuit(s), flow <sup>(2)</sup>		
1. SR-xxx SolvisStrato, storage tank 1	7*	HR	Heating circuit(s), return <sup>(2)</sup>		
B C	10	FWS fresh water station, return $CB^{(1)}$			
	С	1	Storage tank SR2, connection 1 (DN40)		
	F WR		Heat generator, return <sup>(2)</sup>		
2. SR-xxx	7*	2	FWS fresh water station, return HW-PHE <sup>(1)</sup>		
SolvisStrato, storage tank 2	С	BM	Admixture to the heat generator return and drain valve $(on-site)^{(3)}$		
SolvisControl SC-FWS	Sensor S12	Immersion tube	Flow near the heat generator		
Drinking water network	TWK	3	FWS fresh water station, drinking water cold		
Drinking water network	TWZ	4	FWS fresh water station, drinking water circulation		
Drinking water network	TWW	5	FWS fresh water station, drinking water hot		

\* Installation of a charging lance required

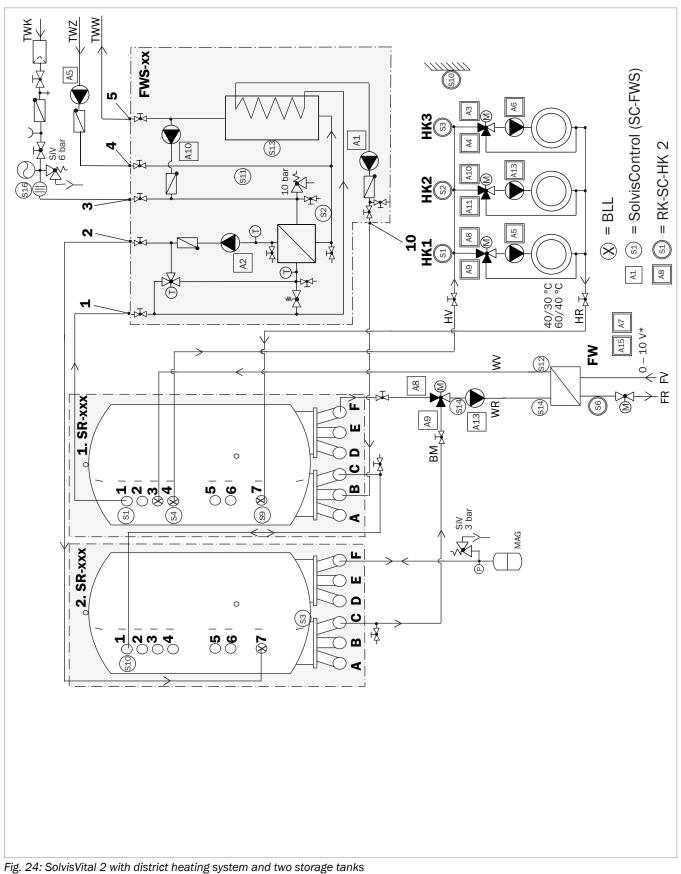
<sup>(1)</sup> For dimensions, see installation instructions P45

 $^{(2)}\,$  Dimensions: up to 100 kW DN32 and up to 200 kW DN40  $\,$ 

 $^{(3)}\,$  Connection to the fast mixing valve on control output A8/A9  $\,$ (up to 120 kW: Kvs = 10; up to 200 kW: Kvs = 14)

#### Abbreviations

Abbreviatio	ns	Modules:	
BM	Admixture to the heat generator return	FW	District heating (on-site)
SiV	Safety valve	BLL	Charging lance
TWK	Drinking water network, cold connection	FWS-xx	Fresh water station
TWW	Drinking water network, warm connection	НК	Heating circuit(s) (on-site)
TWK	Drinking water network, circulation connection	SR-xxx	SolvisStrato stratified buffer tank
WR	Heat generator return		
WV	Heat generator flow		



\* 0 - 10 V signal on analogue output A15 provides the on-site controller of the district heating station with a temperature setpoint.

This diagram is not a substitute for detailed technical planning. To ensure the correct function of the system, our installation, operating and maintenance instructions must be followed. When connecting a third-party boiler, do not rely solely on the information provided – consult the manufacturer of the boiler.

# 4.4 District heating with solar connection

- Complete system up to 200 kW heating load
- Hygienic drinking water heating
- Suitable for multi-family homes, hotels, conference venues, care facilities or residence halls, for example

## 4.4.1 Connection diagram

### Inputs and outputs of control console SC-FWS

- District heating coupling controlled according to need using an on-site power controller
- Solar support

Sensors (temperature sensor and volume flow encoder) Additional Additiona			s (pumps, signals and control valves)		
Des.	Name	Des.	Name		
<b>S1</b>	Top buffer sensor	A1	Load pump*		
S2	Hot water sensor	A2	Hot water production pump*		
<b>S</b> 3	Storage tank reference sensor	A3	Pump transfer (for systems with two storage tanks)		
<b>S</b> 4	Hot water buffer sensor	A4	Unused		
<b>S</b> 5	Solar flow sensor, secondary	A5	Circulation pump		
<b>S</b> 6	Solar return sensor, secondary	A6	Solar circuit pump, primary*		
<b>S</b> 7	Solar flow sensor, primary	A7	Solar circuit pump, secondary*		
<b>S</b> 8	Solar collector sensor	A8	Mixer return (open)		
<b>S</b> 9	Middle buffer sensor	A9	Mixer return (closed)		
<b>S1</b> 0	Transfer/mix function sensor	A10	Pump balancing		
S11	Circulation return sensor	A11	Boiler alarm signal		
S12	Heat generator flow sensor	A12	Hot water priority signal		
<b>S1</b> 3	Middle tank sensor	A13	Charge pump*		
<b>S1</b> 4	Heat generator return sensor	A14	Data transfer signal		
<b>S1</b> 5	Solar circuit volume flow encoder (e.g. VSG-S-2,5)	A15	Unused		
<b>S1</b> 6	Drinking water volume flow encoder	CAN bus	Connect with control console RK-SC-HK-2		

\* Outputs speed-controlled: Do not connect any electronically-controlled pumps or pumps with three-phase motors.

## Inputs and outputs of control console RK-SC-HK-2

Sensors	(temperature sensor and volume flow encoder)	Actuators	Actuators (pumps and control valves)		
Des.	Name	Des.	Name		
<b>S1</b>	Heating circuit 1 flow sensor	A1	Buffer alarm signal*		
S2	Heating circuit 2 flow sensor	A2	Drinking water heating alarm signal*		
<b>S</b> 3	Heating circuit 3 flow sensor	A3	Mixer for heating circuit 3 (open)		
S4	Unused	A4	Mixer for heating circuit 3 (closed)		
<b>S</b> 5	Unused	A5	Pump for heating circuit 1		
<b>S</b> 6	Unused/FW return display**	A6	Pump for heating circuit 3		
S7	Unused	A7	Boiler alarm signal*		
<b>S</b> 8	Exhaust temperature sensor (optional)	A8	Mixer for heating circuit 1 (open)		
<b>S</b> 9	Unused	A9	Mixer for heating circuit 1 (closed)		
<b>S1</b> 0	Outdoor temperature sensor	A10	Mixer for heating circuit 2 (open)		
S11	Unused	A11	Mixer for heating circuit 2 (closed)		
S12	Unused	A12	Heating requirement signal for boiler, floating or 230 V~		
<b>S1</b> 3	Unused	A13	Pump for heating circuit 2		
<b>S1</b> 4	Unused	A14	Data transfer signal		
<b>S1</b> 5	Volume flow encoder, heating circuits (optional)	A15	Analogue 0-10 V signal (boiler tempera- ture/performance)		
S16	Unused	CAN BUS	Connection with fresh water station controller		

\* Outputs speed-controlled: Do not connect any electronically-controlled pumps or pumps with three-phase motors.

\*\* Only applicable for heat generators = district heating (FW)

### 4 Heating systems up to 200 kW heating load

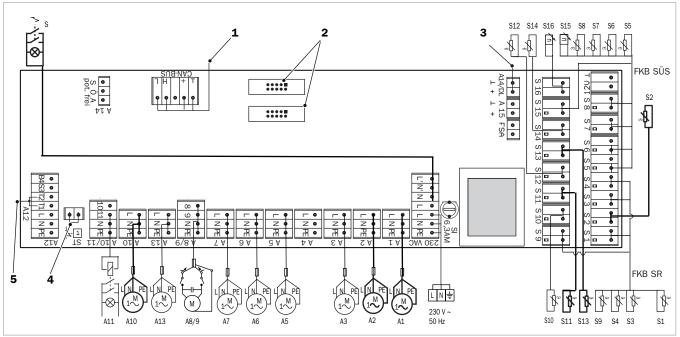


Fig. 25: Mains module of control console SC-FWS

- 1 CAN BUS (communication interface)
- 2 Ribbon cable for control unit
- 3 Data line (for the data logger, for example)
- 4 Terminal ST open = A12 floating
- 5 A12 = 230 V~ if the jumper is on terminal ST

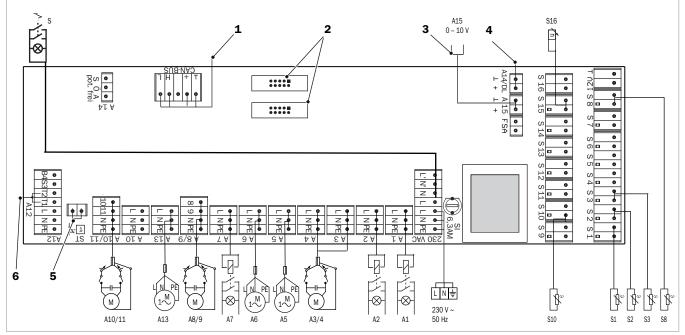


Fig. 26: Mains module of control console RK-SC-HK-2

- 1 CAN BUS (communication interface)
- 2 Ribbon cable for control unit
- 3 Analogue signal (flow temperature/performance setpoint)
- 4 Data line (for the data logger, for example)
- 5 Terminal ST open = A12 floating
- 6 A12 = 230 V~ if the jumper is on terminal ST

# 4.4.2 System diagram of a system with one storage tank

### Connections

From		То		
Component	Connec- tion	Connec- tion	Component	
	1	1	FWS fresh water station, flow HW-PHE (1)	
	2*	WV	Heat generator, flow <sup>(2)</sup>	
	3*	10	FWS fresh water station, return $CB^{\left(1\right)}$	
	4*	HV	Heating circuit(s), flow <sup>(2)</sup>	
SR-xxx	5*	HR	Heating circuit(s), return <sup>(2)</sup>	
SolvisStrato	6*	WR	Heat generator, return <sup>(2)</sup>	
	7*	2	FWS fresh water station, return HW-PHE <sup>(1)</sup>	
	с	BM	Admixture to the heat generator return and drain valve (on-site) <sup>(3)</sup>	
	E	SV	Solar transfer station, flow <sup>(4)</sup>	
	F	SR	Solar transfer station, return <sup>(4)</sup>	
SolvisControl SC-FWS	Sensor S12	Immersion tube	Flow near the heat generator	
Drinking water network	TWK	3	FWS fresh water station, drinking water cold	
Drinking water network	TWZ	4	FWS fresh water station, drinking water circulation	
Drinking water network	TWW	5	FWS fresh water station, drinking water hot	

\* Installation of a charging lance required

<sup>(1)</sup> For dimensions, see installation instructions P45

<sup>(2)</sup> Dimensions: up to 100 kW DN32 and up to 200 kW DN40

<sup>(3)</sup> Connection to the fast mixing valve on control output A8/A9

(up to 120 kW: Kvs = 10; up to 200 kW: Kvs = 14) <sup>(4)</sup> Dimensions such as piping of the primary circuit

#### Abbreviations

BM	Admixture to the heat generator return	FW	Dis
SiV	Safety valve	BLL	Ch
SR	Solar return	FWS-xx	Fre
SV	Solar flow	НК	He
TWK	Drinking water network, cold connection	SR-xxx	So
TWW	Drinking water network, warm connection	MAG	Me
TWK	Drinking water network, circulation connection	SOL	So
WR	Heat generator return	SÜS-xx	So
WV	Heat generator flow	SV-SOL	So
		V	Vo

#### Modules:

W	District heating (on-site)
3LL	Charging lance
WS-xx	Fresh water station
łK	Heating circuit(s) (on-site)
SR-xxx	SolvisStrato stratified buffer tank
ЛAG	Membrane expansion vessel (on-site)
SOL	Solar pressure compensation vessel
SÜS-xx	Solar heat transfer station
SV-SOL	Solar safety valve
/	Volume flow adjusting valve

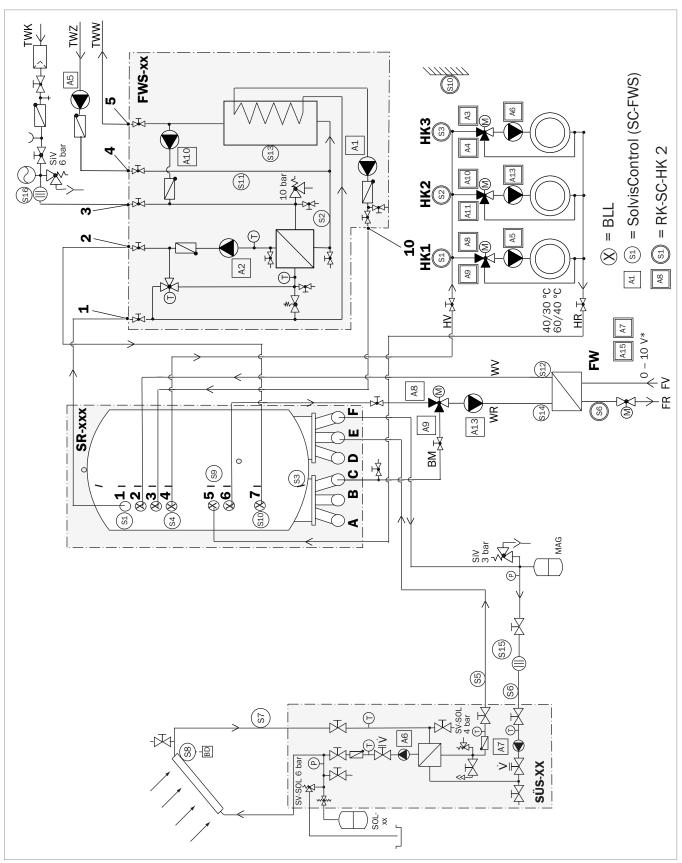


Fig. 27: SolvisVital 2 with district heating system, a storage tank and solar system \* 0 - 10 V signal on analogue output A15 provides the on-site controller of the district heating station with a temperature setpoint.

This diagram is not a substitute for detailed technical planning. To ensure the correct function of the system, our installation, operating and maintenance instructions must be followed. When connecting a third-party boiler, do not rely solely on the information provided – consult the manufacturer of the boiler.

## 4.4.3 System diagram of a system with two storage tanks

## Connections

From		То		
Component	Connec- tion	Connec- tion	Component	
	1	1	FWS fresh water station, flow HW-PHE $^{(1)}$	
	3*	WV	Heat generator, flow <sup>(2)</sup>	
	4*	HV	Heating circuit(s), flow <sup>(2)</sup>	
	7*	HR	Heating circuit(s), return <sup>(2)</sup>	
1. SR-xxx	В	10	FWS fresh water station, return $CB^{(1)}$	
SolvisStrato, storage tank 1	С	3*	Storage tank SR2, connection 3* and drain valve (on-site, DN40)	
	E	1/SV	Storage tank SR2, connection $1^{(5)}$ and solar heat transfer station, $flow^{(4)}$	
	F	WR	Heat generator, return <sup>(2)</sup>	
	7*	2	FWS fresh water station, return HW-PHE <sup>(1)</sup>	
2. SR-xxx SolvisStrato, storage tank 2	С	BM	Admixture to the heat generator return and drain valve (on-site) <sup>(3)</sup>	
	F	SR	Solar transfer station SÜS-xx, return <sup>(4)</sup>	
SolvisControl SC-FWS	Sensor S12	Immersion tube	Flow near the heat generator	
Drinking water network	TWK	3	FWS fresh water station, drinking water cold	
Drinking water network	TWZ	4	FWS fresh water station, drinking water circulation	
Drinking water network TWW		5	FWS fresh water station, drinking water hot	

\* Installation of a charging lance required

<sup>(1)</sup> For dimensions, see installation instructions P45

<sup>(2)</sup> Dimensions: up to 100 kW DN32 and up to 200 kW DN40

<sup>(3)</sup> Connection to the fast mixing valve on control output A8/A9

(up to 120 kW: Kvs = 10; up to 200 kW: Kvs = 14)

<sup>(4)</sup> Dimensions such as piping of the primary circuit

<sup>(5)</sup> Pump A3 maximum 2,000 l/h

### Abbreviations

Abbreviations		Modules:		
BM	Admixture to the heat generator return	FW	District heating (on-site)	
SiV	Safety valve	BLL	Charging lance	
SR	Solar return	FWS-xx	Fresh water station	
SV	Solar flow	HK	Heating circuit(s) (on-site)	
TWK	Drinking water network, cold connection	SR-xxx	SolvisStrato stratified buffer tank	
TWW	Drinking water network, warm connection	MAG	Membrane expansion vessel (on-site)	
TWK	Drinking water network, circulation connection	SOL	Solar pressure compensation vessel	
WR	Heat generator return	SÜS-xx	Solar heat transfer station	
WV	Heat generator flow	SV-SOL	Solar safety valve	
		V	Volume flow adjusting valve	

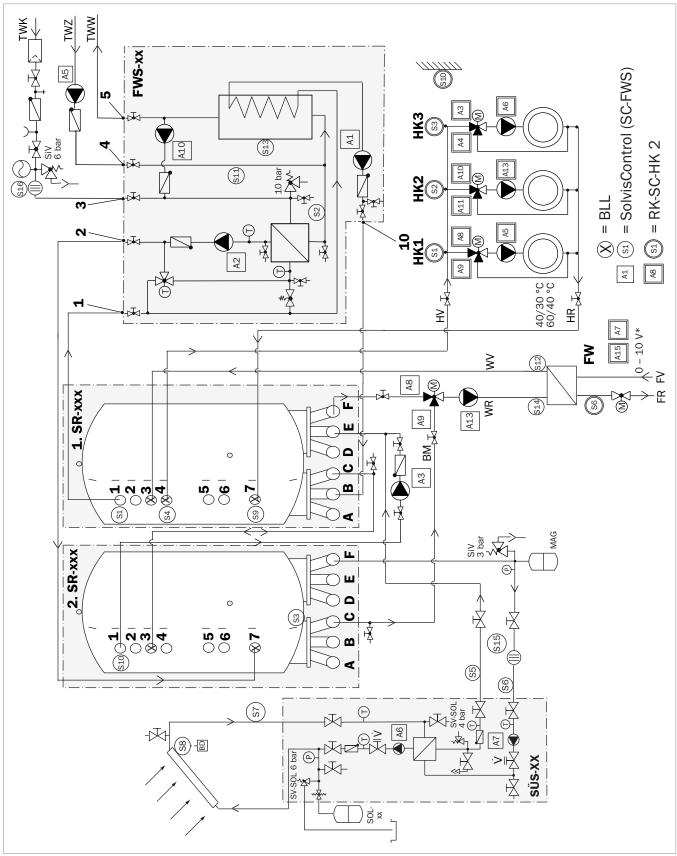


Fig. 28: SolvisVital 2 with district heating system, two storage tanks and solar system \* 0 - 10 V signal on analogue output A15 provides the on-site controller of the district heating station with a temperature setpoint.

This diagram is not a substitute for detailed technical planning. To ensure the correct function of the system, our installation, operating and maintenance instructions must be followed. When connecting a third-party boiler, do not rely solely on the information provided – consult the manufacturer of the boiler.

# 4.5 Modulating gas/oil boiler with BHKW or FBK

- Complete system up to 200 kW heating load
- Hygienic drinking water heating
- Suitable for multi-family homes, hotels, conference venues, care facilities or residence halls, for example
- Modulated gas or oil boiler with 0 to 10 V gating signal

# 4.5.1 Connection diagrams

### Inputs and outputs of control console SC-FWS

- Can be combined with self-regulated combined heat and power plant (BHKW) or solid fuel boiler (FBK)
- Optional solar support

Sensors (temperature sensor and volume flow encoder)		Actuators	Actuators (pumps, signals and control valves)	
Des.	Name	Des.	Name	
S1	Top buffer sensor	A1	Load pump*	
S2	Hot water sensor	A2	Hot water production pump*	
<b>S</b> 3	Storage tank reference sensor	A3	Pump transfer (for systems with two storage tanks)	
S4	Hot water buffer sensor	A4	Unused	
<b>S</b> 5	Unused	A5	Circulation pump	
<b>S</b> 6	Unused	A6	Unused	
S7	Unused	A7	Unused	
<b>S</b> 8	Unused	A8	Mixer return (open)	
<b>S</b> 9	Middle buffer sensor	A9	Mixer return (closed)	
<b>S1</b> 0	Transfer/mix function sensor	A10	Pump balancing	
S11	Circulation return sensor	A11	Boiler alarm signal	
S12	Heat generator flow sensor	A12	Hot water priority signal	
<b>S1</b> 3	Middle tank sensor	A13	Charge pump*	
S14	Heat generator return sensor	A14	Data transfer signal	
<b>S1</b> 5	Unused	A15	Unused	
<b>S1</b> 6	Drinking water volume flow encoder	CAN bus	Connect with control console RK-SC-HK-2	

\* Outputs speed-controlled: Do not connect any electronically-controlled pumps or pumps with three-phase motors.

### Inputs and outputs of control console RK-SC-HK-2

Sensors (temperature sensor and volume flow encoder)		Actuato	Actuators (pumps and control valves)	
Des.	Name	Des.	Name	
<b>S1</b>	Heating circuit 1 flow sensor	A1	Buffer alarm signal*	
S2	Heating circuit 2 flow sensor	A2	Drinking water heating alarm signal*	
<b>S</b> 3	Heating circuit 3 flow sensor	A3	Mixer for heating circuit 3 (open)	
S4	Unused	A4	Mixer for heating circuit 3 (closed)	
<b>S</b> 5	Unused	A5	Pump for heating circuit 1	
<b>S</b> 6	Unused/FW return display**	A6	Pump for heating circuit 3	
<b>S</b> 7	Unused	A7	Boiler alarm signal*	
<b>S</b> 8	Exhaust temperature sensor (optional)	<b>A</b> 8	Mixer for heating circuit 1 (open)	
<b>S</b> 9	Unused	A9	Mixer for heating circuit 1 (closed)	
<b>S1</b> 0	Outdoor temperature sensor	A10	Mixer for heating circuit 2 (open)	
S11	Unused	A11	Mixer for heating circuit 2 (closed)	
S12	Unused	A12	Heating requirement signal for boiler, floating or 230 V~	
<b>S1</b> 3	Unused	A13	Pump for heating circuit 2	
<b>S1</b> 4	Unused	A14	Data transfer signal	
<b>S1</b> 5	Volume flow encoder, heating circuits (optional)	A15	Analogue 0-10 V signal (boiler tempera- ture/performance)	
<b>S1</b> 6	Unused	CAN BUS	Connection with fresh water station controller	

\* Outputs speed-controlled: Do not connect any electronically-controlled pumps or pumps with three-phase motors.

\*\* Only applicable for heat generators = district heating (FW)

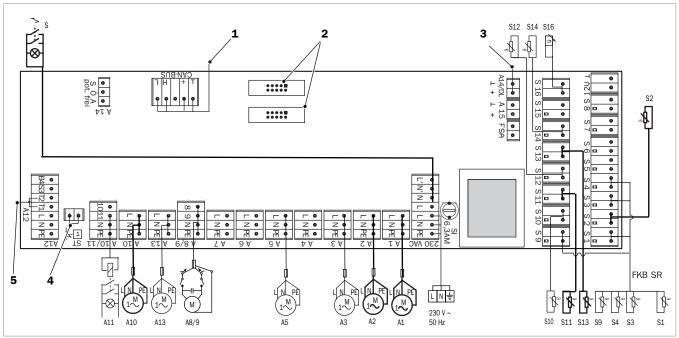


Fig. 29: Mains module of control console SC-FWS

- 1 CAN BUS (communication interface)
- 2 Ribbon cable for control unit
- 3 Data line (for the data logger, for example)
- 4 Terminal ST open = A12 floating
- 5 A12 = 230 V~ if the jumper is on terminal ST

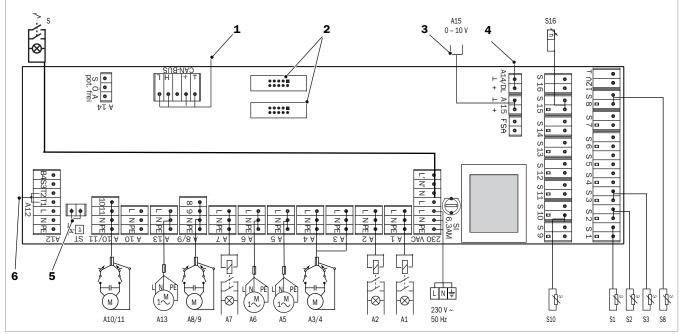


Fig. 30: Mains module of control console RK-SC-HK-2

- 1 CAN BUS (communication interface)
- 2 Ribbon cable for control unit
- 3 Analogue signal (flow temperature/performance setpoint)
- 4 Data line (for the data logger, for example)
- 5 Terminal ST open = A12 floating
- 6 A12 = 230 V~ if the jumper is on terminal ST

## 4.5.2 System diagram of a system with one storage tank

## Connections

From		То		
Component	Connec- tion	Connec- tion	Component	
	1	1	FWS fresh water station, flow HW-PHE (1)	
	2*	WV	Heat generator, flow <sup>(2)</sup>	
	3*	10	FWS fresh water station, return $CB^{(1)}$	
	4*	HV	Heating circuit(s), flow <sup>(2)</sup>	
SR-xxx	5*	HR	Heating circuit(s), return <sup>(2)</sup>	
SolvisStrato	6*	WR	Heat generator, return <sup>(2)</sup>	
	7*	2	FWS fresh water station, return HW-PHE $^{(1)}$	
	С	BM	Admixture to the heat generator return and drain valve (on-site) <sup>(3)</sup>	
	E	1	Combined heat and power plant or solid fuel boiler, return	
Modulating boiler	WV	2	Combined heat and power plant or solid fuel boiler, flow	
SolvisControl SC-FWS	Sensor S12	Immersion tube	Flow near the heat generator	
Drinking water network	тwк	3	FWS fresh water station, drinking water cold	
Drinking water network	TWZ	4	FWS fresh water station, drinking water circulation	
Drinking water network TW		5	FWS fresh water station, drinking water hot	

\* Installation of a charging lance required

<sup>(1)</sup> For dimensions, see installation instructions P45

 (2) Dimensions: up to 100 kW DN32 and up to 200 kW DN40
 (3) Connection to the fast mixing valve on control output A8/A9 (up to 120 kW: Kvs = 10; up to 200 kW: Kvs = 14)

### Abbreviations

BM	Admixture to the heat generator return
SiV	Safety valve
TWK	Drinking water network, cold connection
TWW	Drinking water network, warm connection
TWK	Drinking water network, circulation connection
WR	Heat generator return
WV	Heat generator flow

#### Modules:

BHKW	Combined heat and power plant
FBK	Solid fuel boiler
KE	Modulating boiler (on-site)
BLL	Charging lance
FWS-xx	Fresh water station
HK	Heating circuit(s) (on-site)
SR-xxx	SolvisStrato stratified buffer tank

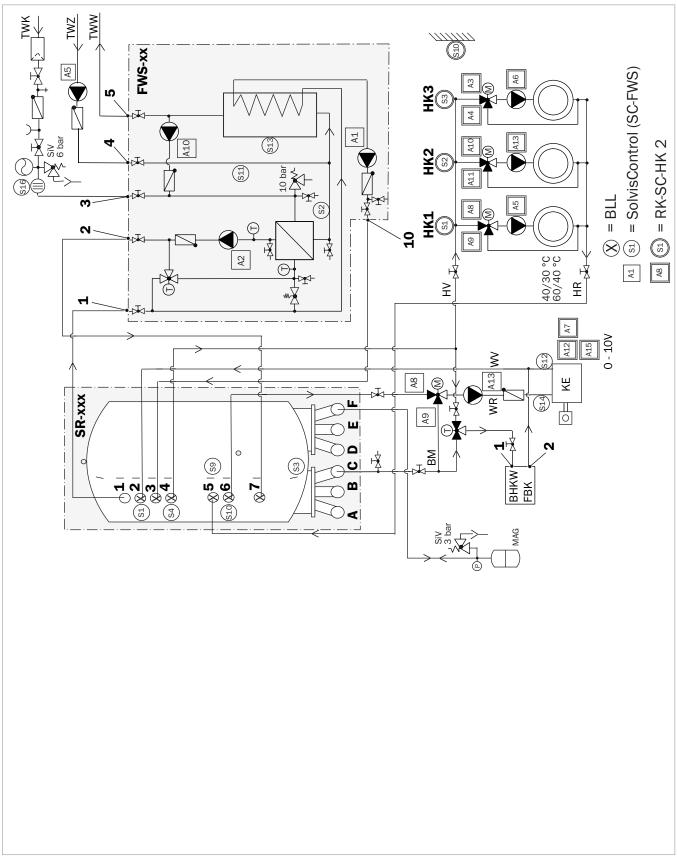


Fig. 31: SolvisVital 2 with modulating gas or oil boiler, storage tank and BHKW or solid fuel boiler

This diagram is not a substitute for detailed technical planning. To ensure the correct function of the system, our installation, operating and maintenance instructions must be followed. When connecting a third-party boiler, do not rely solely on the information provided – consult the manufacturer of the boiler.

## 4.5.3 System diagram of a system with two storage tanks

## Connections

From		То		
Component Connection		Connec- tion	Component	
	1	1	FWS fresh water station, flow HW-PHE $^{(1)}$	
	3*	WV	Heat generator, flow <sup>(2)</sup>	
	4*	HV	Heating circuit(s), flow <sup>(2)</sup>	
1. SR-xxx	7*	HR	Heating circuit(s), return <sup>(2)</sup>	
SolvisStrato, storage tank 1	В	10	FWS fresh water station, return $CB^{(1)}$	
	С	1	Storage tank SR2, connection 1 (DN40)	
	E	1	Combined heat and power plant or solid fuel boiler, return	
	F	WR	Heat generator, return <sup>(2)</sup>	
2. SR-xxx	7*	2	FWS fresh water station, return HW-PHE <sup>(1)</sup>	
SolvisStrato, storage tank 2	С	BM	Admixture to the heat generator return and drain valve (on-site) <sup>(3)</sup>	
Modulating boiler	WV	2	Combined heat and power plant or solid fuel boiler, flow	
SolvisControl SC-FWS	Sensor S12	Immersion tube	Flow near the heat generator	
Drinking water network	TWK	3	FWS fresh water station, drinking water cold	
Drinking water network	TWZ	4	FWS fresh water station, drinking water circulation	
Drinking water network	TWW	5	FWS fresh water station, drinking water hot	

\* Installation of a charging lance required

<sup>(1)</sup> For dimensions, see installation instructions P45

(2) Dimensions: up to 100 kW DN32 and up to 200 kW DN40
(3) Connection to the fast mixing valve on control output A8/A9 (up to 120 kW: Kvs = 10; up to 200 kW: Kvs = 14)

#### Abbreviations

BM	Admixture to the heat generator return	BHKW
SiV	Safety valve	FBK
TWK	Drinking water network, cold connection	KE
TWW	Drinking water network, warm connection	BLL
TWK	Drinking water network, circulation connection	FWS-xx
WR	Heat generator return	НК
WV	Heat generator flow	SR-xxx

#### Modules:

BHKW	Combined heat and power plant
FBK	Solid fuel boiler
KE	Modulating boiler (on-site)
BLL	Charging lance
FWS-xx	Fresh water station
НК	Heating circuit(s) (on-site)
SR-xxx	SolvisStrato stratified buffer tank

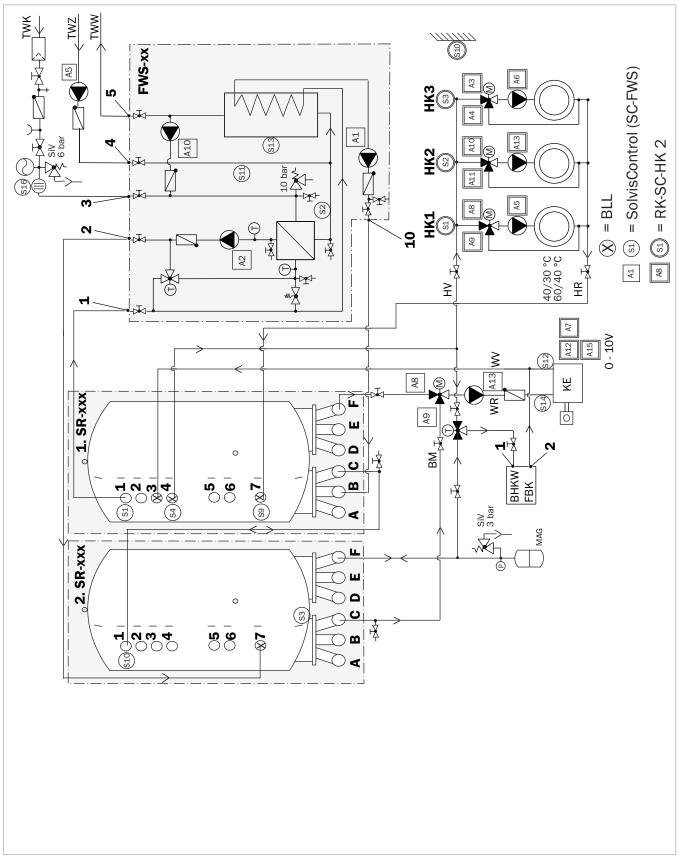


Fig. 32: SolvisVital 2 with modulating gas or oil boiler, two storage tanks and BHKW or solid fuel boiler

This diagram is not a substitute for detailed technical planning. To ensure the correct function of the system, our installation, operating and maintenance instructions must be followed. When connecting a third-party boiler, do not rely solely on the information provided – consult the manufacturer of the boiler.

# 4.6 Local heating with solar connection

- Complete system up to 200 kW heating load
- Hygienic drinking water heating
- Suitable for multi-family homes, hotels, conference venues, care facilities or residence halls, for example

# 4.6.1 Connection diagrams

## Inputs and outputs of control console SC-FWS

- Local heating coupling controlled according to need using an on-site power controller
- Decentralised solar support

Sensors (temperature sensor and volume flow encoder) Actuators (pumps, signals and control valves)			s (pumps, signals and control valves)
Des.	Name	Des.	Name
<b>S1</b>	Top buffer sensor	A1	Load pump*
S2	Hot water sensor	A2	Hot water production pump*
<b>S</b> 3	Storage tank reference sensor	A3	Pump transfer (for systems with two storage tanks)
S4	Hot water buffer sensor	A4	Unused
<b>S</b> 5	Solar flow sensor, secondary	A5	Circulation pump
<b>S</b> 6	Solar return sensor, secondary	A6	Solar circuit pump, primary*
S7	Solar flow sensor, primary	A7	Solar circuit pump, secondary*
<b>S</b> 8	Solar collector sensor	A8	Mixer return (open)
<b>S</b> 9	Middle buffer sensor	A9	Mixer return (closed)
<b>S1</b> 0	Transfer/mix function sensor	A10	Pump balancing
S11	Circulation return sensor	A11	Boiler alarm signal
S12	Heat generator flow sensor	A12	Hot water priority signal
<b>S1</b> 3	Middle tank sensor	A13	Charge pump*
<b>S1</b> 4	Heat generator return sensor	A14	Data transfer signal
<b>S1</b> 5	Solar circuit volume flow encoder (e.g. VSG-S-2,5)	A15	Unused
<b>S1</b> 6	Drinking water volume flow encoder	CAN bus	Connect with control console RK-SC-HK-2

\* Outputs speed-controlled: Do not connect any electronically-controlled pumps or pumps with three-phase motors.

## Inputs and outputs of control console RK-SC-HK-2

Sensors (temperature sensor and volume flow encoder)		Actuators	Actuators (pumps and control valves)	
Des.	Name	Des.	Name	
<b>S1</b>	Heating circuit 1 flow sensor	A1	Buffer alarm signal*	
S2	Heating circuit 2 flow sensor	A2	Drinking water heating alarm signal*	
<b>S</b> 3	Heating circuit 3 flow sensor	A3	Mixer for heating circuit 3 (open)	
<b>S</b> 4	Unused	A4	Mixer for heating circuit 3 (closed)	
<b>S</b> 5	Unused	A5	Pump for heating circuit 1	
<b>S</b> 6	Unused/FW return display**	A6	Pump for heating circuit 3	
<b>S</b> 7	Unused	A7	Boiler alarm signal*	
<b>S</b> 8	Exhaust temperature sensor (optional)	A8	Mixer for heating circuit 1 (open)	
<b>S</b> 9	Unused	A9	Mixer for heating circuit 1 (closed)	
<b>S1</b> 0	Outdoor temperature sensor	A10	Mixer for heating circuit 2 (open)	
<b>S11</b>	Unused	A11	Mixer for heating circuit 2 (closed)	
S12	Unused	A12	Heating requirement signal for boiler, floating or 230 V~	
<b>S1</b> 3	Unused	A13	Pump for heating circuit 2	
<b>S1</b> 4	Unused	A14	Data transfer signal	
<b>S1</b> 5	Volume flow encoder, heating circuits (optional)	A15	Analogue 0-10 V signal (boiler tempera- ture/performance)	
<b>S1</b> 6	Unused	CAN BUS	Connection with fresh water station controller	

\* Outputs speed-controlled: Do not connect any electronically-controlled pumps or pumps with three-phase motors.

\*\* Only applicable for heat generators = district heating (FW)

### 4 Heating systems up to 200 kW heating load

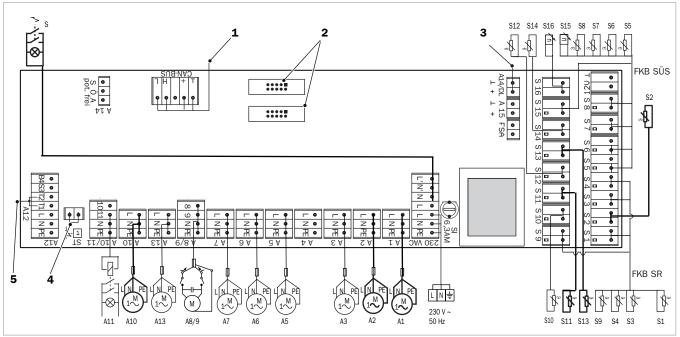


Fig. 33: Mains module of control console SC-FWS

- 1 CAN BUS (communication interface)
- 2 Ribbon cable for control unit
- 3 Data line (for the data logger, for example)
- 4 Terminal ST open = A12 floating
- 5 A12 = 230 V~ if the jumper is on terminal ST

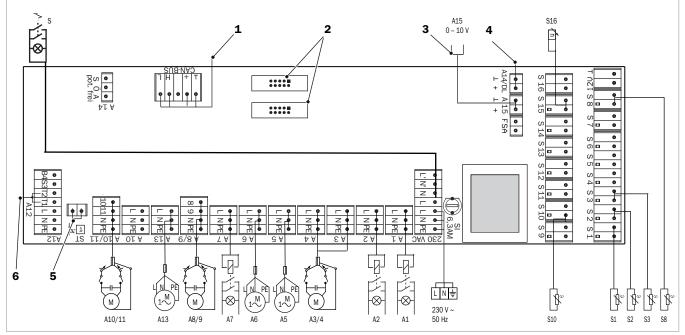


Fig. 34: Mains module of control console RK-SC-HK-2

- 1 CAN BUS (communication interface)
- 2 Ribbon cable for control unit
- 3 Analogue signal (flow temperature/performance setpoint)
- 4 Data line (for the data logger, for example)
- 5 Terminal ST open = A12 floating
- 6 A12 = 230 V~ if the jumper is on terminal ST

# 4.6.2 System diagram of a system with one storage tank

## Connections

From		То	
Component	Connec- tion	Connec- tion	Component
	1	1	FWS fresh water station, flow HW-PHE <sup>(1)</sup>
	2*	WV	Heat generator, flow <sup>(2)</sup>
	3*	10	FWS fresh water station, return $CB^{(1)}$
	4*	HV	Heating circuit(s), flow <sup>(2)</sup>
SR-xxx	5*	HR	Heating circuit(s), return <sup>(2)</sup>
SolvisStrato	6*	WR	Heat generator, return <sup>(2)</sup>
	7*	2	FWS fresh water station, return HW-PHE $^{(1)}$
	с	BM	Admixture to the heat generator return and drain valve (on-site) $^{(3)}$
	E	SV	Solar transfer station, flow <sup>(4)</sup>
	F	SR	Solar transfer station, return <sup>(4)</sup>
SolvisControl SC-FWS	Sensor S12	Immersion tube	Flow near the heat generator
Drinking water network	TWK	3	FWS fresh water station, drinking water cold
Drinking water network	TWZ	4	FWS fresh water station, drinking water circulation
Drinking water network	TWW	5	FWS fresh water station, drinking water hot

\* Installation of a charging lance required

<sup>(1)</sup> For dimensions, see installation instructions P45

 $^{(2)}\,$  Dimensions: up to 100 kW DN32 and up to 200 kW DN40  $\,$ 

 $^{(3)}$  Connection to the fast mixing valve on control output A8/A9

(up to 120 kW: Kvs = 10; up to 200 kW: Kvs = 14) <sup>(4)</sup> Dimensions such as piping of the primary circuit

#### Abbreviations

Abbienat		mouules.	
BM	Admixture to the heat generator return	NW	Local hea
SiV	Safety valve	BLL	Charging
SR	Solar return	FWS-xx	Fresh wa
SV	Solar flow	НК	Heating c
TWK	Drinking water network, cold connection	SR-xxx	SolvisStra
TWW	Drinking water network, warm connection	MAG	Membran
TWK	Drinking water network, circulation connection	SOL	Solar pres
WR	Heat generator return	SÜS-xx	Solar hea
WV	Heat generator flow	SV-SOL	Solar safe
		Ý	Volume fl

#### Modules:

	Local heating station (on-site)
	Charging lance
S-xx	Fresh water station
	Heating circuit(s) (on-site)
XXX	SolvisStrato stratified buffer tank
G	Membrane expansion vessel (on-site)
-	Solar pressure compensation vessel
S-xx	Solar heat transfer station
SOL	Solar safety valve
	Volume flow adjusting valve

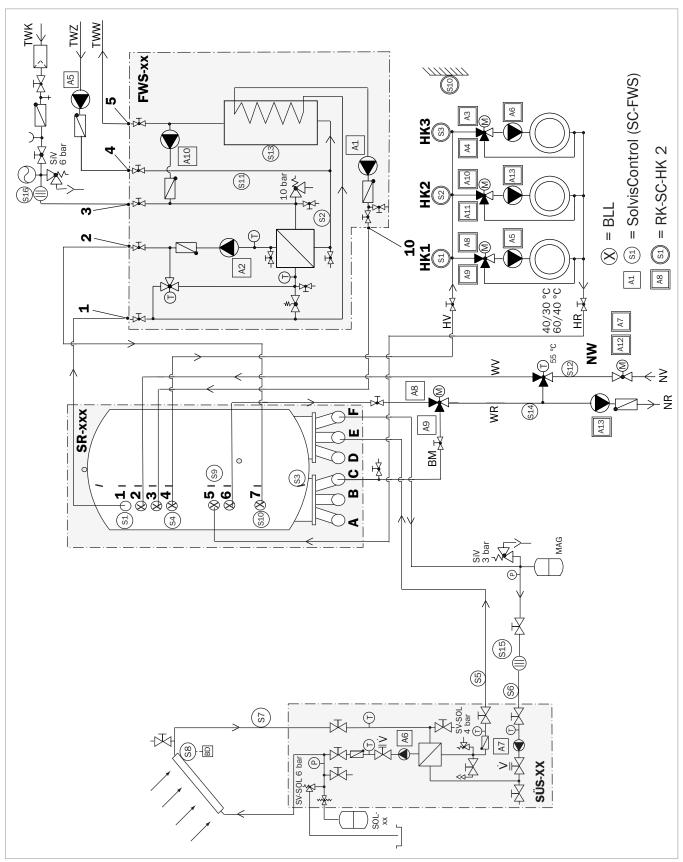


Fig. 35: SolvisVital 2 with local heating system, a storage tank and solar system

This diagram is not a substitute for detailed technical planning. To ensure the correct function of the system, our installation, operating and maintenance instructions must be followed. When connecting a third-party boiler, do not rely solely on the information provided – consult the manufacturer of the boiler.

## 4.6.3 System diagram of a system with two storage tanks

### Connections

From		То	
Component C ti		Connec- tion	Component
	1	1	FWS fresh water station, flow HW-PHE $^{(1)}$
	3*	WV	Heat generator, flow <sup>(2)</sup>
	4*	HV	Heating circuit(s), flow <sup>(2)</sup>
	7*	HR	Heating circuit(s), return <sup>(2)</sup>
1. SR-xxx	В	10	FWS fresh water station, return $CB^{(1)}$
SolvisStrato, storage tank 1	с	3*	Storage tank SR2, connection 3* and drain valve (on-site, DN40)
	E	1/SV	Storage tank SR2, connection $1^{(5)}$ and solar heat transfer station, $flow^{(4)}$
	F	WR	Heat generator, return <sup>(2)</sup>
	7*	2	FWS fresh water station, return HW-PHE <sup>(1)</sup>
2. SR-xxx SolvisStrato, storage tank 2	С	BM	Admixture to the heat generator return and drain valve (on-site) <sup>(3)</sup>
	F	SR	Solar transfer station SÜS-xx, return <sup>(4)</sup>
SolvisControl SC-FWS	Sensor S12	Immersion tube	Flow near the heat generator
Drinking water network	TWK	3	FWS fresh water station, drinking water cold
Drinking water network	TWZ	4	FWS fresh water station, drinking water circulation
Drinking water network	TWW	5	FWS fresh water station, drinking water hot

\* Installation of a charging lance required

<sup>(1)</sup> For dimensions, see installation instructions P45

<sup>(2)</sup> Dimensions: up to 100 kW DN32 and up to 200 kW DN40

<sup>(3)</sup> Connection to the fast mixing valve on control output A8/A9

(up to 120 kW: Kvs = 10; up to 200 kW: Kvs = 14)

<sup>(4)</sup> Dimensions such as piping of the primary circuit

<sup>(5)</sup> Pump A3 maximum 2,000 l/h

#### Abbreviations

Abbreviations	5	Modules:	
BM	Admixture to the heat generator return	NW	Local heating station (on-site)
SiV	Safety valve	BLL	Charging lance
SR	Solar return	FWS-xx	Fresh water station
SV	Solar flow	HK	Heating circuit(s) (on-site)
TWK	Drinking water network, cold connection	SR-xxx	SolvisStrato stratified buffer tank
TWW	Drinking water network, warm connection	MAG	Membrane expansion vessel (on-site)
TWK	Drinking water network, circulation connection	SOL	Solar pressure compensation vessel
WR	Heat generator return	SÜS-xx	Solar heat transfer station
WV	Heat generator flow	SV-SOL	Solar safety valve
		V	Volume flow adjusting valve

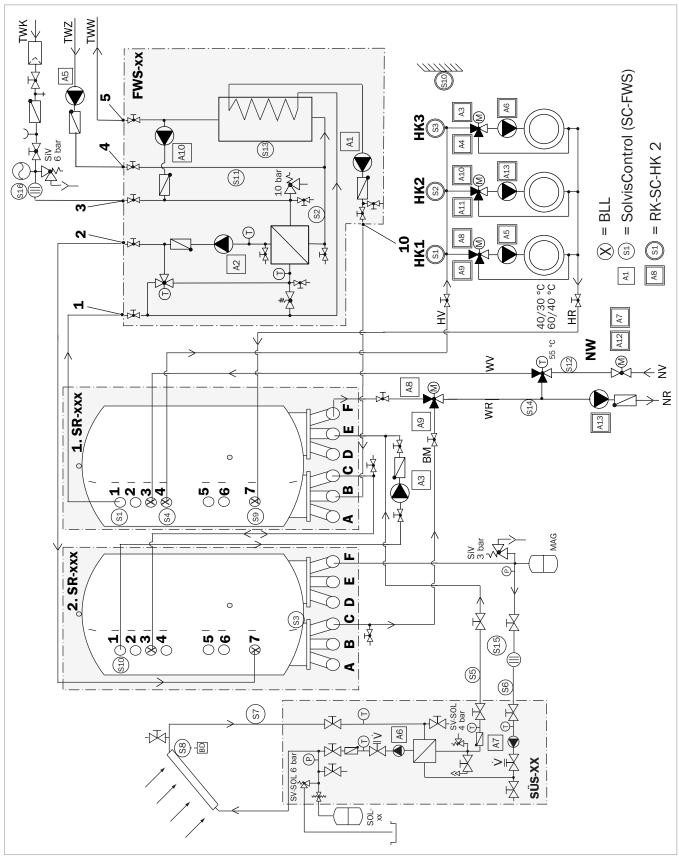


Fig. 36: SolvisVital2 with local heating system, two storage tanks and solar system

This diagram is not a substitute for detailed technical planning. To ensure the correct function of the system, our installation, operating and maintenance instructions must be followed. When connecting a third-party boiler, do not rely solely on the information provided – consult the manufacturer of the boiler.

# 4.7 BHKW or FBK

- Complete system up to 200 kW heating load
- Hygienic drinking water heating
- Suitable for multi-family homes, hotels, conference venues, care facilities or residence halls, for example

## 4.7.1 Connection diagrams

### Inputs and outputs of control console SC-FWS

- Self-regulated combined heat and power plant (BHKW) or self-regulated solid fuel boiler (FBK)
- Optional solar support

Sensors (temperature sensor and volume flow encoder)		Actuators	Actuators (pumps, signals and control valves)	
Des.	Name	Des.	Name	
<b>S1</b>	Top buffer sensor	A1	Load pump*	
S2	Hot water sensor	A2	Hot water production pump*	
<b>S</b> 3	Storage tank reference sensor	A3	Pump transfer (for systems with two storage tanks)	
S4	Hot water buffer sensor	A4	Unused	
<b>S</b> 5	Unused	A5	Circulation pump	
<b>S</b> 6	Unused	A6	Unused	
<b>S</b> 7	Unused	A7	Unused	
<b>S</b> 8	Unused	A8	Mixer return (open)	
<b>S</b> 9	Middle buffer sensor	A9	Mixer return (closed)	
<b>S1</b> 0	Transfer/mix function sensor	A10	Pump balancing	
S11	Circulation return sensor	A11	Boiler alarm signal	
S12	Heat generator flow sensor	A12	Hot water priority signal	
<b>S1</b> 3	Middle tank sensor	A13	Charge pump*	
<b>S1</b> 4	Heat generator return sensor	A14	Data transfer signal	
<b>S1</b> 5	Unused	A15	Unused	
<b>S1</b> 6	Drinking water volume flow encoder	CAN bus	Connect with control console RK-SC-HK-2	

\* Outputs speed-controlled: Do not connect any electronically-controlled pumps or pumps with three-phase motors.

### Inputs and outputs of control console RK-SC-HK-2

Sensors (temperature sensor and volume flow encoder)		Actuators	Actuators (pumps and control valves)	
Des.	Name	Des.	Name	
<b>S1</b>	Heating circuit 1 flow sensor	A1	Buffer alarm signal*	
S2	Heating circuit 2 flow sensor	A2	Drinking water heating alarm signal*	
<b>S</b> 3	Heating circuit 3 flow sensor	A3	Mixer for heating circuit 3 (open)	
S4	Unused	A4	Mixer for heating circuit 3 (closed)	
<b>S</b> 5	Unused	A5	Pump for heating circuit 1	
<b>S</b> 6	Unused/FW return display**	A6	Pump for heating circuit 3	
<b>S</b> 7	Unused	A7	Boiler alarm signal*	
<b>S</b> 8	Exhaust temperature sensor (optional)	A8	Mixer for heating circuit 1 (open)	
<b>S</b> 9	Unused	A9	Mixer for heating circuit 1 (closed)	
<b>S1</b> 0	Outdoor temperature sensor	A10	Mixer for heating circuit 2 (open)	
S11	Unused	A11	Mixer for heating circuit 2 (closed)	
S12	Unused	A12	Heating requirement signal for boiler, floating or 230 V~	
<b>S1</b> 3	Unused	A13	Pump for heating circuit 2	
S14	Unused	A14	Data transfer signal	
<b>S1</b> 5	Volume flow encoder, heating circuits (optional)	A15	Analogue 0-10 V signal (boiler tempera- ture/performance)	
<b>S1</b> 6	Unused	CAN BUS	Connection with fresh water station controller	

\* Outputs speed-controlled: Do not connect any electronically-controlled pumps or pumps with three-phase motors.

\*\* Only applicable for heat generators = district heating (FW)

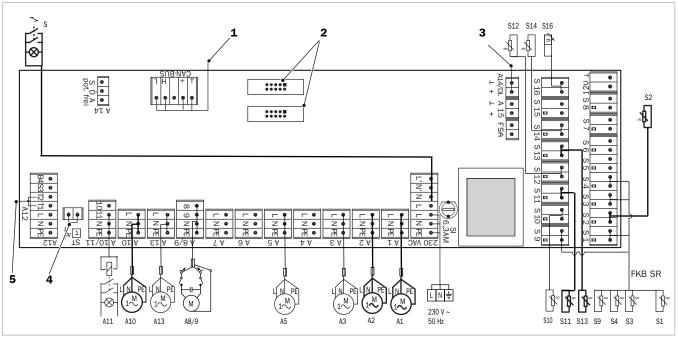


Fig. 37: Mains module of control console SC-FWS

- 1 CAN BUS (communication interface)
- 2 Ribbon cable for control unit
- 3 Data line (for the data logger, for example)
- 4 Terminal ST open = A12 floating
- 5 A12 = 230 V~ if the jumper is on terminal ST

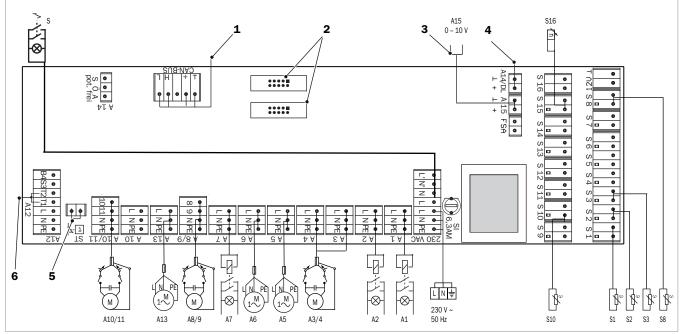


Fig. 38: Mains module of control console RK-SC-HK-2

- 1 CAN BUS (communication interface)
- 2 Ribbon cable for control unit
- 3 Analogue signal (flow temperature/performance setpoint)
- 4 Data line (for the data logger, for example)
- 5 Terminal ST open = A12 floating
- 6 A12 = 230 V~ if the jumper is on terminal ST

# 4.7.2 System diagram of a system with one storage tank

### Connections

From		То	
Component C ti		Connec- tion	Component
	1	1	FWS fresh water station, flow HW-PHE (1)
	2*	WV	Heat generator, flow <sup>(2)</sup>
	3*	10	FWS fresh water station, return $CB^{(1)}$
SR-xxx	4*	HV	Heating circuit(s), flow <sup>(2)</sup>
SolvisStrato	5*	HR	Heating circuit(s), return <sup>(2)</sup>
	6*	WR	Heat generator, return <sup>(2)</sup>
	7*	2	FWS fresh water station, return HW-PHE <sup><math>(1)</math></sup>
	С	BM	Admixture to the heat generator return and drain valve $(on-site)^{(3)}$
SolvisControl SC-FWS	Sensor S12	Immersion tube	Flow near the heat generator
Drinking water network	TWK	3	FWS fresh water station, drinking water cold
Drinking water network	TWZ	4	FWS fresh water station, drinking water circulation
Drinking water network	TWW	5	FWS fresh water station, drinking water hot

\* Installation of a charging lance required

(1) For dimensions, see installation instructions P45

<sup>(2)</sup> Dimensions: up to 100 kW DN32 and up to 200 kW DN40

<sup>(3)</sup> Connection to the fast mixing valve on control output A8/A9 (up to 120 kW: Kvs = 10; up to 200 kW: Kvs = 14)

## Abbreviations

Abbreviation	S	Modules:	
BM	Admixture to the heat generator return	BHKW	Combined heat and power plant
SiV	Safety valve	FBK	Solid fuel boiler
TWK	Drinking water network, cold connection	BLL	Charging lance
TWW	Drinking water network, warm connection	FWS-xx	Fresh water station
TWK	Drinking water network, circulation connection	HK	Heating circuit(s) (on-site)
WR	Heat generator return	SR-xxx	SolvisStrato stratified buffer tank
WV	Heat generator flow		

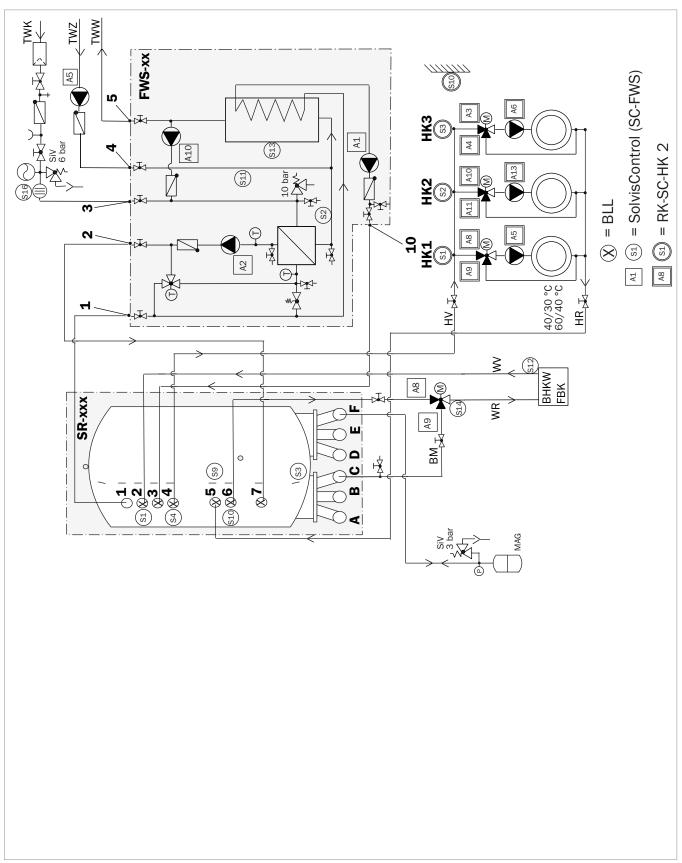


Fig. 39: SolvisVital 2 with a storage tank and combined heat and power plant or solid fuel boiler

This diagram is not a substitute for detailed technical planning. To ensure the correct function of the system, our installation, operating and maintenance instructions must be followed. When connecting a third-party boiler, do not rely solely on the information provided – consult the manufacturer of the boiler.

# 4.7.3 System diagram of a system with two storage tanks

## Connections

From		То		
Component	Connec- tion	Connec- tion	Component	
	1	1	FWS fresh water station, flow HW-PHE $^{(1)}$	
	3*	WV	Heat generator, flow <sup>(2)</sup>	
	4*	HV	Heating circuit(s), flow <sup>(2)</sup>	
1. SR-xxx SolvisStrato, storage tank 1	7*	HR	Heating circuit(s), return <sup>(2)</sup>	
	В	10	FWS fresh water station, return $CB^{(1)}$	
	С	1	Storage tank SR2, connection 1 (DN40)	
	F	WR	Heat generator, return <sup>(2)</sup>	
2. SR-xxx	7*	2	FWS fresh water station, return HW-PHE $^{(1)}$	
SolvisStrato, storage tank 2	с	ВМ	Admixture to the heat generator return and drain valve $(on-site)^{(3)}$	
SolvisControl SC-FWS	Sensor S12	Immersion tube	Flow near the heat generator	
Drinking water network	TWK	3	FWS fresh water station, drinking water cold	
Drinking water network	TWZ	4	FWS fresh water station, drinking water circulation	
Drinking water network	TWW	5	FWS fresh water station, drinking water hot	

\* Installation of a charging lance required

 $^{(1)}\,$  For dimensions, see installation instructions P45

<sup>(2)</sup> Dimensions: up to 100 kW DN32 and up to 200 kW DN40

 <sup>(3)</sup> Connection to the fast mixing valve on control output A8/A9 (up to 120 kW: Kvs = 10; up to 200 kW: Kvs = 14)

### Abbreviations

ADDIEVIALIONS		mouules.	
BM	Admixture to the heat generator return	BHKW	Combined heat and power plant
SiV	Safety valve	FBK	Solid fuel boiler
TWK	Drinking water network, cold connection	BLL	Charging lance
TWW	Drinking water network, warm connection	FWS-xx	Fresh water station
TWK	Drinking water network, circulation connection	НК	Heating circuit(s) (on-site)
WR	Heat generator return	SR-xxx	SolvisStrato stratified buffer tank
WV	Heat generator flow		

Modules

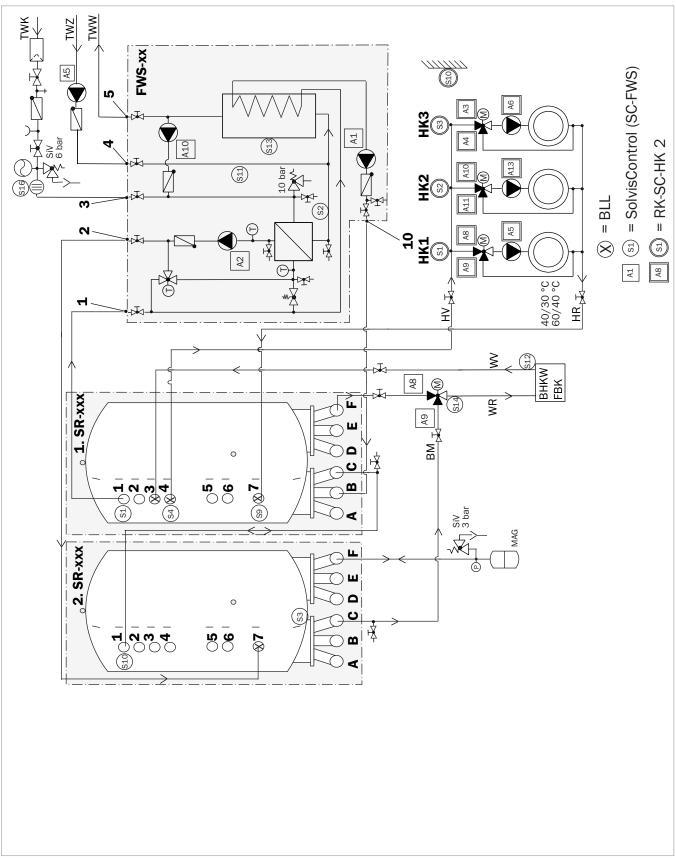


Fig. 40: SolvisVital 2 with two storage tanks and combined heat and power plant or solid fuel boiler

This diagram is not a substitute for detailed technical planning. To ensure the correct function of the system, our installation, operating and maintenance instructions must be followed. When connecting a third-party boiler, do not rely solely on the information provided – consult the manufacturer of the boiler.

# 4.8 BHKW or FBK with solar connection

- Complete system up to 200 kW heating load
- Hygienic drinking water heating
- Suitable for multi-family homes, hotels, conference venues, care facilities or residence halls, for example

## 4.8.1 Connection diagrams

## Inputs and outputs of control console SC-FWS

- Self-regulated combined heat and power plant (BHKW) or self-regulated solid fuel boiler (FBK)
- Solar support

Sensors (temperature sensor and volume flow encoder)		Actuators	Actuators (pumps, signals and control valves)		
Des.	Name	Des.	Name		
<b>S1</b>	Top buffer sensor	A1	Load pump*		
S2	Hot water sensor	A2	Hot water production pump*		
<b>S</b> 3	Storage tank reference sensor	A3	Pump transfer (for systems with two storage tanks)		
S4	Hot water buffer sensor	A4	Unused		
<b>S</b> 5	Solar flow sensor, secondary	A5	Circulation pump		
<b>S</b> 6	Solar return sensor, secondary	A6	Solar circuit pump, primary*		
<b>S</b> 7	Solar flow sensor, primary	A7	Solar circuit pump, secondary*		
<b>S</b> 8	Solar collector sensor	<b>A</b> 8	Mixer return (open)		
<b>S</b> 9	Middle buffer sensor	A9	Mixer return (closed)		
<b>S1</b> 0	Transfer/mix function sensor	A10	Pump balancing		
S11	Circulation return sensor	A11	Boiler alarm signal		
S12	Heat generator flow sensor	A12	Hot water priority signal		
<b>S1</b> 3	Middle tank sensor	A13	Charge pump*		
S14	Heat generator return sensor	A14	Data transfer signal		
<b>S1</b> 5	Solar circuit volume flow encoder (e.g. VSG-S-2,5)	A15	Unused		
<b>S1</b> 6	Drinking water volume flow encoder	CAN bus	Connect with control console RK-SC-HK-2		

\* Outputs speed-controlled: Do not connect any electronically-controlled pumps or pumps with three-phase motors.

## Inputs and outputs of control console RK-SC-HK-2

Sensors (temperature sensor and volume flow encoder) Actua		Actuators	ors (pumps and control valves)	
Des.	Name	Des.	Name	
<b>S1</b>	Heating circuit 1 flow sensor	A1	Buffer alarm signal*	
S2	Heating circuit 2 flow sensor	A2	Drinking water heating alarm signal*	
<b>S</b> 3	Heating circuit 3 flow sensor	A3	Mixer for heating circuit 3 (open)	
S4	Unused	A4	Mixer for heating circuit 3 (closed)	
<b>S</b> 5	Unused	A5	Pump for heating circuit 1	
<b>S</b> 6	Unused/FW return display**	A6	Pump for heating circuit 3	
<b>S</b> 7	Unused	A7	Boiler alarm signal*	
<b>S</b> 8	Exhaust temperature sensor (optional)	A8	Mixer for heating circuit 1 (open)	
<b>S</b> 9	Unused	A9	Mixer for heating circuit 1 (closed)	
<b>S1</b> 0	Outdoor temperature sensor	A10	Mixer for heating circuit 2 (open)	
S11	Unused	A11	Mixer for heating circuit 2 (closed)	
S12	Unused	A12	Heating requirement signal for boiler, floating or 230 V~	
<b>S1</b> 3	Unused	A13	Pump for heating circuit 2	
S14	Unused	A14	Data transfer signal	
<b>S1</b> 5	Volume flow encoder, heating circuits (optional)	A15	Analogue 0-10 V signal (boiler tempera- ture/performance)	
<b>S1</b> 6	Unused	CAN BUS	Connection with fresh water station controller	

\* Outputs speed-controlled: Do not connect any electronically-controlled pumps or pumps with three-phase motors.

\*\* Only applicable for heat generators = district heating (FW)

#### 4 Heating systems up to 200 kW heating load

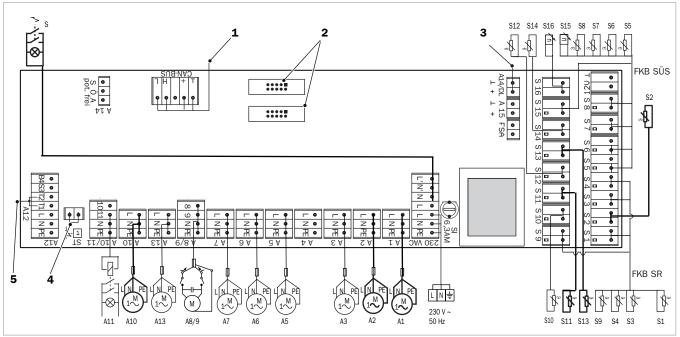


Fig. 41: Mains module of control console SC-FWS

- 1 CAN BUS (communication interface)
- 2 Ribbon cable for control unit
- 3 Data line (for the data logger, for example)
- 4 Terminal ST open = A12 floating
- 5 A12 = 230 V~ if the jumper is on terminal ST

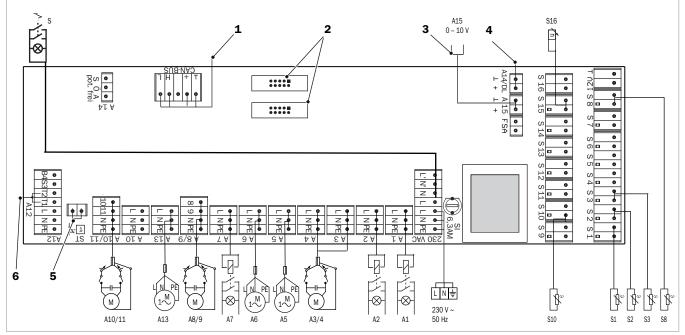


Fig. 42: Mains module of control console RK-SC-HK-2

- 1 CAN BUS (communication interface)
- 2 Ribbon cable for control unit
- 3 Analogue signal (flow temperature/performance setpoint)
- 4 Data line (for the data logger, for example)
- 5 Terminal ST open = A12 floating
- 6 A12 = 230 V~ if the jumper is on terminal ST

# 4.8.2 System diagram of a system with one storage tank

#### Connections

From		То		
Component	Connec- tion	Connec- tion	Component	
	1	1	FWS fresh water station, flow HW-PHE <sup>(1)</sup>	
	2*	WV	Heat generator, flow <sup>(2)</sup>	
	3*	10	FWS fresh water station, return $CB^{(1)}$	
	4*	HV	Heating circuit(s), flow <sup>(2)</sup>	
SR-xxx	5*	HR	Heating circuit(s), return <sup>(2)</sup>	
SolvisStrato	6*	WR	Heat generator, return <sup>(2)</sup>	
	7*	2	FWS fresh water station, return HW-PHE $^{(1)}$	
	с	BM	Admixture to the heat generator return and drain valve (on-site) $^{(3)}$	
	E	SV	Solar transfer station, flow <sup>(4)</sup>	
	F	SR	Solar transfer station, return <sup>(4)</sup>	
SolvisControl SC-FWS	Sensor S12	Immersion tube	Flow near the heat generator	
Drinking water network	TWK	3	FWS fresh water station, drinking water cold	
Drinking water network	TWZ	4	FWS fresh water station, drinking water circulation	
Drinking water network	TWW	5	FWS fresh water station, drinking water hot	

\* Installation of a charging lance required

<sup>(1)</sup> For dimensions, see installation instructions P45

 $^{(2)}\,$  Dimensions: up to 100 kW DN32 and up to 200 kW DN40  $\,$ 

 $^{(3)}$  Connection to the fast mixing valve on control output A8/A9

(up to 120 kW: Kvs = 10; up to 200 kW: Kvs = 14) <sup>(4)</sup> Dimensions such as piping of the primary circuit

#### Abbreviations

Abbiotiatio		modulooi
BM	Admixture to the heat generator return	BHKW
SiV	Safety valve	FBK
SR	Solar return	BLL
SV	Solar flow	FWS-xx
TWK	Drinking water network, cold connection	НК
TWW	Drinking water network, warm connection	SR-xxx
TWK	Drinking water network, circulation connection	MAG
WR	Heat generator return	SOL
WV	Heat generator flow	SÜS-xx
		SV-SOL

#### Modules:

Combined heat and power plant
Solid fuel boiler
Charging lance
Fresh water station
Heating circuit(s) (on-site)
SolvisStrato stratified buffer tank
Membrane expansion vessel (on-site)
Solar pressure compensation vessel
Solar heat transfer station
Solar safety valve
Volume flow adjusting valve

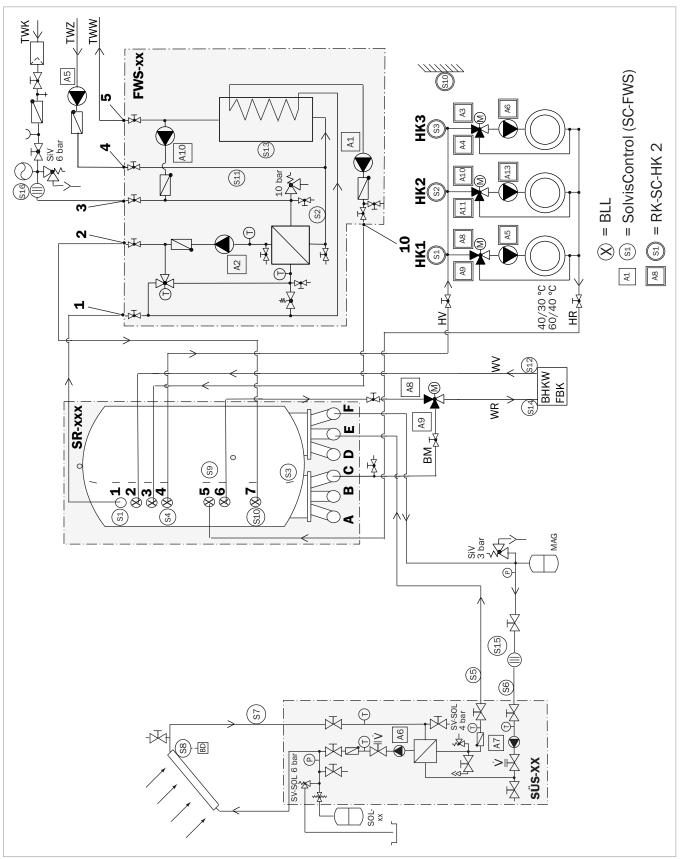


Fig. 43: SolvisVital 2 with a storage tank, solar system and combined heat and power plant or solid fuel boiler

## 4.8.3 System diagram of a system with two storage tanks

#### Connections

From		То		
Component	Connec- tion	Connec- tion	Component	
	Connec- tion         Connec- tion           1         1           3*         WV           4*         HV           7*         HR           B         10           C         3*           E         1/SV           F         WR           7*         2           C         BM           F         SR           Sensor S12         Immerstube           TWK         3           TWZ         4	1	FWS fresh water station, flow HW-PHE $^{(1)}$	
		WV	Heat generator, flow <sup>(2)</sup>	
		HV	Heating circuit(s), flow <sup>(2)</sup>	
		HR	Heating circuit(s), return <sup>(2)</sup>	
1. SR-xxx	В	7*         HR         H           B         10         F           C         3*         Si (c	FWS fresh water station, return $CB^{(1)}$	
SolvisStrato, storage tank 1	С	3*	Storage tank SR2, connection 3* and drain valve (on-site, DN40)	
	E	1/SV	Storage tank SR2, connection $1^{(5)}$ and solar heat transfer station, $flow^{(4)}$	
	Connec- tion         Cor tion           1         1           3*         WV           4*         HV           7*         HR           B         10           C         3*           E         1/S           F         WR           7*         2           C         BM           F         SR           Sensor S12         Imn tube           TWK         3	WR	Heat generator, return <sup>(2)</sup>	
	7*	2	FWS fresh water station, return HW-PHE <sup>(1)</sup>	
2. SR-xxx SolvisStrato, storage tank 2	С	BM	Admixture to the heat generator return and drain valve (on-site) <sup>(3)</sup>	
	F	SR	Solar transfer station SÜS-xx, return <sup>(4)</sup>	
SolvisControl SC-FWS	Sensor S12	Immersion tube	Flow near the heat generator	
Drinking water network	TWK	3	FWS fresh water station, drinking water cold	
Drinking water network	TWZ	4	FWS fresh water station, drinking water circulation	
Drinking water network	TWW	5	FWS fresh water station, drinking water hot	

**Modules:** 

\* Installation of a charging lance required

(1) For dimensions, see installation instructions P45
 (2) Dimensions: up to 100 kW DN32 and up to 200 kW DN40

<sup>(3)</sup> Connection to the fast mixing valve on control output A8/A9

(up to 120 kW: Kvs = 10; up to 200 kW: Kvs = 14)
 <sup>(4)</sup> Dimensions such as piping of the primary circuit

<sup>(5)</sup> Pump A3 maximum 2,000 l/h

#### Abbreviations

BM	Admixture to the heat generator return	BHKW	Combined heat and power plant
SiV	Safety valve	FBK	Solid fuel boiler
SR	Solar return	BLL	Charging lance
SV	Solar flow	FWS-xx	Fresh water station
TWK	Drinking water network, cold connection	HK	Heating circuit(s) (on-site)
TWW	Drinking water network, warm connection	SR-xxx	SolvisStrato stratified buffer tank
TWK	Drinking water network, circulation connection	MAG	Membrane expansion vessel (on-site)
WR	Heat generator return	SOL	Solar pressure compensation vessel
WV	Heat generator flow	SÜS-xx	Solar heat transfer station
		SV-SOL	Solar safety valve
		V	Volume flow adjusting valve

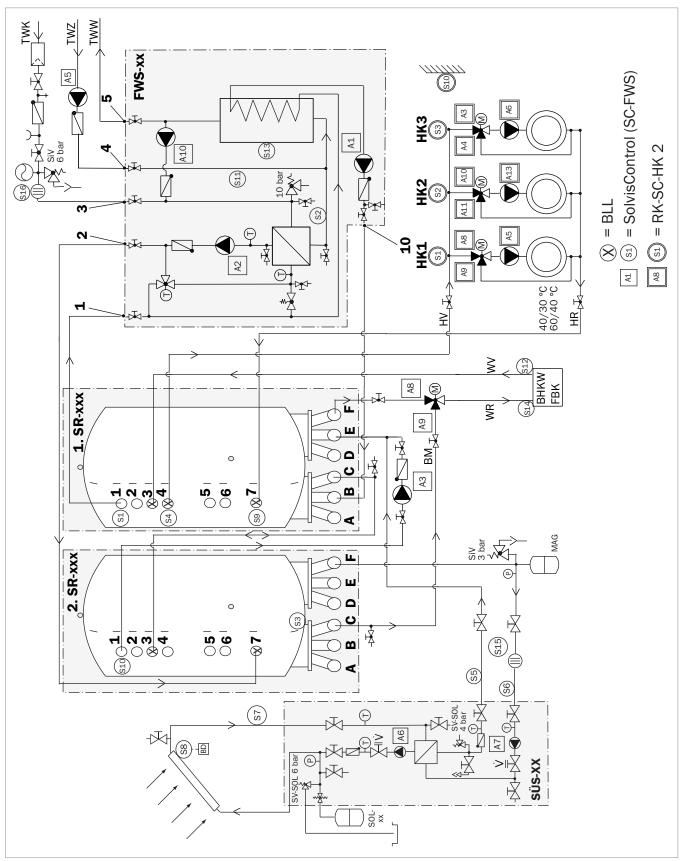


Fig. 44: SolvisVital 2 with two storage tanks, solar system and combined heat and power plant or solid fuel boiler

# 4.9 Non-modulating low-temperature or standard boilers

- Complete system up to 200 kW heating load
- Hygienic drinking water heating
- Suitable for multi-family homes, hotels, conference venues, care facilities or residence halls, for example

### 4.9.1 Connection diagrams

#### Inputs and outputs of control console SC-FWS

- Non-modulating low-temperature or standard boilers with gas, oil or pellet firing
- Optional solar support

Sensors	(temperature sensor and volume flow encoder)	Actuators	Actuators (pumps, signals and control valves)		
Des.	Name	Des.	Name		
<b>S1</b>	Top buffer sensor	A1	Load pump*		
S2	Hot water sensor	A2	Hot water production pump*		
<b>S</b> 3	Storage tank reference sensor	A3	Pump transfer (for systems with two storage tanks)		
S4	Hot water buffer sensor	A4	Unused		
<b>S</b> 5	Unused	A5	Circulation pump		
<b>S</b> 6	Unused	A6	Unused		
<b>S</b> 7	Unused	A7	Unused		
<b>S</b> 8	Unused	<b>A8</b>	Mixer return (open)		
<b>S</b> 9	Middle buffer sensor	A9	Mixer return (closed)		
<b>S1</b> 0	Transfer/mix function sensor	A10	Pump balancing		
S11	Circulation return sensor	A11	Boiler alarm signal		
S12	Heat generator flow sensor	A12	Hot water priority signal		
<b>S1</b> 3	Middle tank sensor	A13	Charge pump*		
S14	Heat generator return sensor	A14	Data transfer signal		
<b>S1</b> 5	Unused	A15	Unused		
<b>S1</b> 6	Drinking water volume flow encoder	CAN bus	Connect with control console RK-SC-HK-2		

\* Outputs speed-controlled: Do not connect any electronically-controlled pumps or pumps with three-phase motors.

#### Inputs and outputs of control console RK-SC-HK-2

Sensors (temperature sensor and volume flow encoder)		Actuators	Actuators (pumps and control valves)		
Des.	Name	Des.	Name		
<b>S1</b>	Heating circuit 1 flow sensor	A1	Buffer alarm signal*		
S2	Heating circuit 2 flow sensor	A2	Drinking water heating alarm signal*		
<b>S</b> 3	Heating circuit 3 flow sensor	A3	Mixer for heating circuit 3 (open)		
<b>S</b> 4	Unused	A4	Mixer for heating circuit 3 (closed)		
<b>S</b> 5	Unused	A5	Pump for heating circuit 1		
<b>S</b> 6	Unused/FW return display**	A6	Pump for heating circuit 3		
<b>S</b> 7	Unused	A7	Boiler alarm signal*		
<b>S</b> 8	Exhaust temperature sensor (optional)	A8	Mixer for heating circuit 1 (open)		
<b>S</b> 9	Unused	A9	Mixer for heating circuit 1 (closed)		
<b>S1</b> 0	Outdoor temperature sensor	A10	Mixer for heating circuit 2 (open)		
<b>S11</b>	Unused	A11	Mixer for heating circuit 2 (closed)		
S12	Unused	A12	Heating requirement signal for boiler, floating or 230 V~		
<b>S1</b> 3	Unused	A13	Pump for heating circuit 2		
<b>S1</b> 4	Unused	A14	Data transfer signal		
<b>S1</b> 5	Volume flow encoder, heating circuits (optional)	A15	Analogue 0-10 V signal (boiler tempera- ture/performance)		
<b>S1</b> 6	Unused	CAN BUS	Connection with fresh water station controller		

\* Outputs speed-controlled: Do not connect any electronically-controlled pumps or pumps with three-phase motors.

\*\* Only applicable for heat generators = district heating (FW)

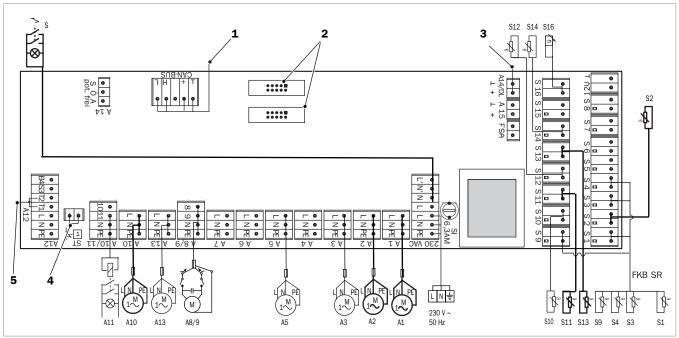


Fig. 45: Mains module of control console SC-FWS

- 1 CAN BUS (communication interface)
- 2 Ribbon cable for control unit
- 3 Data line (for the data logger, for example)
- 4 Terminal ST open = A12 floating
- 5 A12 = 230 V~ if the jumper is on terminal ST

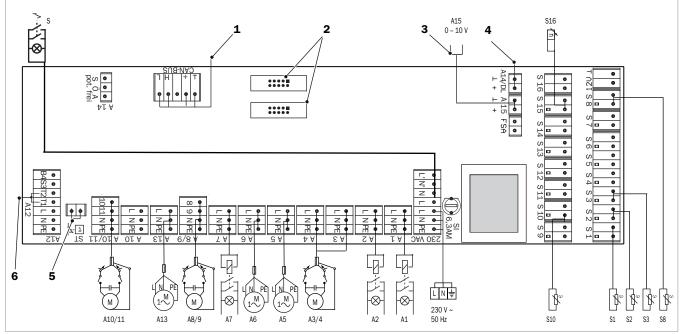


Fig. 46: Mains module of control console RK-SC-HK-2

- 1 CAN BUS (communication interface)
- 2 Ribbon cable for control unit
- 3 Analogue signal (flow temperature/performance setpoint)
- 4 Data line (for the data logger, for example)
- 5 Terminal ST open = A12 floating
- 6 A12 = 230 V~ if the jumper is on terminal ST

# 4.9.2 System diagram of a system with one storage tank

#### Connections

From		То		
Component	Connec- tion	Connec- tion	Component	
	1	1	FWS fresh water station, flow HW-PHE (1)	
	2*	WV	Heat generator, flow <sup>(2)</sup>	
	3*	10	FWS fresh water station, return $CB^{(1)}$	
SR-xxx	4*	HV	Heating circuit(s), flow <sup>(2)</sup>	
SolvisStrato	5*	WR	Heat generator, return <sup>(2)</sup>	
	6*	HR	Heating circuit(s), return <sup>(2)</sup>	
	7*	2	FWS fresh water station, return HW-PHE $^{(1)}$	
	С	BM	Admixture to the heat generator return and drain valve $(on-site)^{(3)}$	
SolvisControl SC-FWS	Sensor S12	Immersion tube	Flow near the heat generator	
Drinking water network	TWK	3	FWS fresh water station, drinking water cold	
Drinking water network	TWZ	4	FWS fresh water station, drinking water circulation	
Drinking water network	TWW	5	FWS fresh water station, drinking water hot	

\* Installation of a charging lance required

(1) For dimensions, see installation instructions P45

<sup>(2)</sup> Dimensions: up to 100 kW DN32 and up to 200 kW DN40

<sup>(3)</sup> Connection to the fast mixing valve on control output A8/A9 (up to 120 kW: Kvs = 10; up to 200 kW: Kvs = 14)

#### Abbreviations

Abbreviatio	ons	Modules:	
BM	Admixture to the heat generator return	SK	Non-modulating gas, oil or pellet boiler (on-
SiV	Safety valve		site)
TWK	Drinking water network, cold connection	BLL	Charging lance
TWW	Drinking water network, warm connection	FWS-xx	Fresh water station
TWK	Drinking water network, circulation connection	HK	Heating circuit(s) (on-site)
WR	Heat generator return	SR-xxx	SolvisStrato stratified buffer tank
WV	Heat generator flow		

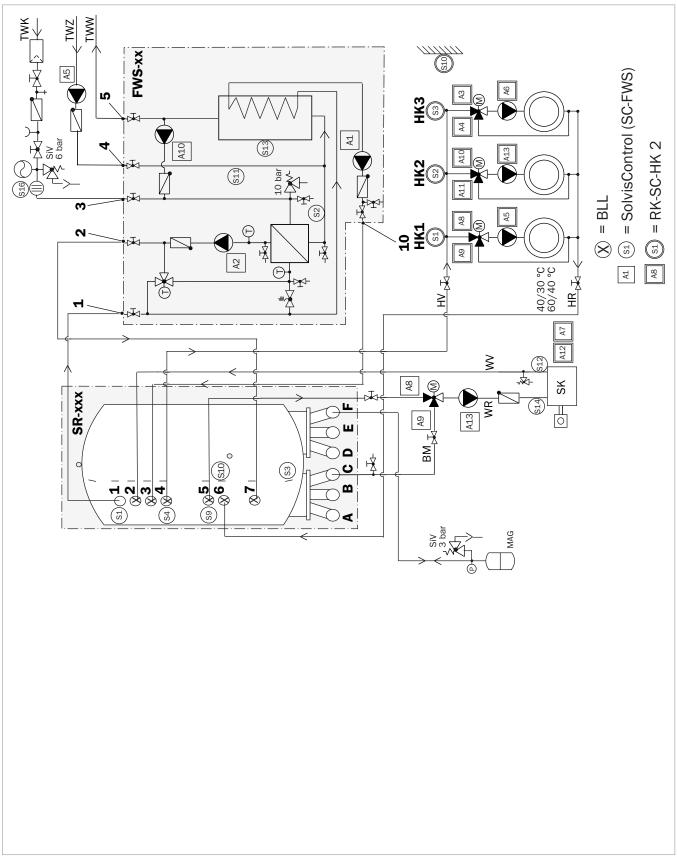


Fig. 47: SolvisVital 2 with non-modulating gas, oil or pellet boiler and storage tank

This diagram is not a substitute for detailed technical planning. To ensure the correct function of the system, our installation, operating and maintenance instructions must be followed. When connecting a third-party boiler, do not rely solely on the information provided – consult the manufacturer of the boiler.

# 4.9.3 System diagram of a system with two storage tanks

#### Connections

From		То		
Component	Connec- tion	Connec- tion	Component	
	1	1	FWS fresh water station, flow HW-PHE $^{(\ensuremath{1})}$	
	3*	WV	Heat generator, flow <sup>(2)</sup>	
	4*	HV	Heating circuit(s), flow <sup>(2)</sup>	
1. SR-xxx SolvisStrato, storage tank 1	7*	WR	Heat generator, return <sup>(2)</sup>	
	В	10	FWS fresh water station, return $CB^{(1)}$	
-	С	1	Storage tank SR2, connection 1 (DN40)	
	1 7* B C F 7*	HR	Heating circuit(s), return <sup>(2)</sup>	
2. SR-xxx	7*	2	FWS fresh water station, return HW-PHE $^{(1)}$	
SolvisStrato, storage tank 2	с	BM	Admixture to the heat generator return and drain valve $(on-site)^{(3)}$	
SolvisControl SC-FWS	Sensor S12	Immersion tube	Flow near the heat generator	
Drinking water network	TWK	3	FWS fresh water station, drinking water cold	
Drinking water network	TWZ	4	FWS fresh water station, drinking water circulation	
Drinking water network	TWW	5	FWS fresh water station, drinking water hot	

\* Installation of a charging lance required

<sup>(1)</sup> For dimensions, see installation instructions P45

 $^{(2)}\,$  Dimensions: up to 100 kW DN32 and up to 200 kW DN40  $\,$ 

 $^{(3)}\,$  Connection to the fast mixing valve on control output A8/A9  $\,$ (up to 120 kW: Kvs = 10; up to 200 kW: Kvs = 14)

#### Abbreviations

ADDIEVIALION	5	Nouces.		
BM	Admixture to the heat generator return	SK	Non-modulating gas, oil or pellet boiler (on-	
SiV	Safety valve		site)	
TWK	Drinking water network, cold connection	BLL	Charging lance	
TWW	Drinking water network, warm connection	FWS-xx	Fresh water station	
TWK	Drinking water network, circulation connection	HK	Heating circuit(s) (on-site)	
WR	Heat generator return	SR-xxx	SolvisStrato stratified buffer tank	
WV	Heat generator flow			

Modules

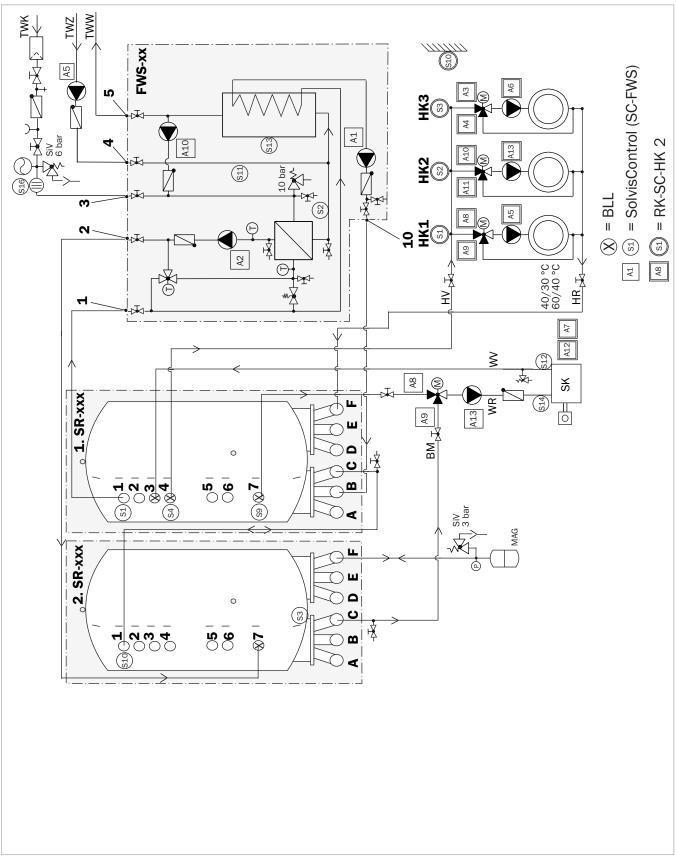


Fig. 48: SolvisVital 2 with non-modulating gas, oil or pellet boiler and two storage tanks

This diagram is not a substitute for detailed technical planning. To ensure the correct function of the system, our installation, operating and maintenance instructions must be followed. When connecting a third-party boiler, do not rely solely on the information provided – consult the manufacturer of the boiler.

# 4.10 Non-modulating low-temperature or standard boilers with solar connection

- Complete system up to 200 kW heating load
- Hygienic drinking water heating
- Suitable for multi-family homes, hotels, conference venues, care facilities or residence halls, for example

### 4.10.1 Connection diagrams

#### Inputs and outputs of control console SC-FWS

- Non-modulating low-temperature or standard boilers with gas, oil or pellet firing
- Solar support

Sensors (temperature sensor and volume flow encoder)		Actuators (pumps, signals and control valves)	
Des.	Name	Des.	Name
S1	Top buffer sensor	A1	Load pump*
S2	Hot water sensor	A2	Hot water production pump*
<b>S</b> 3	Storage tank reference sensor	A3	Pump transfer (for systems with two storage tanks)
S4	Hot water buffer sensor	A4	Unused
<b>S</b> 5	Solar flow sensor, secondary	A5	Circulation pump
<b>S</b> 6	Solar return sensor, secondary	A6	Solar circuit pump, primary*
<b>S</b> 7	Solar flow sensor, primary	A7	Solar circuit pump, secondary*
<b>S</b> 8	Solar collector sensor	A8	Mixer return (open)
<b>S</b> 9	Middle buffer sensor	A9	Mixer return (closed)
<b>S1</b> 0	Transfer/mix function sensor	A10	Pump balancing
S11	Circulation return sensor	A11	Boiler alarm signal
S12	Heat generator flow sensor	A12	Hot water priority signal
<b>S1</b> 3	Middle tank sensor	A13	Charge pump*
S14	Heat generator return sensor	A14	Data transfer signal
<b>S1</b> 5	Solar circuit volume flow encoder (e.g. VSG-S-2,5)	A15	Unused
<b>S1</b> 6	Drinking water volume flow encoder	CAN bus	Connect with control console RK-SC-HK-2

\* Outputs speed-controlled: Do not connect any electronically-controlled pumps or pumps with three-phase motors.

#### Inputs and outputs of control console RK-SC-HK-2

Sensors	(temperature sensor and volume flow encoder)	Actuators (pumps and control valves)	
Des.	Name	Des.	Name
S1	Heating circuit 1 flow sensor	A1	Buffer alarm signal*
S2	Heating circuit 2 flow sensor	A2	Drinking water heating alarm signal*
<b>S</b> 3	Heating circuit 3 flow sensor	A3	Mixer for heating circuit 3 (open)
S4	Unused	A4	Mixer for heating circuit 3 (closed)
<b>S</b> 5	Unused	A5	Pump for heating circuit 1
<b>S</b> 6	Unused/FW return display**	A6	Pump for heating circuit 3
S7	Unused	A7	Boiler alarm signal*
<b>S</b> 8	Exhaust temperature sensor (optional)	<b>A8</b>	Mixer for heating circuit 1 (open)
<b>S</b> 9	Unused	A9	Mixer for heating circuit 1 (closed)
<b>S1</b> 0	Outdoor temperature sensor	A10	Mixer for heating circuit 2 (open)
S11	Unused	A11	Mixer for heating circuit 2 (closed)
S12	Unused	A12	Heating requirement signal for boiler, floating or 230 V~
<b>S1</b> 3	Unused	A13	Pump for heating circuit 2
S14	Unused	A14	Data transfer signal
<b>S1</b> 5	Volume flow encoder, heating circuits (optional)	A15	Analogue 0-10 V signal (boiler tempera- ture/performance)
<b>S1</b> 6	Unused	CAN BUS	Connection with fresh water station controller

\* Outputs speed-controlled: Do not connect any electronically-controlled pumps or pumps with three-phase motors.

\*\* Only applicable for heat generators = district heating (FW)

#### 4 Heating systems up to 200 kW heating load

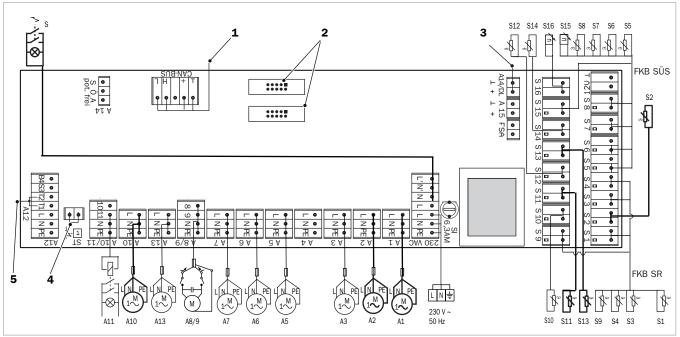


Fig. 49: Mains module of control console SC-FWS

- 1 CAN BUS (communication interface)
- 2 Ribbon cable for control unit
- 3 Data line (for the data logger, for example)
- 4 Terminal ST open = A12 floating
- 5 A12 = 230 V~ if the jumper is on terminal ST

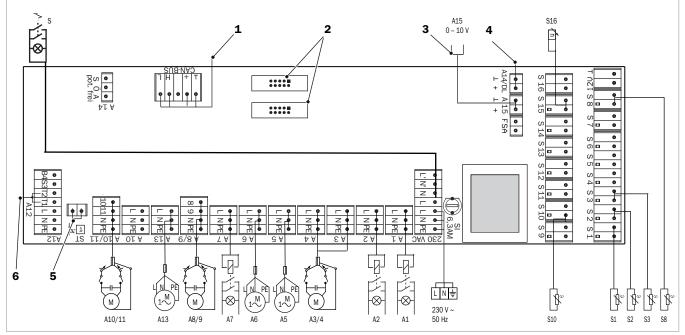


Fig. 50: Mains module of control console RK-SC-HK-2

- 1 CAN BUS (communication interface)
- 2 Ribbon cable for control unit
- 3 Analogue signal (flow temperature/performance setpoint)
- 4 Data line (for the data logger, for example)
- 5 Terminal ST open = A12 floating
- 6 A12 = 230 V~ if the jumper is on terminal ST

# 4.10.2 System diagram of a system with one storage tank

#### Connections

From		То	
Component	Connec- tion	Connec- tion	Component
	1	1	FWS fresh water station, flow HW-PHE <sup>(1)</sup>
	2*	WV	Heat generator, flow <sup>(2)</sup>
	3*	10	FWS fresh water station, return $CB^{(1)}$
	4*	HV	Heating circuit(s), flow <sup>(2)</sup>
SR-xxx	5*	WR	Heat generator, return <sup>(2)</sup>
SolvisStrato	6*	HR	Heating circuit(s), return <sup>(2)</sup>
	7*	2	FWS fresh water station, return HW-PHE <sup><math>(1)</math></sup>
	С	BM	Admixture to the heat generator return and drain valve $(on-site)^{(3)}$
	E	SV	Solar transfer station, flow <sup>(4)</sup>
	F	SR	Solar transfer station, return <sup>(4)</sup>
SolvisControl SC-FWS	Sensor S12	Immersion tube	Flow near the heat generator
Drinking water network	TWK	3	FWS fresh water station, drinking water cold
Drinking water network	TWZ	4	FWS fresh water station, drinking water circulation
Drinking water network	TWW	5	FWS fresh water station, drinking water hot

\* Installation of a charging lance required

<sup>(1)</sup> For dimensions, see installation instructions P45

 $^{(2)}\,$  Dimensions: up to 100 kW DN32 and up to 200 kW DN40  $\,$ 

 $^{(3)}\,$  Connection to the fast mixing value on control output A8/A9  $\,$ 

(up to 120 kW: Kvs = 10; up to 200 kW: Kvs = 14) <sup>(4)</sup> Dimensions such as piping of the primary circuit

#### Abbreviations

Abbreviations		Modules:	
BM SiV SR SV TWK TWW TWK WR	Admixture to the heat generator return Safety valve Solar return Solar flow Drinking water network, cold connection Drinking water network, warm connection Drinking water network, circulation connection Heat generator return	SK BLL FWS-xx HK SR-xxx MAG SOL	Non-modulating gas, oil or pellet boiler (on- site) Charging lance Fresh water station Heating circuit(s) (on-site) SolvisStrato stratified buffer tank Membrane expansion vessel (on-site) Solar pressure compensation vessel
WV	Heat generator flow	SÜS-xx SV-SOL V	Solar heat transfer station Solar safety valve Volume flow adjusting valve

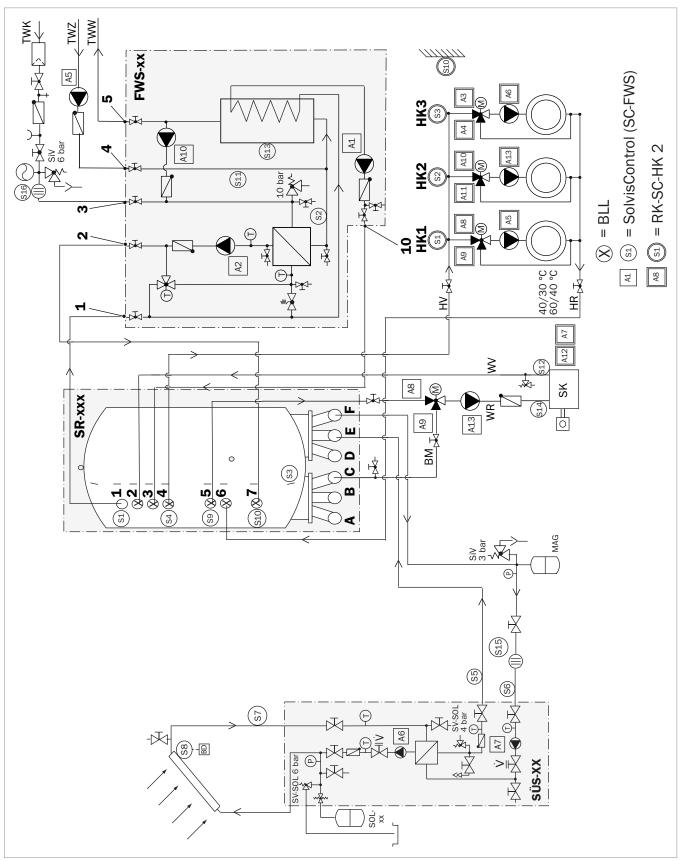


Fig. 51: SolvisVital 2 with non-modulating gas, oil or pellet boiler as well as a storage tank and solar system

### 4.10.3 System diagram of a system with two storage tanks

#### Connections

From		То	
Component	Connec- tion	Connec- tion	Component
	1	1	FWS fresh water station, flow HW-PHE (1)
	3*	WV	Heat generator, flow <sup>(2)</sup>
	4*	HV	Heating circuit(s), flow <sup>(2)</sup>
	7*	WR	Heat generator, return <sup>(2)</sup>
1. SR-xxx	В	10	FWS fresh water station, return $CB^{(1)}$
SolvisStrato, storage tank 1	с	3*	Storage tank SR2, connection 3* and drain valve (on-site, DN40)
	E	1/SV	Storage tank SR2, connection $1^{(5)}$ and solar heat transfer station, $flow^{(4)}$
	F	HR	Heating circuit(s), return <sup>(2)</sup>
	7*	2	FWS fresh water station, return HW-PHE <sup>(1)</sup>
2. SR-xxx SolvisStrato, storage tank 2	с	ВМ	Admixture to the heat generator return and drain valve (on-site)^{(3)}
	F	SR	Solar transfer station SÜS-xx, return <sup>(4)</sup>
SolvisControl SC-FWS	Sensor S12	Immersion tube	Flow near the heat generator
Drinking water network	TWK	3	FWS fresh water station, drinking water cold
Drinking water network	TWZ	4	FWS fresh water station, drinking water circulation
Drinking water network	TWW	5	FWS fresh water station, drinking water hot

\* Installation of a charging lance required

<sup>(1)</sup> For dimensions, see installation instructions P45 <sup>(2)</sup> Dimensions: up to 100 kW DN32 and up to 200 kW DN40

<sup>(3)</sup> Connection to the fast mixing valve on control output A8/A9

(up to 120 kW: Kvs = 10; up to 200 kW: Kvs = 14)

<sup>(4)</sup> Dimensions such as piping of the primary circuit

<sup>(5)</sup> Pump A3 maximum 2,000 l/h

#### Abbreviations

Abbreviations		Modules:	
BM	Admixture to the heat generator return	SK	Non-modulating gas, oil or pellet boiler (on-
SiV	Safety valve		site)
SR	Solar return	BLL	Charging lance
SV	Solar flow	FWS-xx	Fresh water station
TWK	Drinking water network, cold connection	HK	Heating circuit(s) (on-site)
TWW	Drinking water network, warm connection	SR-xxx	SolvisStrato stratified buffer tank
TWK	Drinking water network, circulation connection	MAG	Membrane expansion vessel (on-site)
WR	Heat generator return	SOL	Solar pressure compensation vessel
WV	Heat generator flow	SÜS-xx	Solar heat transfer station
	-	SV-SOL	Solar safety valve
		Ý	Volume flow adjusting valve

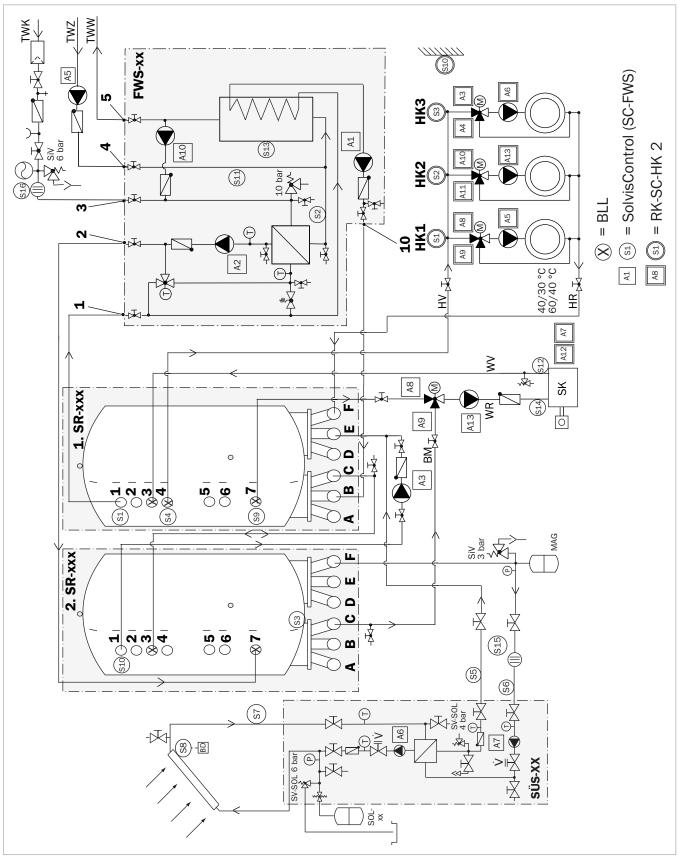


Fig. 52: SolvisVital 2 with non-modulating gas, oil or pellet boiler as well as two storage tanks and solar system

# 5 Appendix

# 5.1 Hydraulic elements

#### Valves

Symbol	Meaning
-P	Manometer
	Thermometer

#### Components

Symbol		Meaning	
Ø	$\ominus$	Membrane expansion vessel	
	$\sim$	Membrane expansion vessel coupling	
0	╞	Oil or gas burner	
~		Solar collector	
-@	)—	Consumers in the heating circuit	
WR ¥	∱ WV VE	Heat generator, general (WR/V = heat re- turn/flow)	
		Heat exchanger	

#### Valves

Valves		
Symbol	Meaning	
-Z-	Shut-off valve	
→ ₩	Adjusting valve	
Ŷ	Bleeding valve	
$\uparrow$	Air separator	
	Motor-driven mixing valve	
-2-	Gravity brake	
	Safety valve	
	Thermostatic mixing valve	

#### **Other components**

Symbol	Meaning
Ϋ́	Connection point for measurement and control equipment
	Pressure controller, solar circuit
	Volume flow encoder
-••-	Pump
	Sludge separator
-2-	Filter, drinking water

# 5.2 Electrical switching symbol

#### Actuators

Symbol	Meaning
A8	Actuator, general (pump/control valve/mixing valve/connection)
M	Servomotor (e.g. on the three-way mixing valve)
	ZLE+++ motor (e.g. of a pump)
<u></u>	Switching module (alarm generator)

#### Sensors

Symbol	Meaning
<u>(58)</u>	Sensor, general (temperature sensor, volume flow encoder, etc.)
fn	Volume flow encoder
	Temperature sensor

#### **Other components**

Symbol	Meaning
U	Jumper
- <u>\$</u> 4s	On/off switch (button with lock function)
SI 6,3AM	Fuse, 6.3 A semi time-lag (upright view)