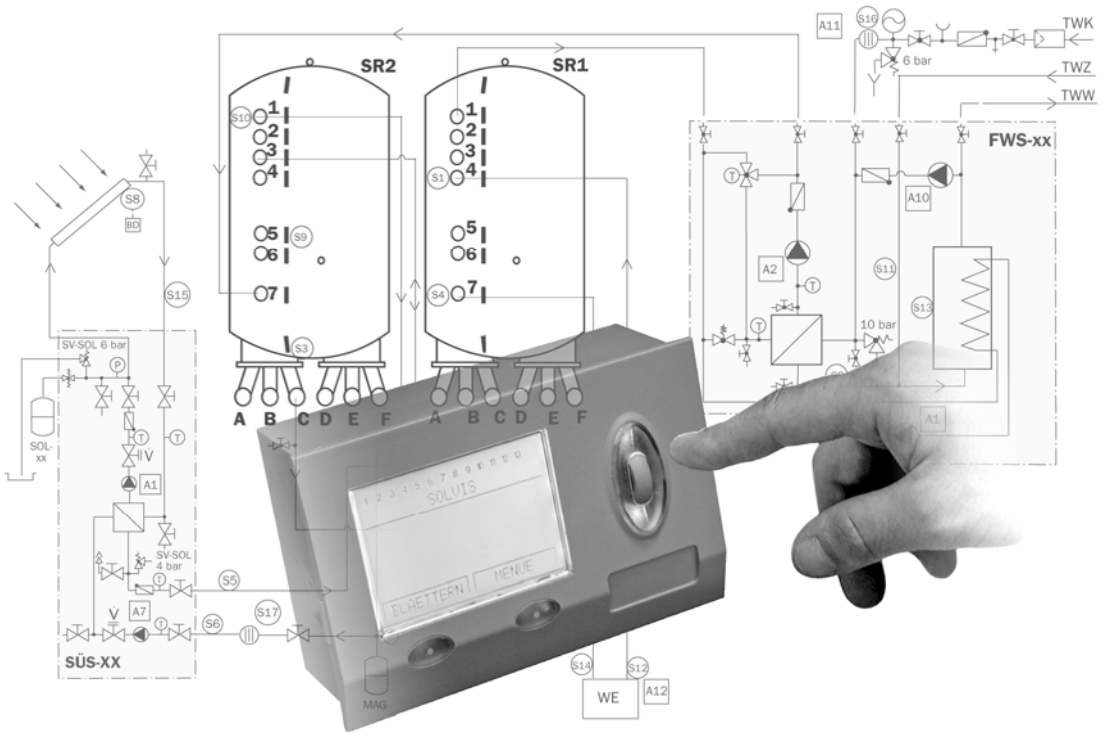
SolvisVital 2 – Connection and System Diagrams



	Art. Nr.: 21511	**P 38-EN**	Subject to technical changes 09.10 / 21511-3

Contents

1 Information about these Instructions 3

2 Notes 4

2.1 Safety notes 4
2.2 System overview 4
2.3 Application areas 4
2.4 Overview of the systems 5

3 Hygienic drinking water heating up to 126 l/min 6

3.1 Constant usage profile 6
3.2 Constant usage profile with solar connection 12
3.3 Usage profile characterised by great fluctuations 18
3.4 Usage profile characterised by great fluctuations with solar connection 24

4 Heating systems up to 200 kW heating load 30

4.1 Modulating gas/oil boiler 30
4.2 Modulating gas/oil boiler with solar connection 36
4.3 District heating 42
4.4 District heating with solar connection 48
4.5 Modulating gas/oil boiler with BHKW or FBK 54
4.6 Local heating with solar connection 60
4.7 BHKW or FBK 66
4.8 BHKW or FBK with solar connection 72
4.9 Non-modulating low-temperature or standard boilers 78
4.10 Non-modulating low-temperature or standard boilers with solar connection 84

5 Appendix 90

5.1 Hydraulic elements 90
5.2 Electrical switching symbol 91

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.

Interested system operators should contact their installers.

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 heating***	***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 storage tanks*	*Starting on page*
Hygienic drinking water heating Up to 126 l/min or 480 kW, user-defined heat generator and energy carrier	**Constant usage**, suitable for multi-family homes, hotels, conference venues, care facilities or residence halls	Optional	1	*6*
			2	*10*
		Already provided	1	*12*
			2	*16*
	Usage profile characterised by great fluctuations, suitable for sport facilities or showers in commercial production	Optional	1	*18*
			2	*22*
		Already provided	1	*24*
			2	*28*
Heating systems Up to 200 kW heating load, constant usage profile, suitable for multi-family homes, hotels, conference venues, long-term care facilities or residence halls **Hygienic drinking water heating** Up to 126 l/min or 480 kW	**Modulating boiler (gas/oil)**, 0-10 V interface; suitable for utilisation of useful heat	Optional	1	*30*
			2	*34*
		Already provided	1	*36*
			2	*40*
	District heating, with 0-10 V signal to control the temperature (on-site power controller required)	Optional	1	*42*
			2	*46*
		Already provided	1	*48*
			2	*52*
	Modulating boiler (gas/oil) plus BHKW or solid fuel boiler (wood), 0-10 V interface; suitable for utilisation of useful heat, BHKW self-regulated	Optional	1	*54*
			2	*58*
	Local heating, decentralised solar-assisted systems are shown	Already provided	1	*60*
			2	*64*
	BHKW or solid fuel boiler (gas/oil/wood), BHKW self-regulated; systems with solid fuel boilers must be designed with correspondingly high HW standby volumes (due the longer startup delay); provision must be made for assigning responsibility to personnel	Optional	1	*66*
			2	*70*
		Already provided	1	*72*
			2	*76*
	Non-modulating low-temperature or standard boilers (gas/oil/pellets), systems with pellet boilers must be designed with correspondingly high HW standby volumes (due to the longer startup delay); it is often a good solution to use two storage tanks.	Optional	1	*78*
			2	*82*
		Already provided	1	*84*
			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 (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*
S3	Storage tank reference sensor	**A3**	Pump transfer (for systems with two storage tanks)
S4	Hot water buffer sensor	**A4**	Unused
S5	Unused	**A5**	Circulation pump
S6	Unused	**A6**	Unused
S7	Unused	**A7**	Unused
S8	Unused	**A8**	Mixer return (open)
S9	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
S13	Middle tank sensor	**A13**	Charge pump*
S14	Heat generator return sensor	**A14**	Data transfer signal
S15	Unused	**A15**	(Unused)
S16	Drinking water volume flow encoder	**CAN bus**	(Unused)

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

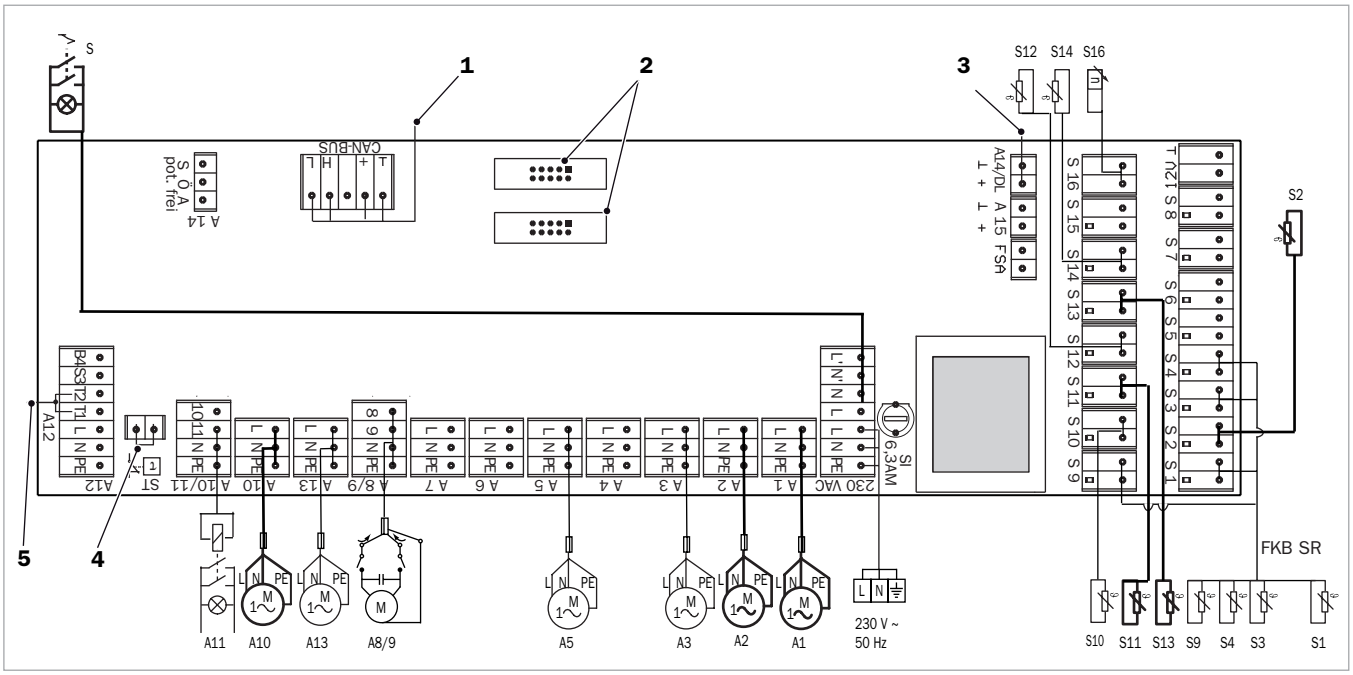


Fig. 1: Mains module of control console SC-FWS

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~ if the jumper is on terminal ST*

3.1.2 System diagram of a system with one storage tank

Connections

From...		*To...*	
Component	***Connection***	***Connection***	***Component***
SR-xxx SolvisStrato	1	1	FWS fresh water station, flow HW-PHE (1)
	2*	WV	Heat generator, flow(2)
	3*	10	FWS fresh water station, return CB(1)
	5*	WR	Heat generator, return(2)
	7*	2	FWS fresh water station, return HW-PHE(1)
	C	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*
(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:

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

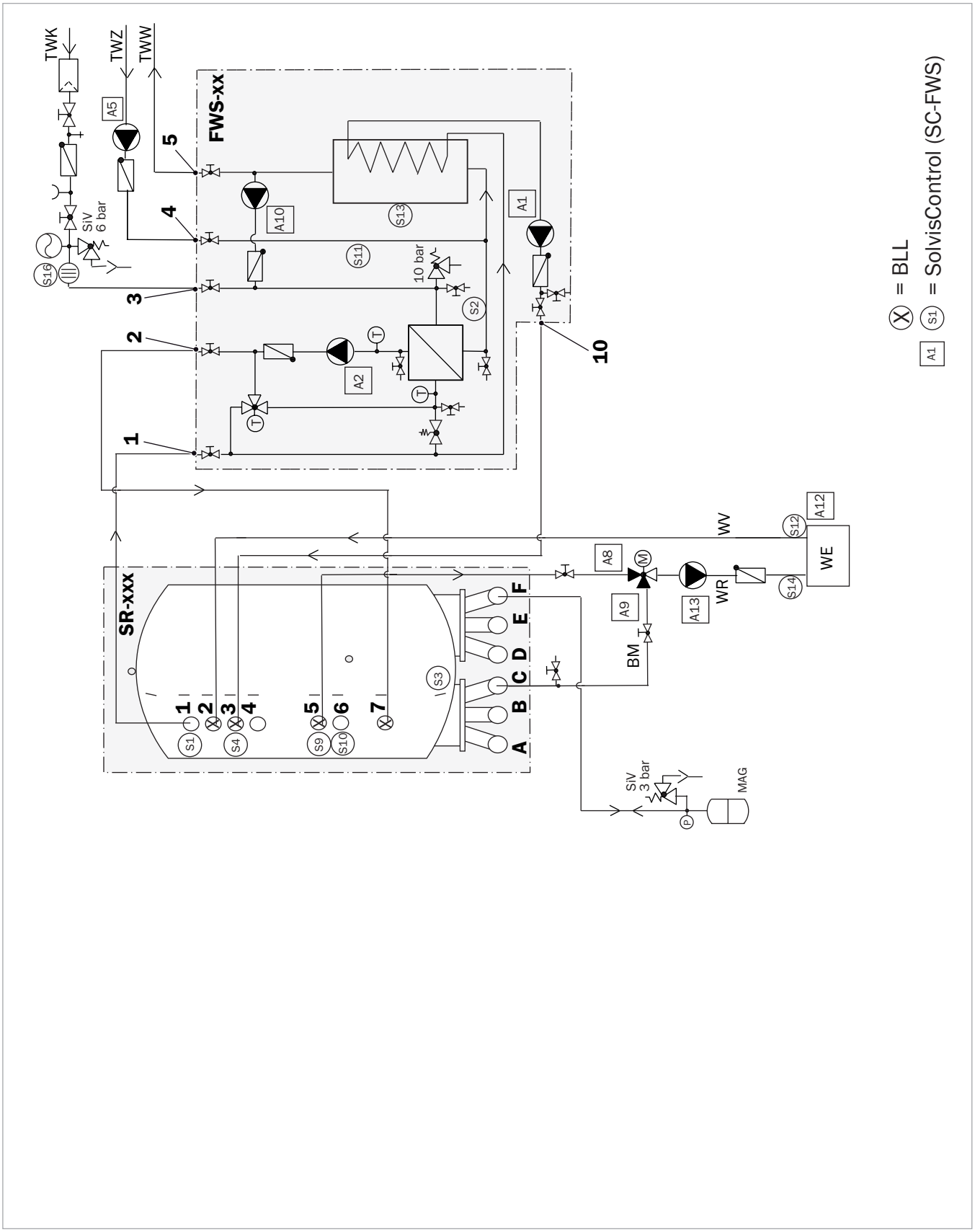


Fig. 2: SolvisVital 2 drinking water heating with heat generator and storage tank

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...		*To...*	
Component	***Connection***	***Connection***	***Component***
1. SR-xxx SolvisStrato, storage tank 1	1	1	FWS fresh water station, flow HW-PHE (1)
	4*	WV	Heat generator, flow(2)
	7*	WR	Heat generator, return(2)
	B	10	FWS fresh water station, return CB(1)
	C	1	Storage tank SR2, connection 1 and drain valve (on-site, DN40)
2. SR-xxx SolvisStrato, storage tank 2	7*	2	FWS fresh water station, return HW-PHE(1)
	C	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*
(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:

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

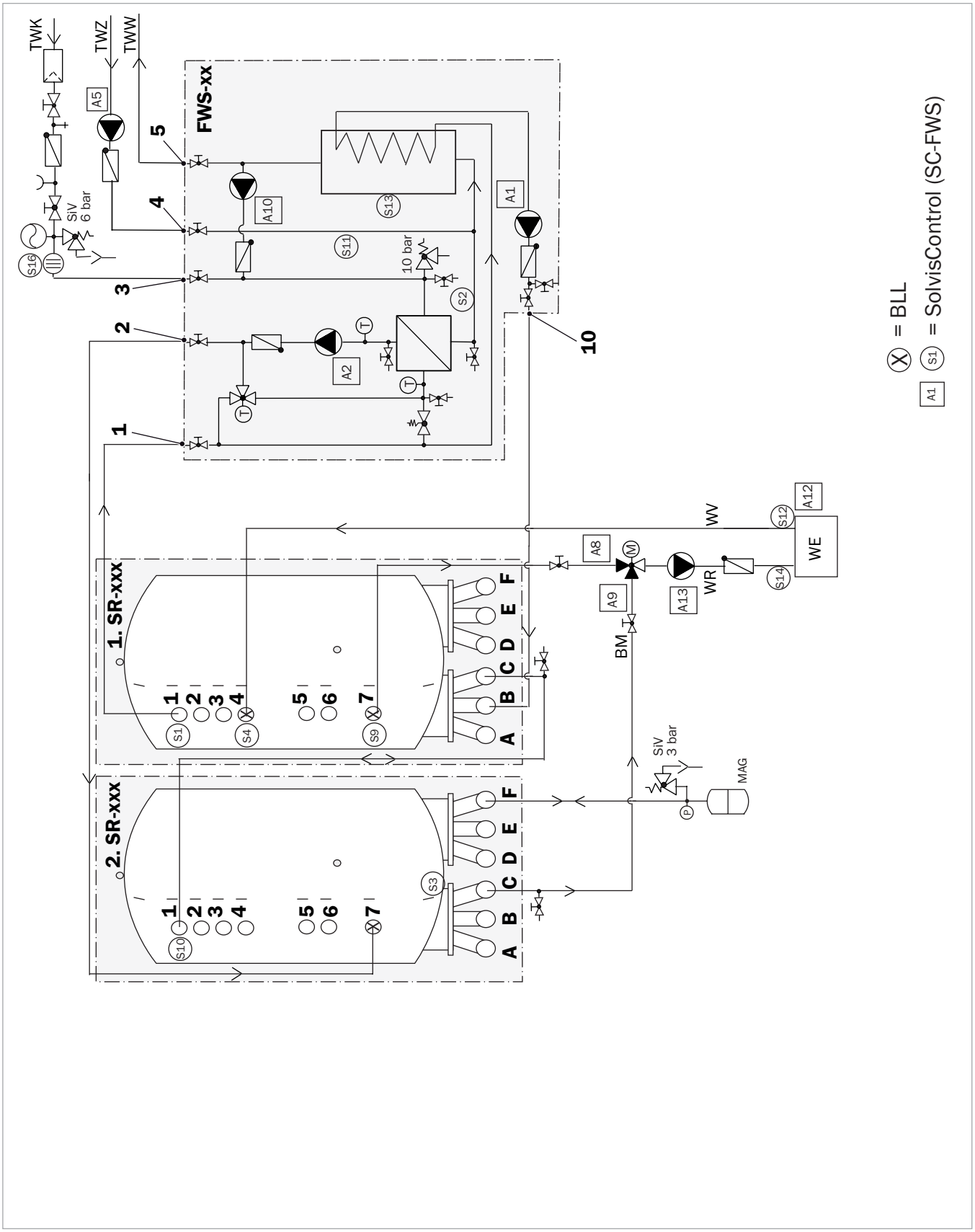


Fig. 3: SolvisVital 2 drinking water heating with heat generator and two storage tanks

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***
S1	Top buffer sensor	**A1**	Load pump*
S2	Hot water sensor	**A2**	Hot water production pump*
S3	Storage tank reference sensor	**A3**	Pump transfer (for systems with two storage tanks)
S4	Hot water buffer sensor	**A4**	Unused
S5	Solar flow sensor, secondary	**A5**	Circulation pump
S6	Solar return sensor, secondary	**A6**	Solar circuit pump, primary*
S7	Solar flow sensor, primary	**A7**	Solar circuit pump, secondary*
S8	Solar collector sensor	**A8**	Mixer return (open)
S9	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
S13	Middle tank sensor	**A13**	Charge pump*
S14	Heat generator return sensor	**A14**	Data transfer signal
S15	Solar circuit volume flow encoder (e.g. VSG-S-2,5)	**A15**	Unused
S16	Drinking water volume flow encoder	**CAN bus**	(Unused)

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

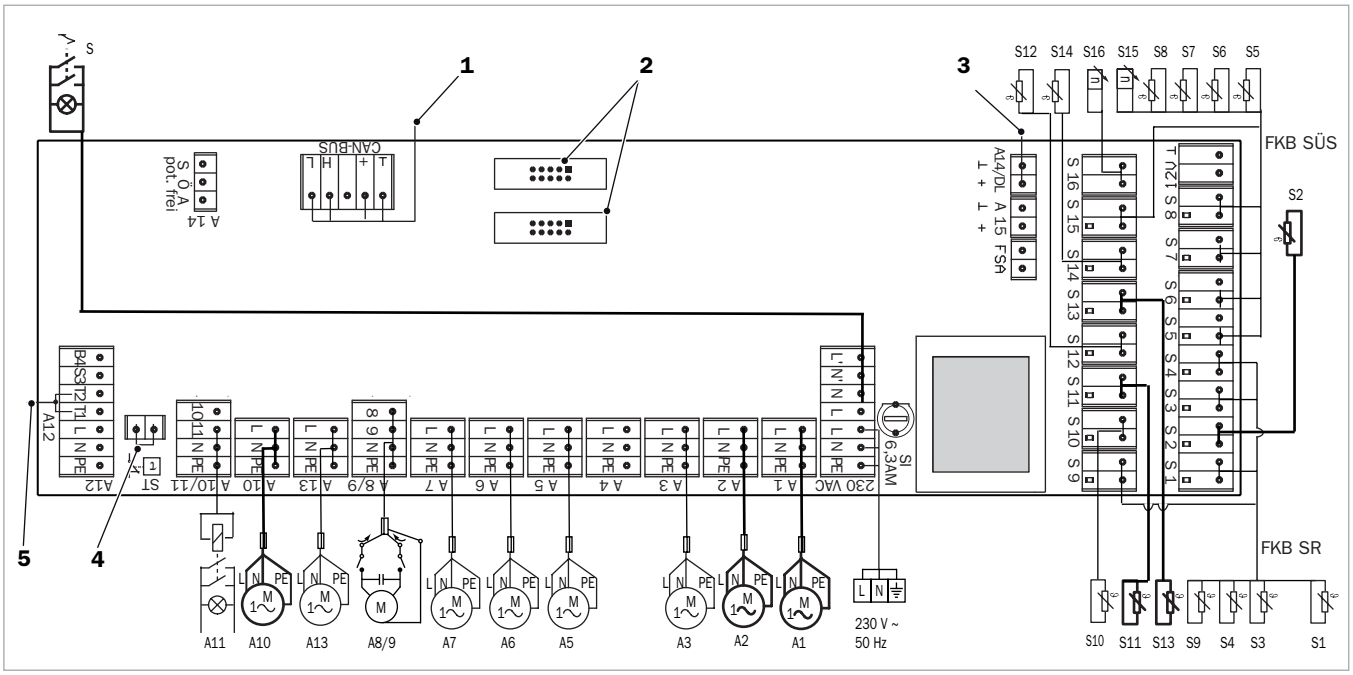


Fig. 4: Mains module of control console SC-FWS

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~ if the jumper is on terminal ST*

3.2.2 System diagram of a system with one storage tank

Connections

From...		*To...*	
Component	***Connection***	***Connection***	***Component***
SR-xxx SolvisStrato	1	1	FWS fresh water station, flow HW-PHE (1)
	2*	WV	Heat generator, flow(2)
	3*	10	FWS fresh water station, return CB(1)
	5*	WR	Heat generator, return(2)
	7*	2	FWS fresh water station, return HW-PHE(1)
	C	BM	Admixture to the heat generator return and drain valve (on-site)(3)
	E	SV	Solar heat transfer station, flow(4)
	F	SR	Solar heat transfer station, return(4)
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*
(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*

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*

Modules:

Residential units	*Heat generator (on-site)*
BLL	*Charging lance*
FWS-xx	*Fresh water station*
HK	*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*
V̇	*Volume flow adjusting valve*

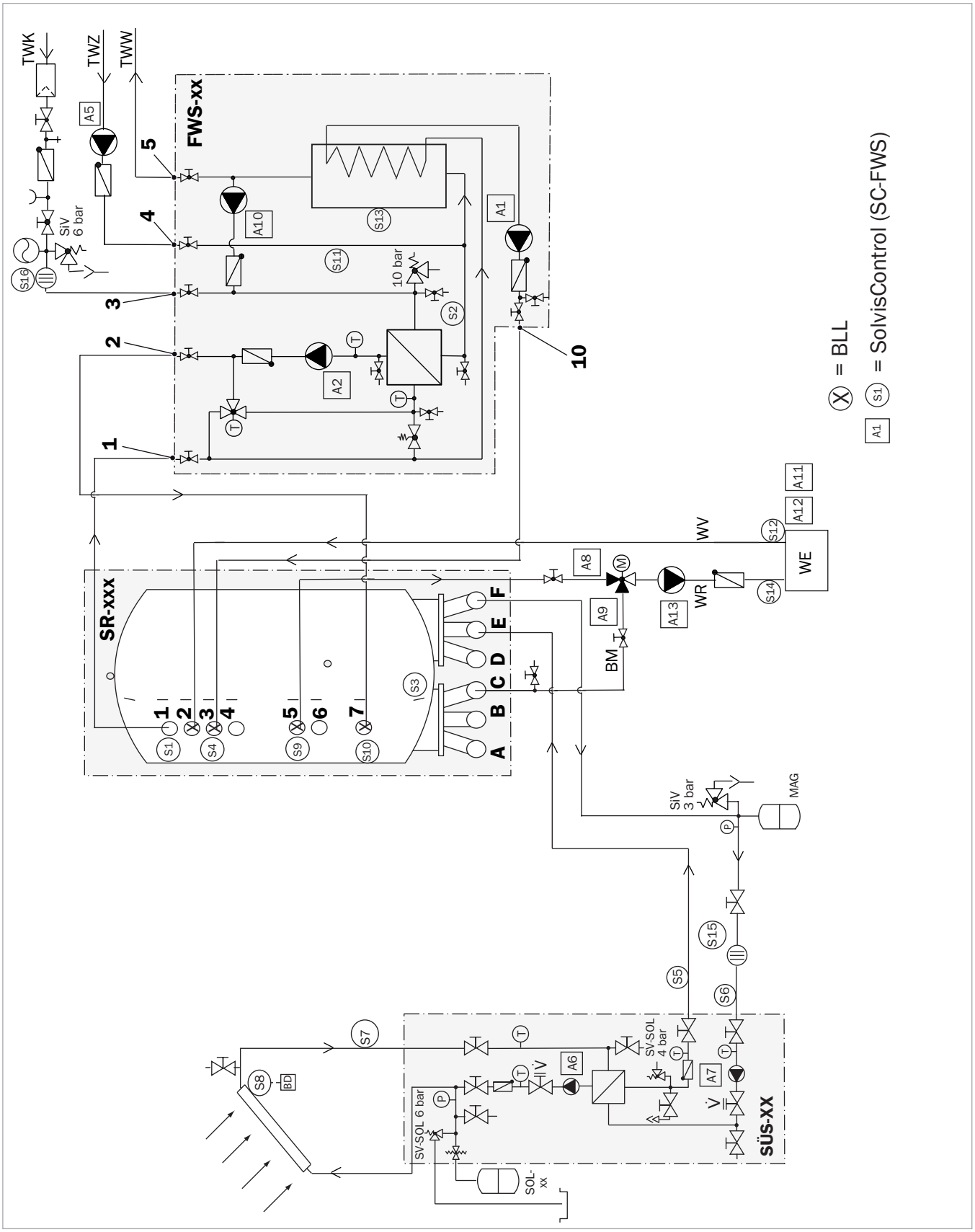


Fig. 5: SolvisVital 2 drinking water heating with heat generator, storage tank and solar system

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...		*To...*	
Component	***Connection***	***Connection***	***Component***
1. SR-xxx SolvisStrato, storage tank 1	1	1	FWS fresh water station, flow HW-PHE (1)
	4*	WV	Heat generator, flow(2)
	7*	WR	Heat generator, return(2)
	B	10	FWS fresh water station, return CB(1)
	C	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)
2. SR-xxx SolvisStrato, storage tank 2	7*	2	FWS fresh water station, return HW-PHE(1)
	C	BM	Admixture to the heat generator return and drain valve (on-site)(3)
	F	SR	Solar transfer station SÜS-xx, return(4)
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*
(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*
(5) *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*

Modules:

Residential units	*Heat generator (on-site)*
BLL	*Charging lance*
FWS-xx	*Fresh water station*
HK	*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*
V̇	*Volume flow adjusting valve*

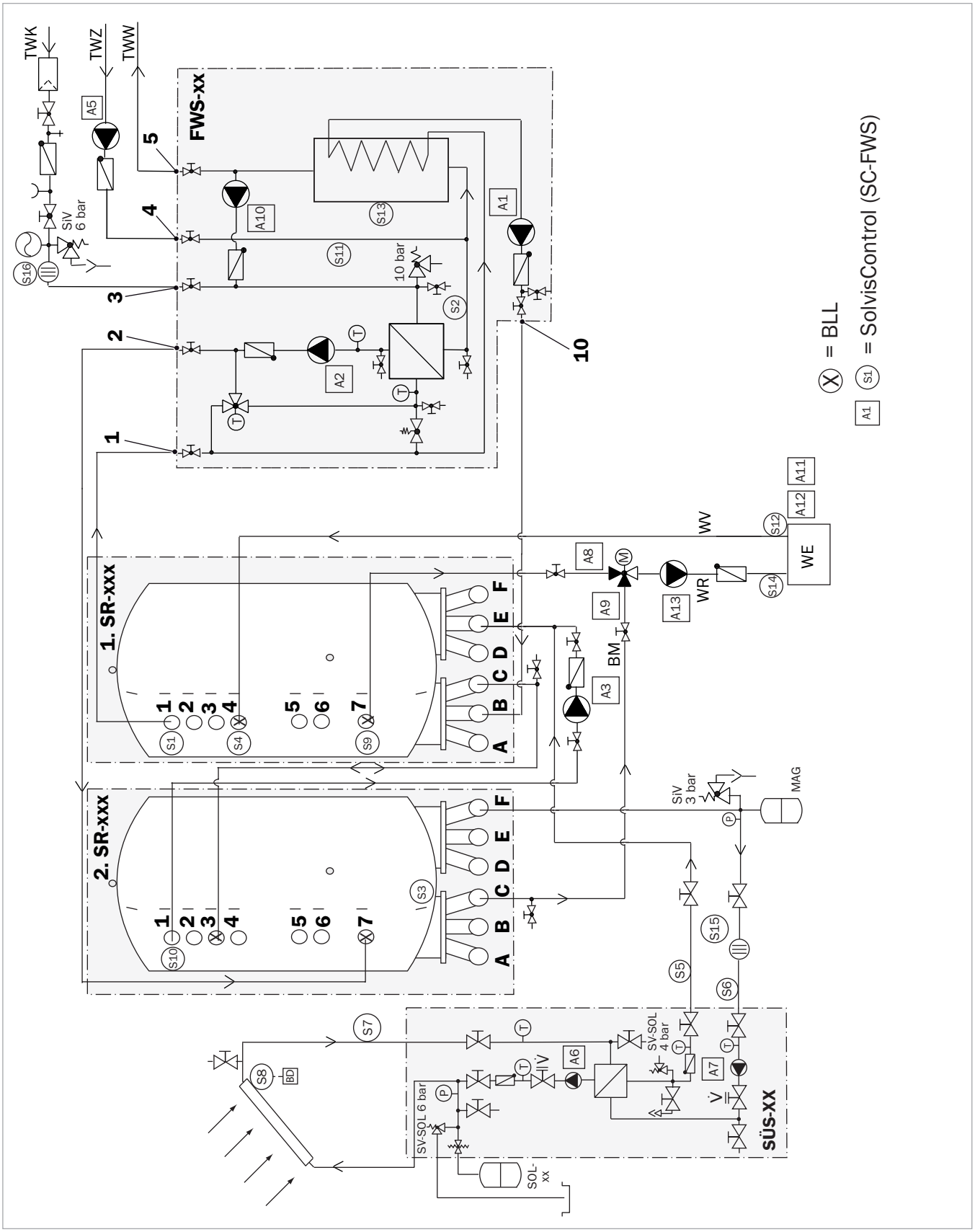


Fig. 6: SolvisVital 2 drinking water heating with heat generator, two storage tanks and solar system

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 (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*
S3	Storage tank reference sensor	**A3**	Pump transfer (for systems with two storage tanks)
S4	Hot water buffer sensor	**A4**	Unused
S5	Unused	**A5**	Circulation pump
S6	Unused	**A6**	Unused
S7	Unused	**A7**	Unused
S8	Unused	**A8**	Mixer return (open)
S9	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
S13	Middle tank sensor	**A13**	Charge pump*
S14	Heat generator return sensor	**A14**	Data transfer signal
S15	Unused	**A15**	(Unused)
S16	Drinking water volume flow encoder	**CAN bus**	(Unused)

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

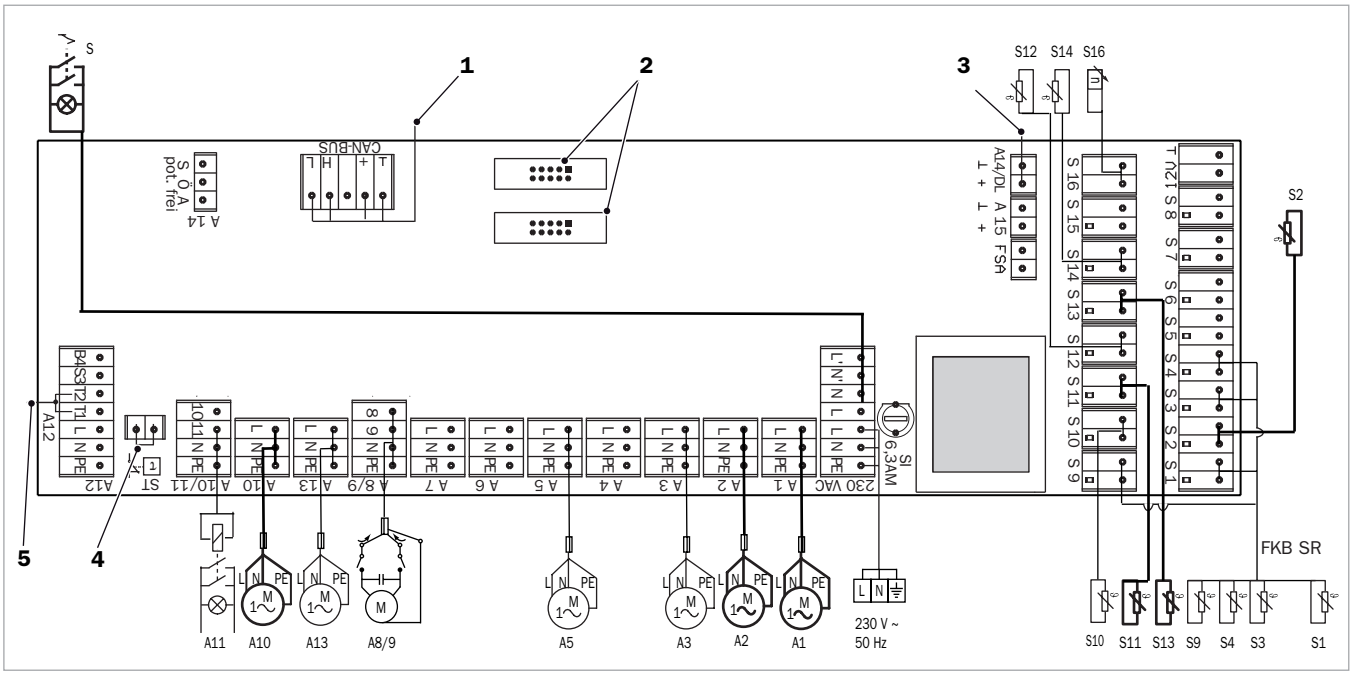


Fig. 7: Mains module of control console SC-FWS

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~ if the jumper is on terminal ST*

3.3.2 System diagram of a system with one storage tank

Connections

From...		*To...*	
Component	***Connection***	***Connection***	***Component***
SR-xxx SolvisStrato	1	1	FWS fresh water station, flow HW-PHE (1)
	2*	WV	Heat generator, flow(2)
	3*	10	FWS fresh water station, return CB(1)
	5*	WR	Heat generator, return(2)
	7*	2	FWS fresh water station, return HW-PHE(1)
	C	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*
(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:

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

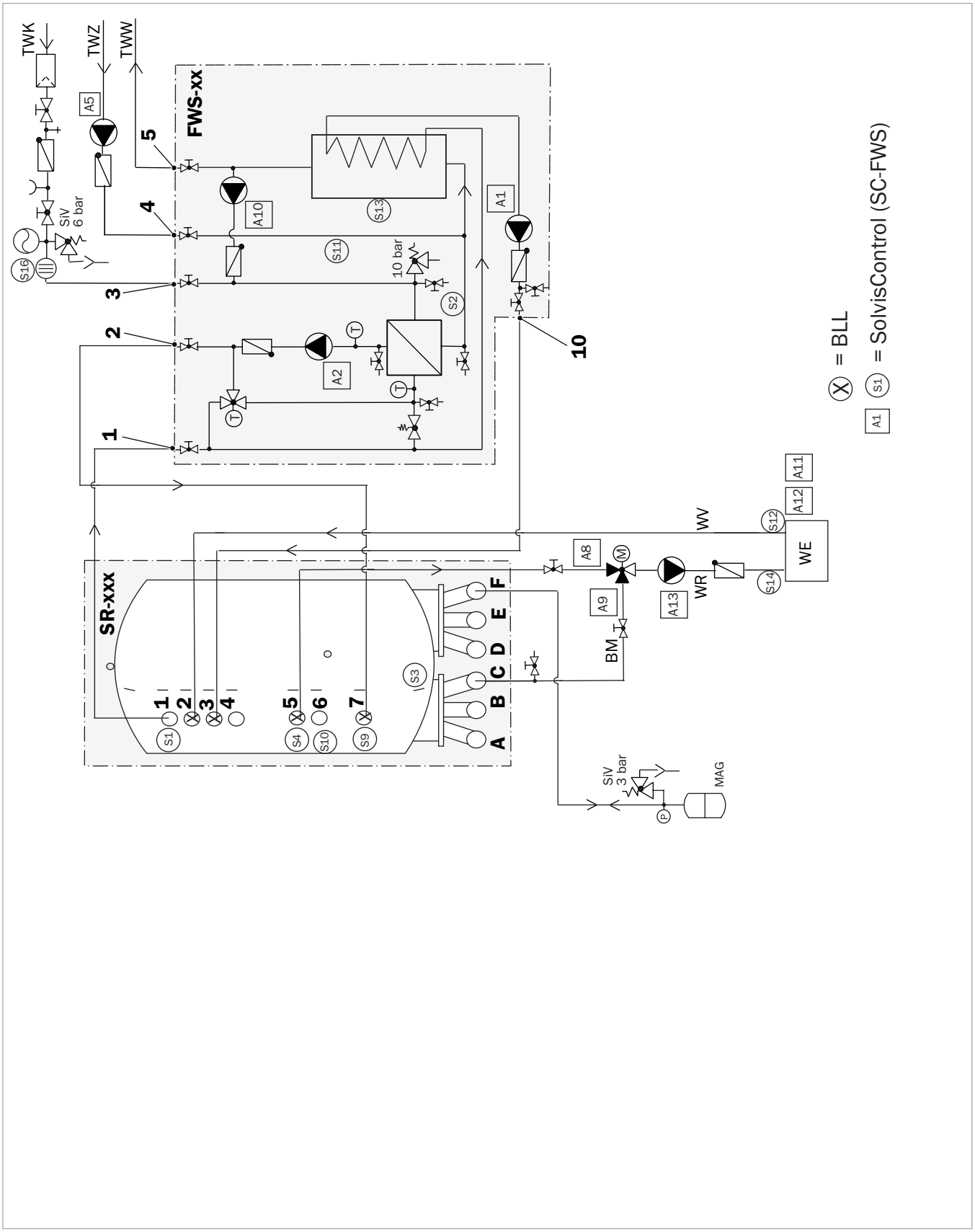


Fig. 8: SolvisVital 2 drinking water heating with heat generator and storage tank

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...		*To...*	
Component	***Connection***	***Connection***	***Component***
1. SR-xxx SolvisStrato, storage tank 1	1	1	FWS fresh water station, flow HW-PHE (1)
	4*	WV	Heat generator, flow(2)
	7*	WR	Heat generator, return(2)
	B	10	FWS fresh water station, return CB(1)
	C	1	Storage tank SR2, connection 1 and drain valve (on-site, DN40)
2. SR-xxx SolvisStrato, storage tank 2	7*	2	FWS fresh water station, return HW-PHE(1)
	C	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*

(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:

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

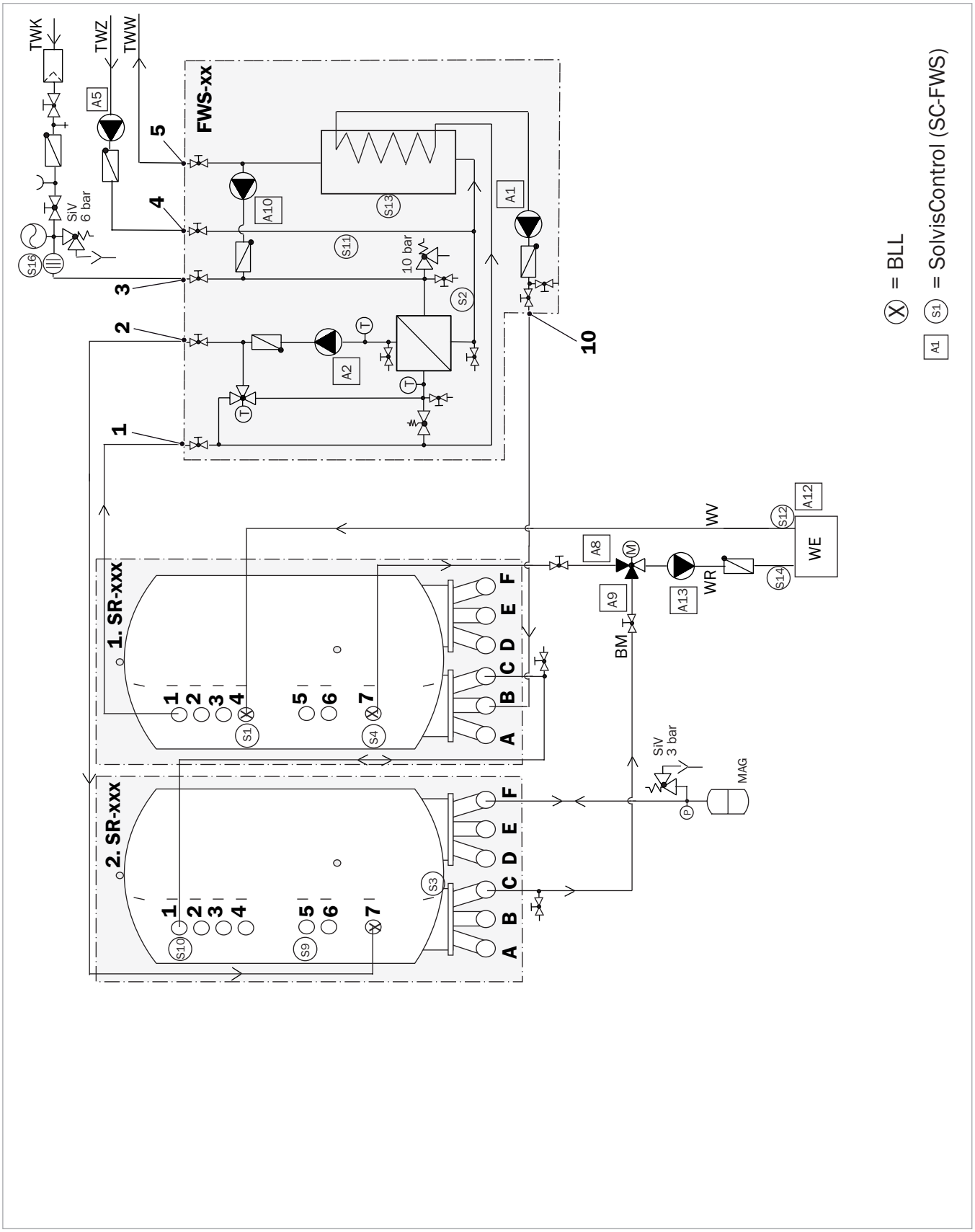


Fig. 9: SolvisVital 2 drinking water heating with heat generator and two storage tanks

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***
S1	Top buffer sensor	**A1**	Load pump*
S2	Hot water sensor	**A2**	Hot water production pump*
S3	Storage tank reference sensor	**A3**	Pump transfer (for systems with two storage tanks)
S4	Hot water buffer sensor	**A4**	Unused
S5	Solar flow sensor, secondary	**A5**	Circulation pump
S6	Solar return sensor, secondary	**A6**	Solar circuit pump, primary*
S7	Solar flow sensor, primary	**A7**	Solar circuit pump, secondary*
S8	Solar collector sensor	**A8**	Mixer return (open)
S9	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
S13	Middle tank sensor	**A13**	Charge pump*
S14	Heat generator return sensor	**A14**	Data transfer signal
S15	Solar circuit volume flow encoder (e.g. VSG-S-2,5)	**A15**	Unused
S16	Drinking water volume flow encoder	**CAN bus**	(Unused)

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

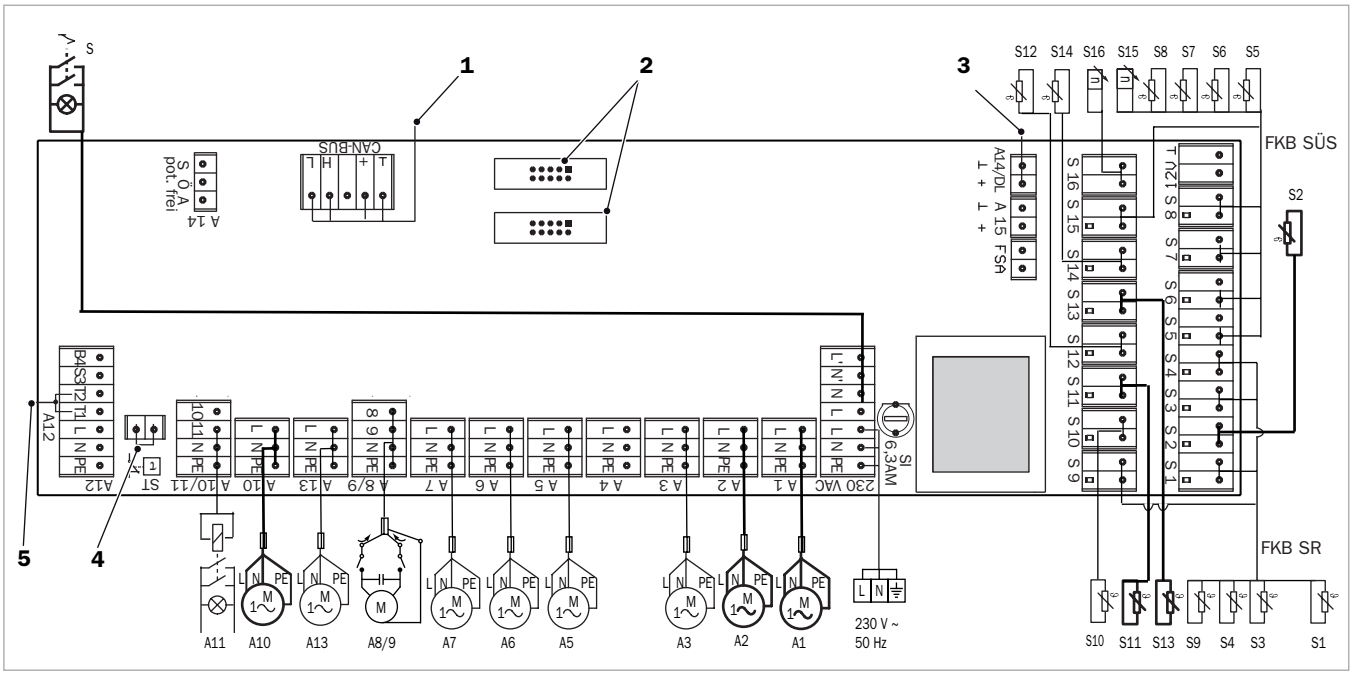


Fig. 10: Mains module of control console SC-FWS

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~ if the jumper is on terminal ST*

3.4.2 System diagram of a system with one storage tank

Connections

From...		*To...*	
Component	***Connection***	***Connection***	***Component***
SR-xxx SolvisStrato	1	1	FWS fresh water station, flow HW-PHE (1)
	2*	WV	Heat generator, flow(2)
	3*	10	FWS fresh water station, return CB(1)
	5*	WR	Heat generator, return(2)
	7*	2	FWS fresh water station, return HW-PHE(1)
	C	BM	Admixture to the heat generator return and drain valve (on-site)(3)
	E	SV	Solar heat transfer station, flow(4)
	F	SR	Solar heat transfer station, return(4)
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*
(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*

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*

Modules:

Residential units	*Heat generator (on-site)*
BLL	*Charging lance*
FWS-xx	*Fresh water station*
HK	*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*
V̇	*Volume flow adjusting valve*

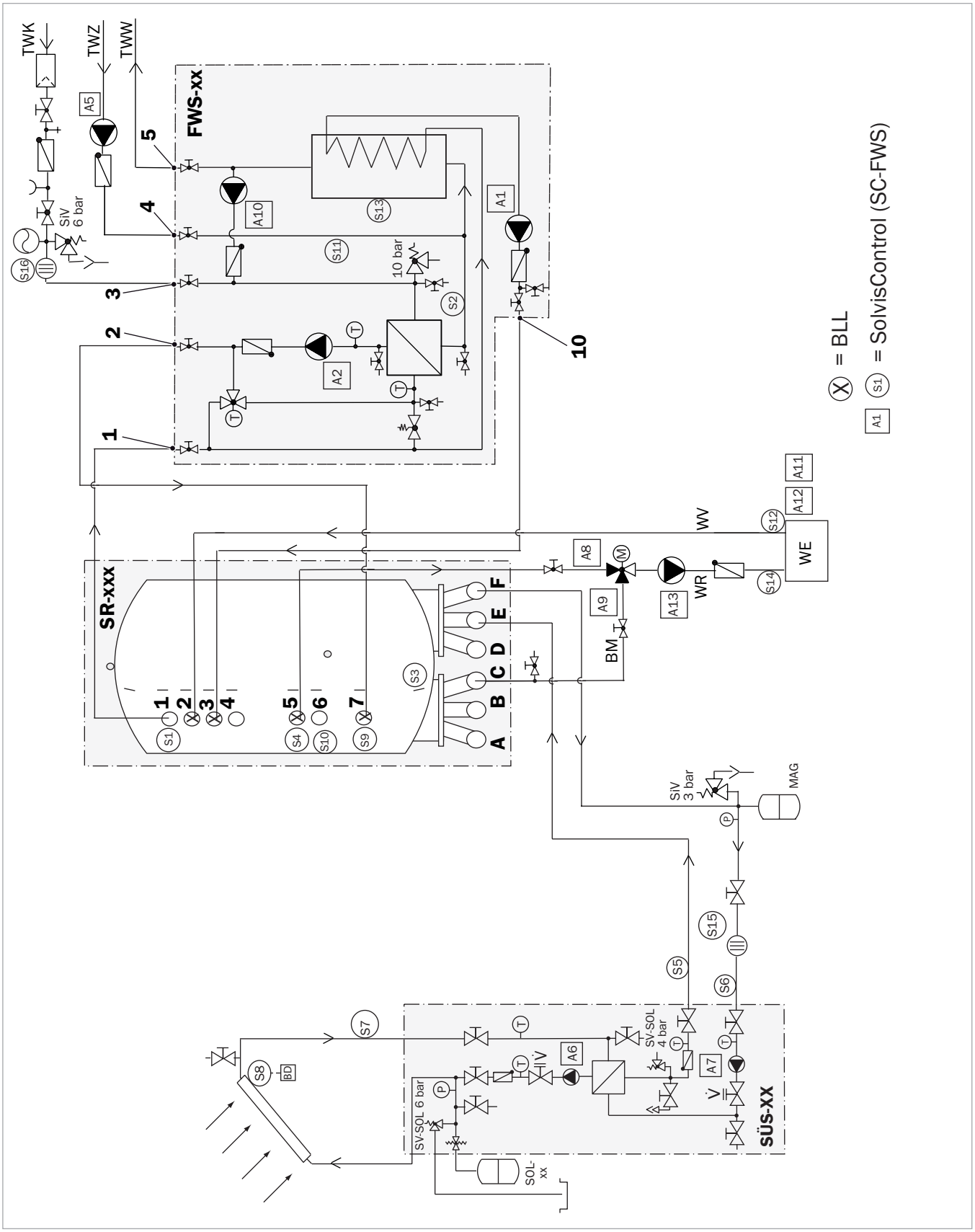


Fig. 11: SolvisVital 2 drinking water heating with heat generator, storage tank and solar system

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...		*To...*	
Component	***Connection***	***Connection***	***Component***
1. SR-xxx SolvisStrato, storage tank 1	1	1	FWS fresh water station, flow HW-PHE (1)
	4*	WV	Heat generator, flow(2)
	7*	WR	Heat generator, return(2)
	B	10	FWS fresh water station, return CB(1)
	C	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)
2. SR-xxx SolvisStrato, storage tank 2	7*	2	FWS fresh water station, return HW-PHE(1)
	C	BM	Admixture to the heat generator return and drain valve (on-site)(3)
	F	SR	Solar transfer station SÜS-xx, return(4)
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*
(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*
(5) *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*

Modules:

Residential units	*Heat generator (on-site)*
BLL	*Charging lance*
FWS-xx	*Fresh water station*
HK	*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*
V̇	*Volume flow adjusting valve*

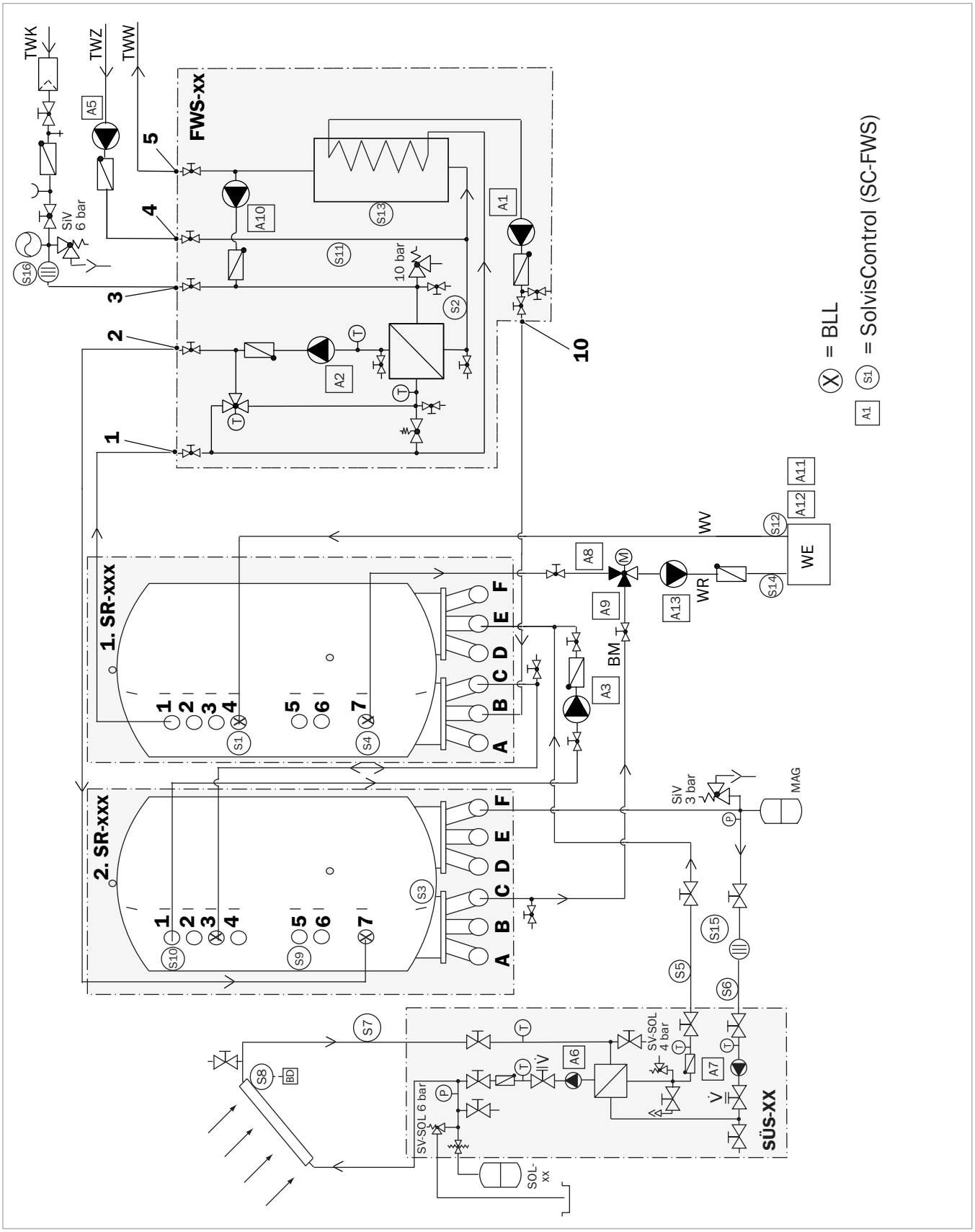


Fig. 12: SolvisVital 2 drinking water heating with heat generator, two storage tanks and solar system

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

4.1.1 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***
S1	Top buffer sensor	**A1**	Load pump*
S2	Hot water sensor	**A2**	Hot water production pump*
S3	Storage tank reference sensor	**A3**	Pump transfer (for systems with two storage tanks)
S4	Hot water buffer sensor	**A4**	Unused
S5	Unused	**A5**	Circulation pump
S6	Unused	**A6**	Unused
S7	Unused	**A7**	Unused
S8	Unused	**A8**	Mixer return (open)
S9	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
S13	Middle tank sensor	**A13**	Charge pump*
S14	Heat generator return sensor	**A14**	Data transfer signal
S15	Unused	**A15**	Unused
S16	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*
S3	Heating circuit 3 flow sensor	**A3**	Mixer for heating circuit 3 (open)
S4	Unused	**A4**	Mixer for heating circuit 3 (closed)
S5	Unused	**A5**	Pump for heating circuit 1
S6	Unused/FW return display**	**A6**	Pump for heating circuit 3
S7	Unused	**A7**	Boiler alarm signal*
S8	Exhaust temperature sensor (optional)	**A8**	Mixer for heating circuit 1 (open)
S9	Unused	**A9**	Mixer for heating circuit 1 (closed)
S10	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~
S13	Unused	**A13**	Pump for heating circuit 2
S14	Unused	**A14**	Data transfer signal
S15	Volume flow encoder, heating circuits (optional)	**A15**	Analogue 0-10 V signal (boiler temperature/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)*

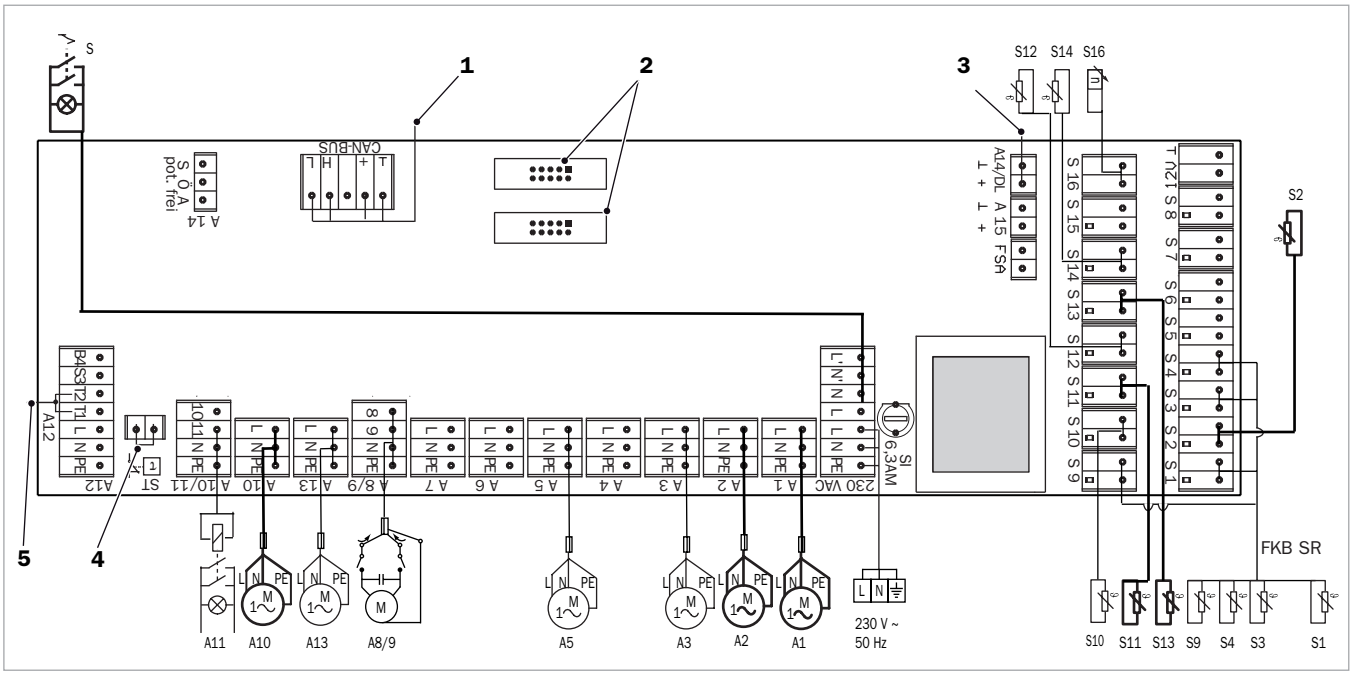


Fig. 13: Mains module of control console SC-FWS

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*

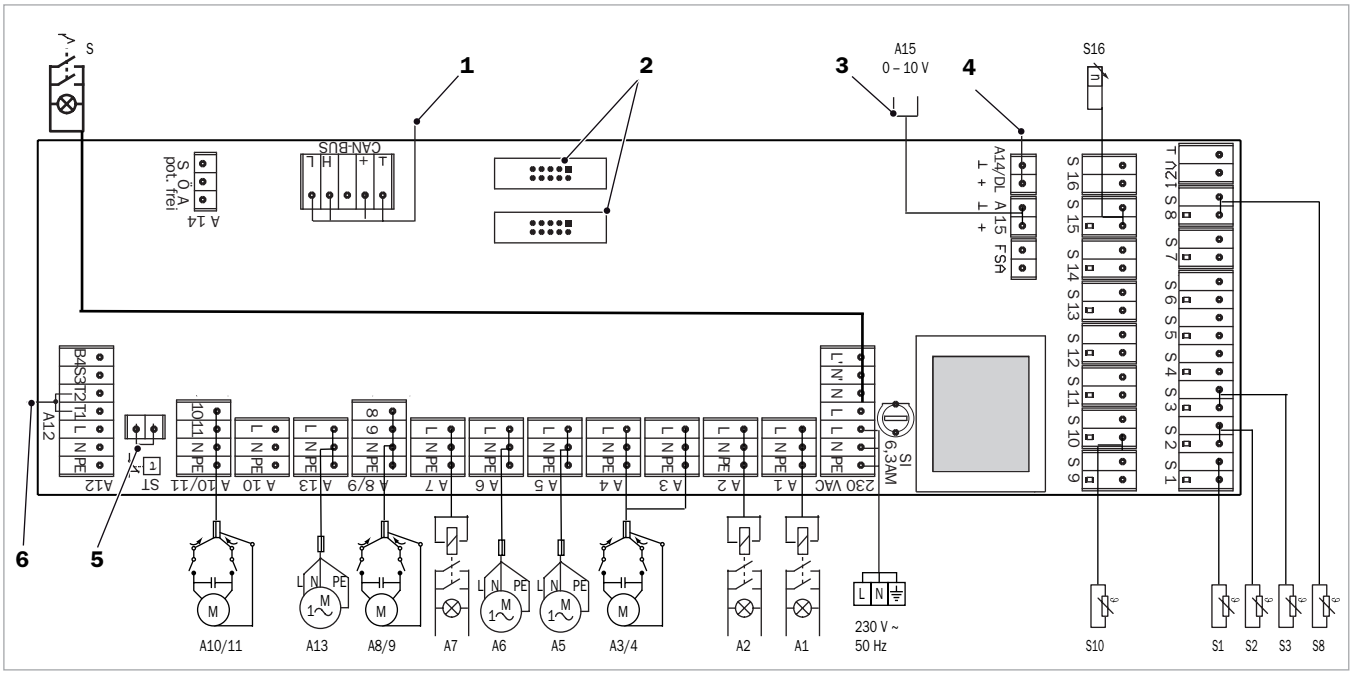


Fig. 14: Mains module of control console RK-SC-HK-2

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...		*To...*	
Component	***Connection***	***Connection***	***Component***
SR-xxx SolvisStrato	1	1	FWS fresh water station, flow HW-PHE (1)
	2*	WV	Heat generator, flow(2)
	3*	10	FWS fresh water station, return CB(1)
	4*	HV	Heating circuit(s), flow(2)
	5*	HR	Heating circuit(s), return(2)
	6*	WR	Heat generator, return(2)
	7*	2	FWS fresh water station, return HW-PHE(1)
	C	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*
(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:

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*

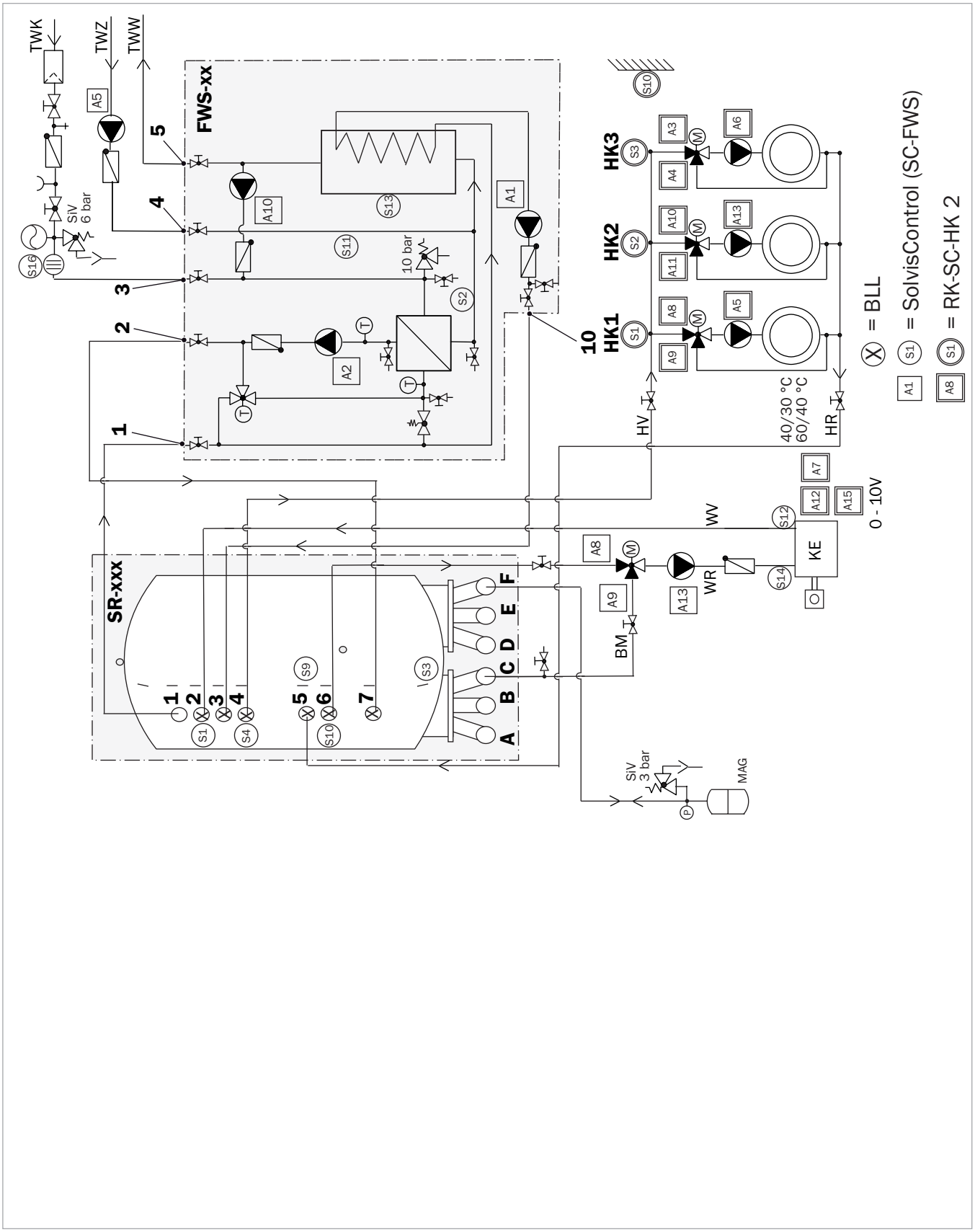


Fig. 15: SolvisVital 2 with modulating gas or oil boiler and storage tank

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...		*To...*	
Component	***Connection***	***Connection***	***Component***
1. SR-xxx SolvisStrato, storage tank 1	1	1	FWS fresh water station, flow HW-PHE (1)
	3*	WV	Heat generator, flow(2)
	4*	HV	Heating circuit(s), flow(2)
	7*	HR	Heating circuit(s), return(2)
	B	10	FWS fresh water station, return CB(1)
	C	1	Storage tank SR2, connection 1 (DN40)
	F	WR	Heat generator, return(2)
2. SR-xxx SolvisStrato, storage tank 2	7*	2	FWS fresh water station, return HW-PHE(1)
	C	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*
(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:

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*

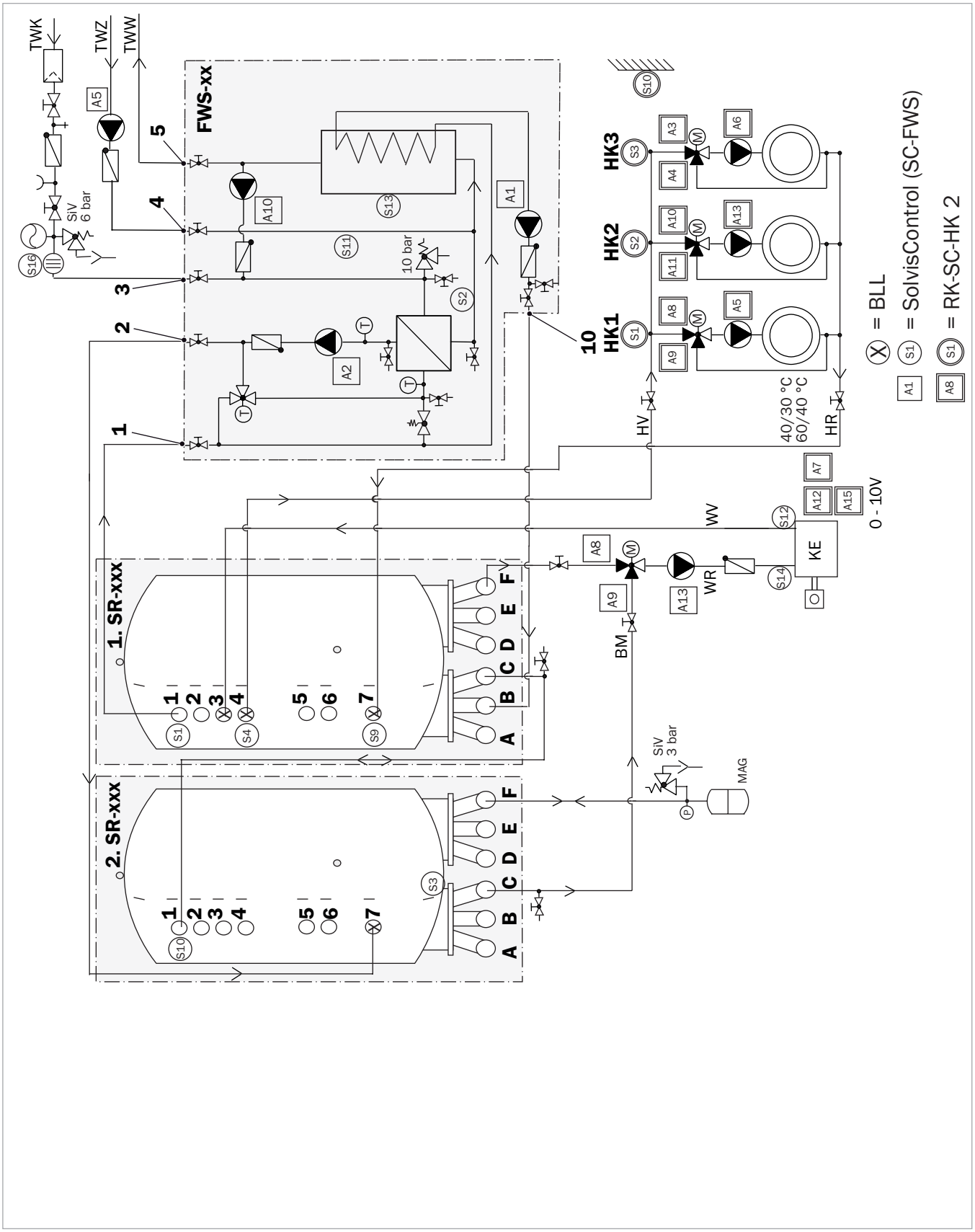


Fig. 16: SolvisVital 2 with modulating gas or oil boiler and two storage tanks

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

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***
S1	Top buffer sensor	**A1**	Load pump*
S2	Hot water sensor	**A2**	Hot water production pump*
S3	Storage tank reference sensor	**A3**	Pump transfer (for systems with two storage tanks)
S4	Hot water buffer sensor	**A4**	Unused
S5	Solar flow sensor, secondary	**A5**	Circulation pump
S6	Solar return sensor, secondary	**A6**	Solar circuit pump, primary*
S7	Solar flow sensor, primary	**A7**	Solar circuit pump, secondary*
S8	Solar collector sensor	**A8**	Mixer return (open)
S9	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
S13	Middle tank sensor	**A13**	Charge pump*
S14	Heat generator return sensor	**A14**	Data transfer signal
S15	Solar circuit volume flow encoder (e.g. VSG-S-2,5)	**A15**	Unused
S16	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*
S3	Heating circuit 3 flow sensor	**A3**	Mixer for heating circuit 3 (open)
S4	Unused	**A4**	Mixer for heating circuit 3 (closed)
S5	Unused	**A5**	Pump for heating circuit 1
S6	Unused/FW return display**	**A6**	Pump for heating circuit 3
S7	Unused	**A7**	Boiler alarm signal*
S8	Exhaust temperature sensor (optional)	**A8**	Mixer for heating circuit 1 (open)
S9	Unused	**A9**	Mixer for heating circuit 1 (closed)
S10	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~
S13	Unused	**A13**	Pump for heating circuit 2
S14	Unused	**A14**	Data transfer signal
S15	Volume flow encoder, heating circuits (optional)	**A15**	Analogue 0-10 V signal (boiler temperature/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)*

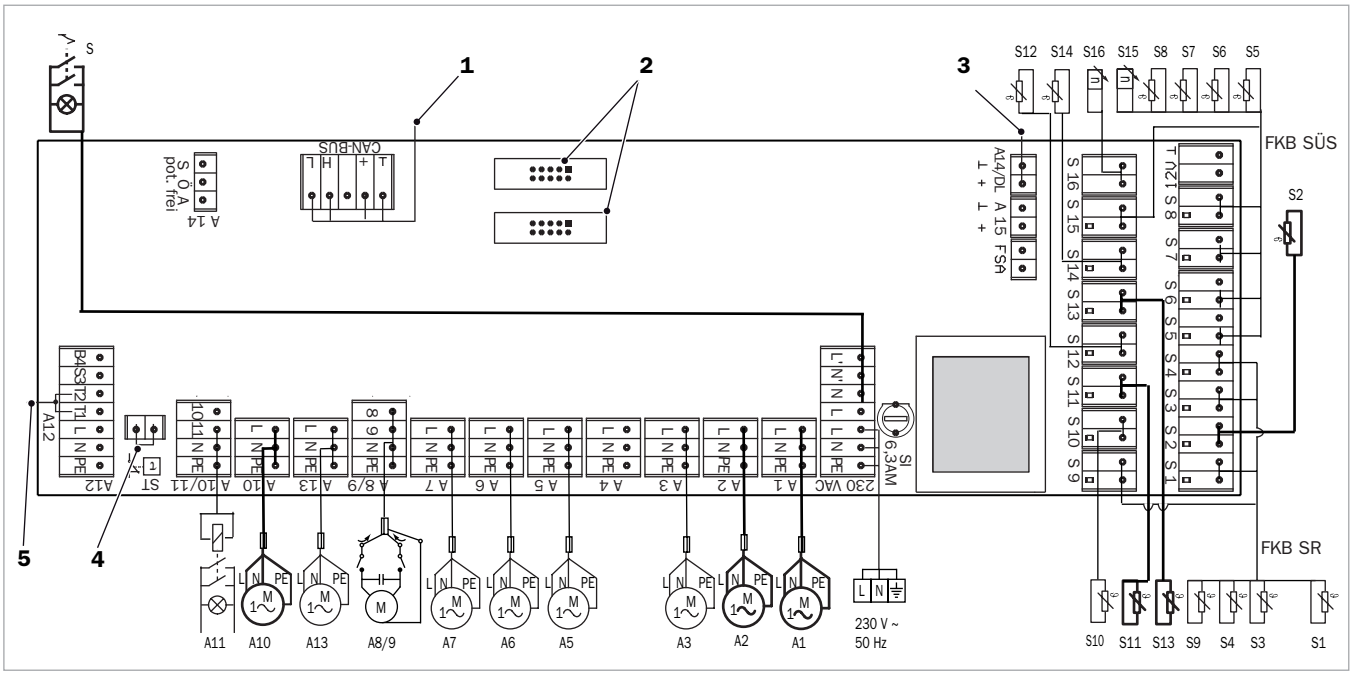


Fig. 17: Mains module of control console SC-FWS

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*

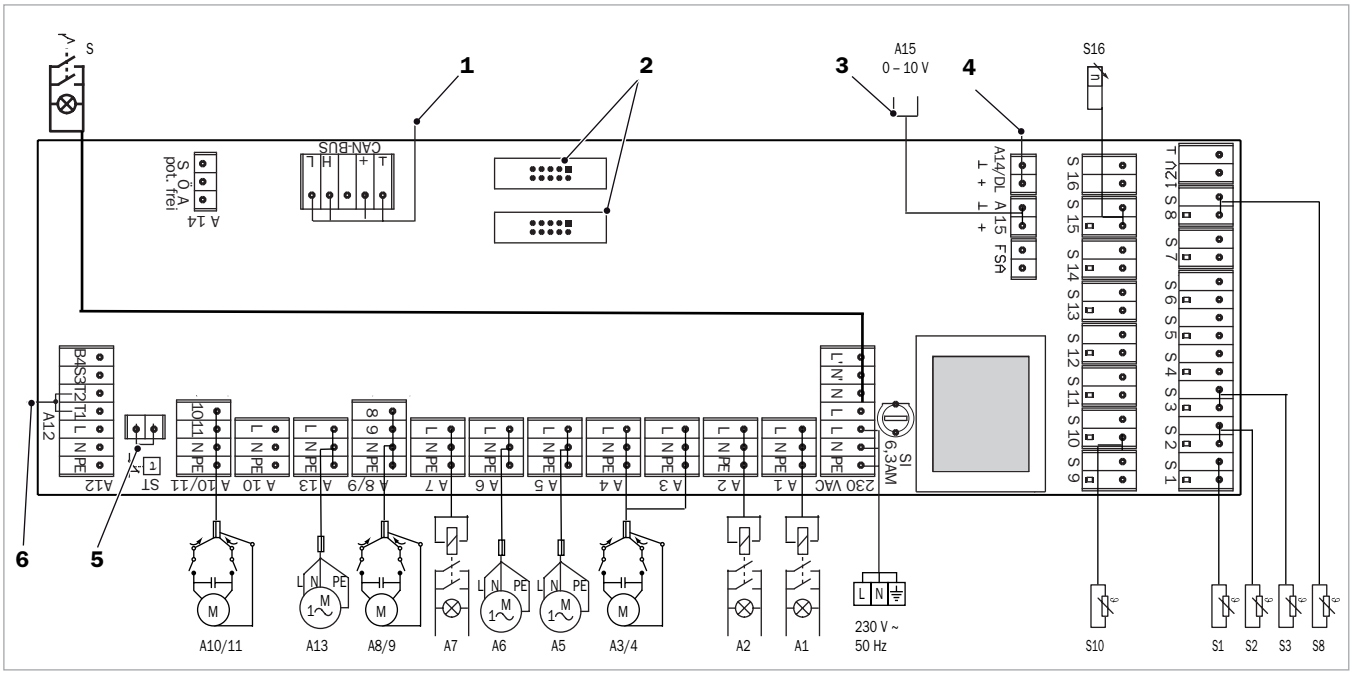


Fig. 18: Mains module of control console RK-SC-HK-2

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...		*To...*	
Component	***Connection***	***Connection***	***Component***
SR-xxx SolvisStrato	1	1	FWS fresh water station, flow HW-PHE (1)
	2*	WV	Heat generator, flow(2)
	3*	10	FWS fresh water station, return CB(1)
	4*	HV	Heating circuit(s), flow(2)
	5*	HR	Heating circuit(s), return(2)
	6*	WR	Heat generator, return(2)
	7*	2	FWS fresh water station, return HW-PHE(1)
	C	BM	Admixture to the heat generator return and drain valve (on-site)(3)
	E	SV	Solar transfer station, flow(4)
	F	SR	Solar transfer station, return(4)
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*
(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*

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*

Modules:

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*
MAG	*Membrane expansion vessel (on-site)*
SOL	*Solar pressure compensation vessel*
SÜS-xx	*Solar heat transfer station*
SV-SOL	*Solar safety valve*
V̇	*Volume flow adjusting valve*

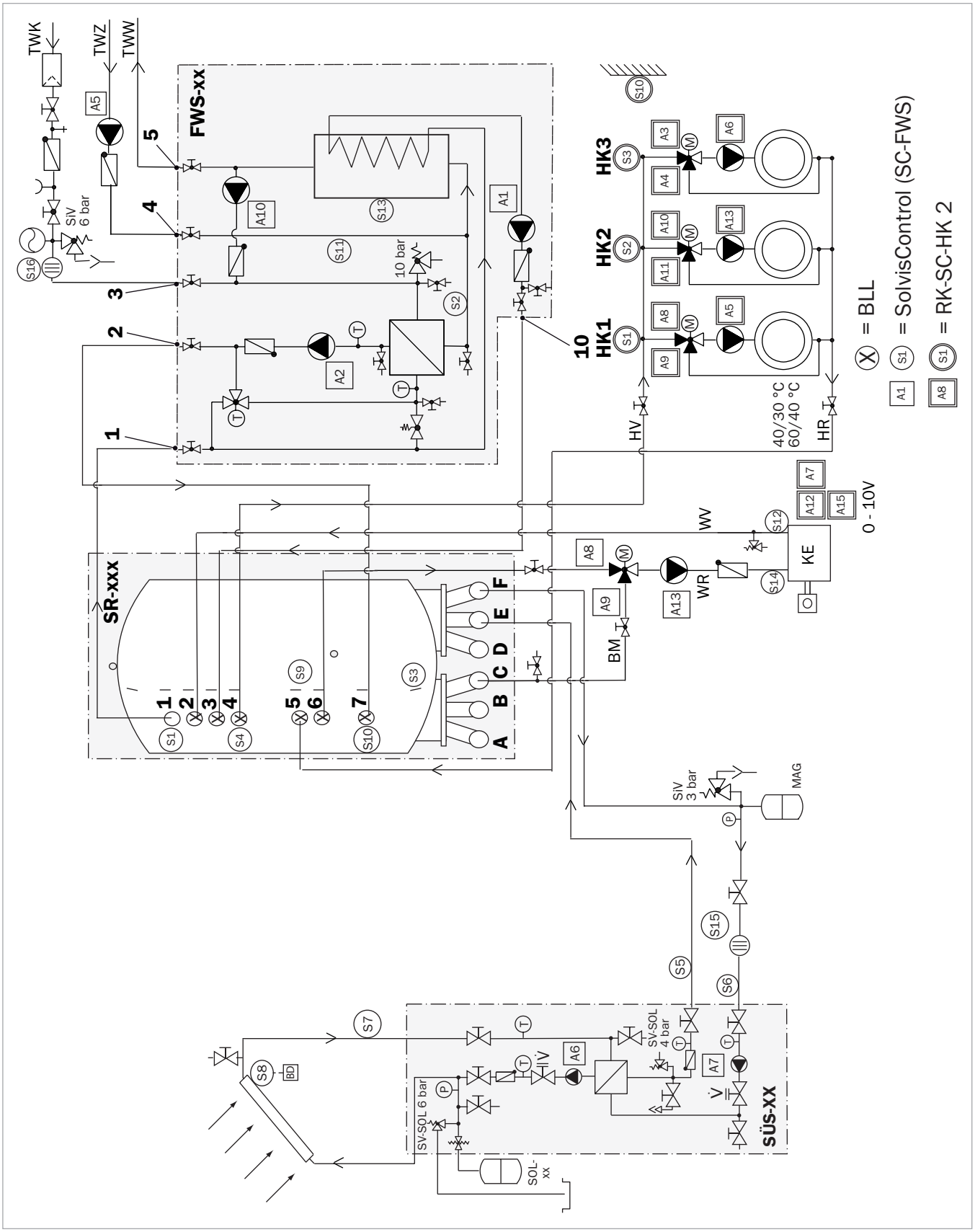


Fig. 19: SolvisVital 2 with modulating gas or oil boiler, storage tank and solar system

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...		*To...*	
Component	***Connection***	***Connection***	***Component***
1. SR-xxx SolvisStrato, storage tank 1	1	1	FWS fresh water station, flow HW-PHE (1)
	3*	WV	Heat generator, flow(2)
	4*	HV	Heating circuit(s), flow(2)
	7*	HR	Heating circuit(s), return(2)
	B	10	FWS fresh water station, return CB(1)
	C	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(2)
2. SR-xxx SolvisStrato, storage tank 2	7*	2	FWS fresh water station, return HW-PHE(1)
	C	BM	Admixture to the heat generator return and drain valve (on-site)(3)
	F	SR	Solar transfer station SÜS-xx, return(4)
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*
(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*
(5) *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*

Modules:

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*
MAG	*Membrane expansion vessel (on-site)*
SOL	*Solar pressure compensation vessel*
SÜS-xx	*Solar heat transfer station*
SV-SOL	*Solar safety valve*
V̇	*Volume flow adjusting valve*

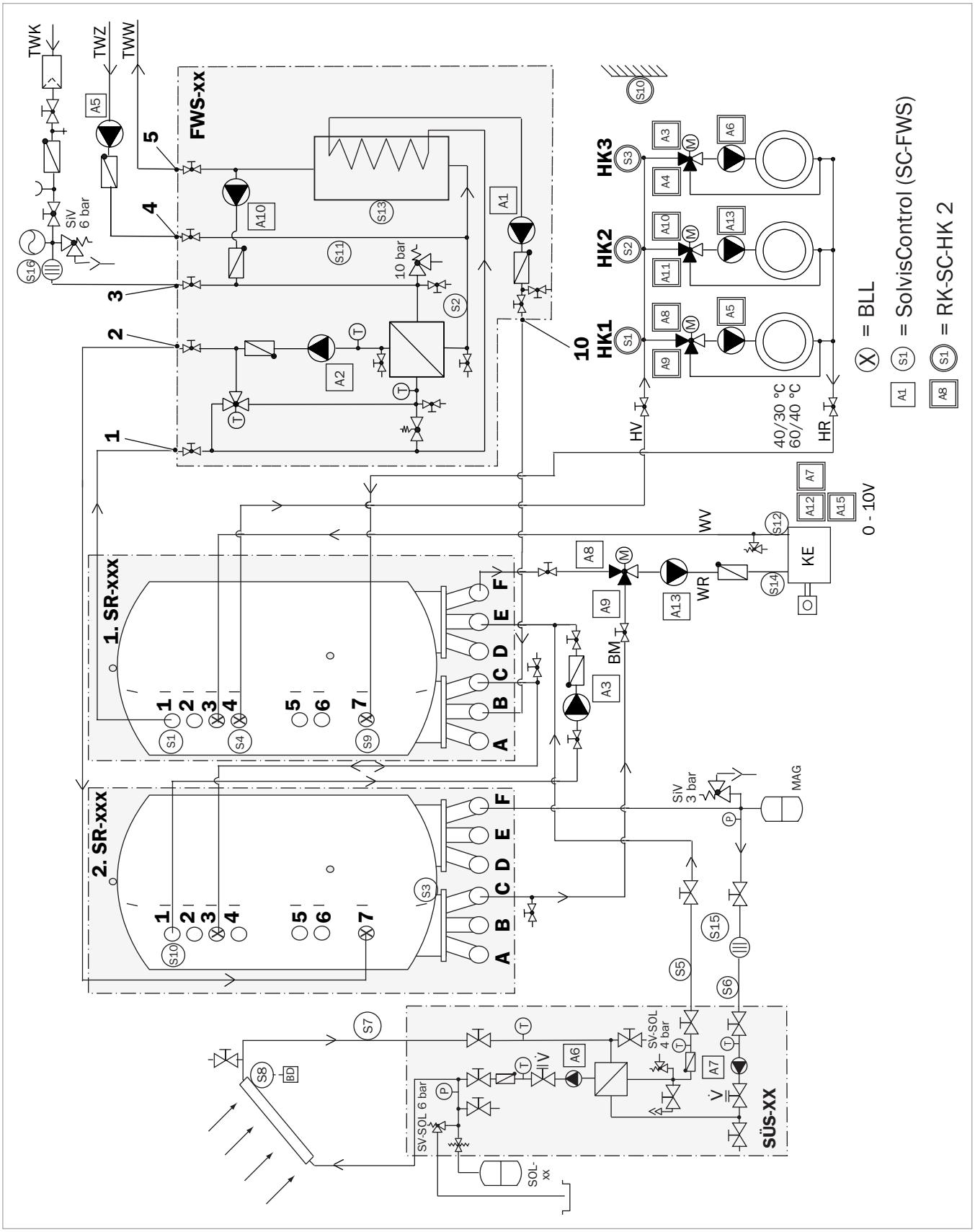


Fig. 20: SolvisVital 2 with modulating gas or oil boiler, two storage tanks and solar system

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

4.3.1 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***
S1	Top buffer sensor	**A1**	Load pump*
S2	Hot water sensor	**A2**	Hot water production pump*
S3	Storage tank reference sensor	**A3**	Pump transfer (for systems with two storage tanks)
S4	Hot water buffer sensor	**A4**	Unused
S5	Unused	**A5**	Circulation pump
S6	Unused	**A6**	Unused
S7	Unused	**A7**	Unused
S8	Unused	**A8**	Mixer return (open)
S9	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
S13	Middle tank sensor	**A13**	Charge pump*
S14	Heat generator return sensor	**A14**	Data transfer signal
S15	Unused	**A15**	Unused
S16	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*
S3	Heating circuit 3 flow sensor	**A3**	Mixer for heating circuit 3 (open)
S4	Unused	**A4**	Mixer for heating circuit 3 (closed)
S5	Unused	**A5**	Pump for heating circuit 1
S6	Unused/FW return display**	**A6**	Pump for heating circuit 3
S7	Unused	**A7**	Boiler alarm signal*
S8	Exhaust temperature sensor (optional)	**A8**	Mixer for heating circuit 1 (open)
S9	Unused	**A9**	Mixer for heating circuit 1 (closed)
S10	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~
S13	Unused	**A13**	Pump for heating circuit 2
S14	Unused	**A14**	Data transfer signal
S15	Volume flow encoder, heating circuits (optional)	**A15**	Analogue 0-10 V signal (boiler temperature/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)*

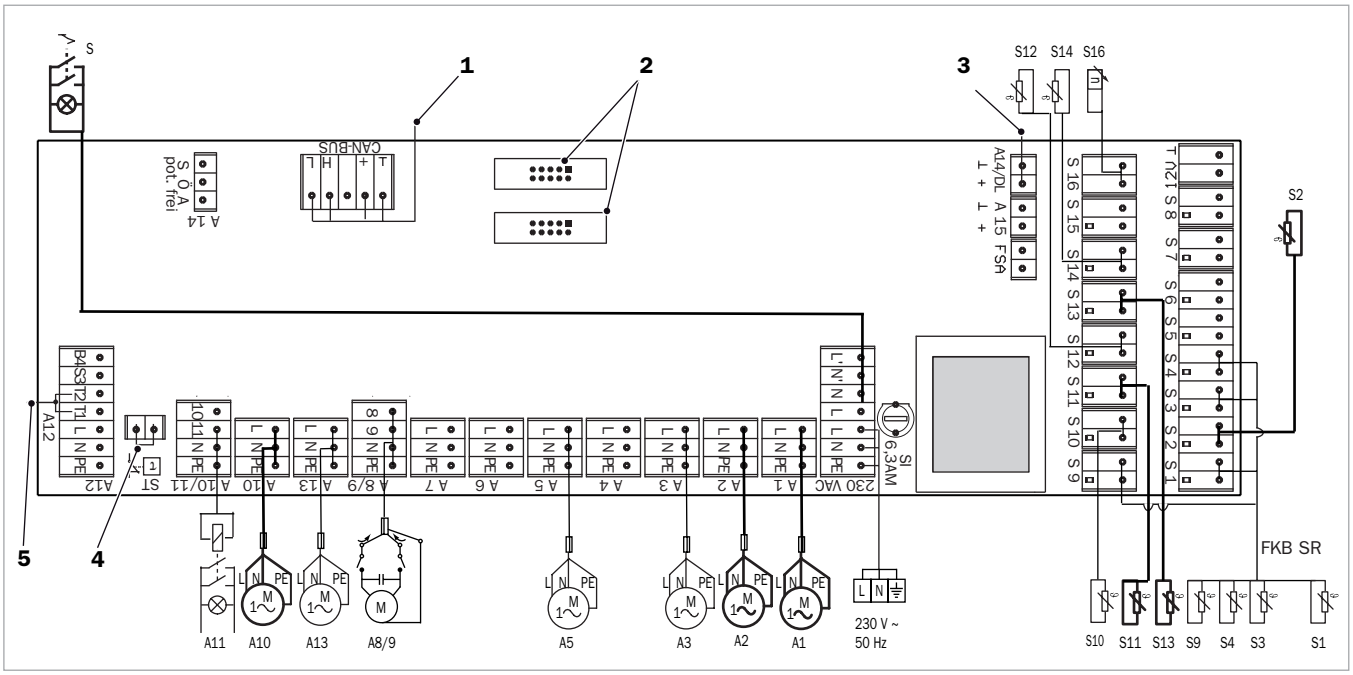


Fig. 21: Mains module of control console SC-FWS

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*

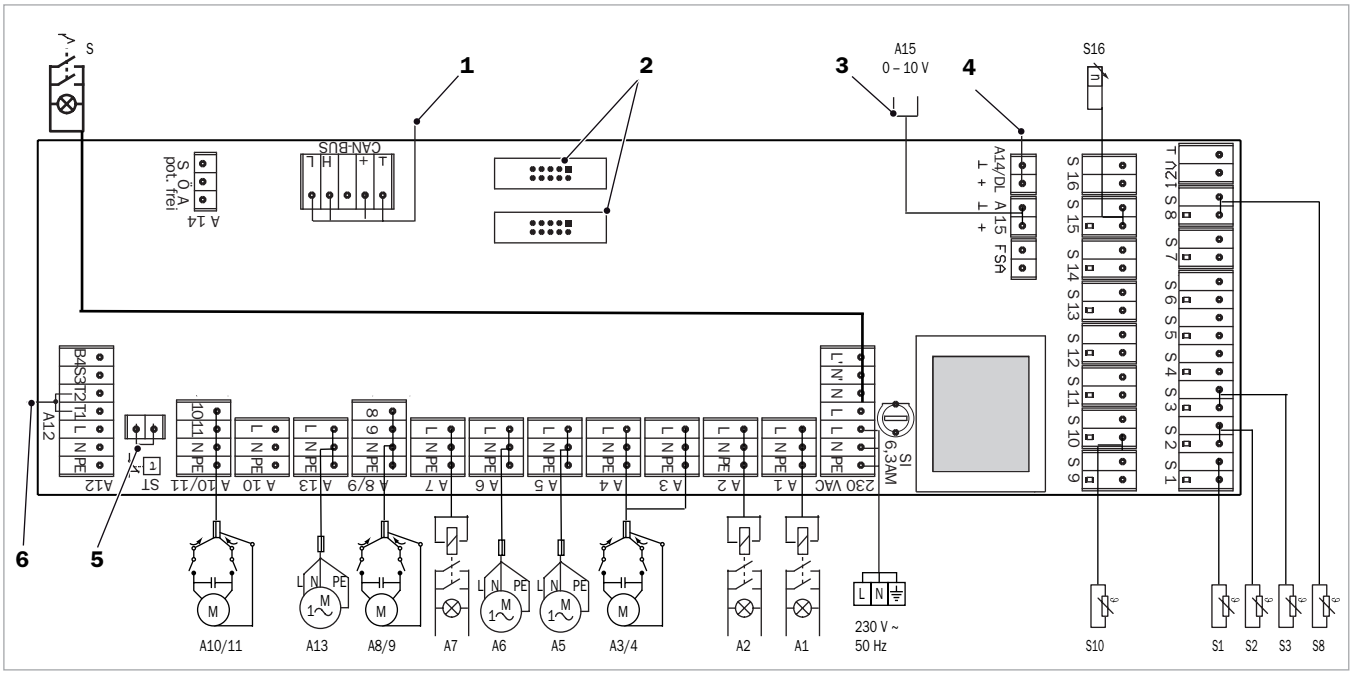


Fig. 22: Mains module of control console RK-SC-HK-2

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...		*To...*	
Component	***Connection***	***Connection***	***Component***
SR-xxx SolvisStrato	1	1	FWS fresh water station, flow HW-PHE (1)
	2*	WV	Heat generator, flow(2)
	3*	10	FWS fresh water station, return CB(1)
	4*	HV	Heating circuit(s), flow(2)
	5*	HR	Heating circuit(s), return(2)
	6*	WR	Heat generator, return(2)
	7*	2	FWS fresh water station, return HW-PHE(1)
	C	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*
(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:

FW	*District heating (on-site)*
BLL	*Charging lance*
FWS-xx	*Fresh water station*
HK	*Heating circuit(s) (on-site)*
SR-xxx	*SolvisStrato stratified buffer tank*

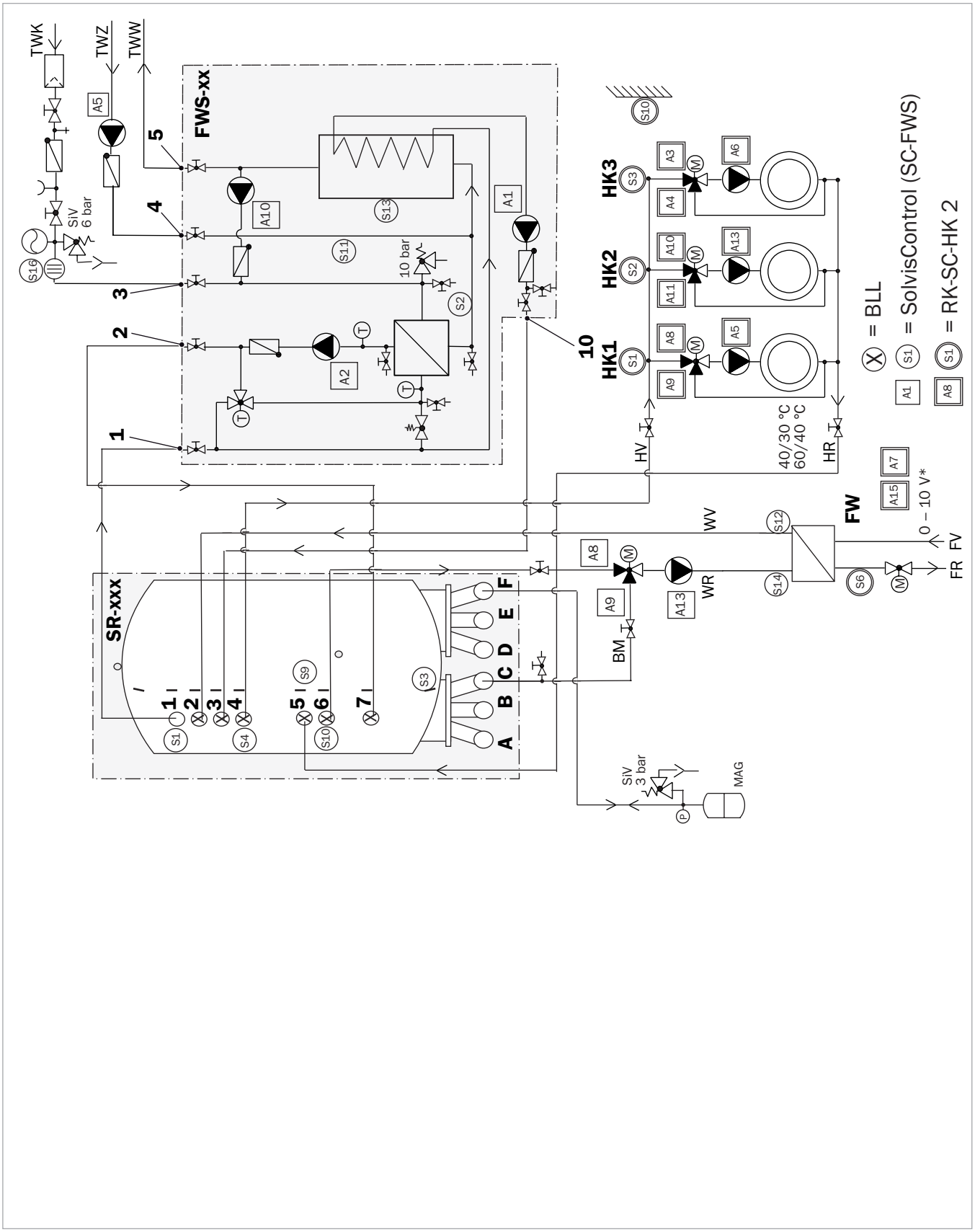


Fig. 23: SolvisVital with district heating system and a storage tank
** 0 - 10 V signal on analogue output A15 provides the on-site controller of the district heating station with a temperature setpoint.*

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...		*To...*	
Component	***Connection***	***Connection***	***Component***
1. SR-xxx SolvisStrato, storage tank 1	1	1	FWS fresh water station, flow HW-PHE (1)
	3*	WV	Heat generator, flow(2)
	4*	HV	Heating circuit(s), flow(2)
	7*	HR	Heating circuit(s), return(2)
	B	10	FWS fresh water station, return CB(1)
	C	1	Storage tank SR2, connection 1 (DN40)
	F	WR	Heat generator, return(2)
2. SR-xxx SolvisStrato, storage tank 2	7*	2	FWS fresh water station, return HW-PHE(1)
	C	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*
(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:

FW	*District heating (on-site)*
BLL	*Charging lance*
FWS-xx	*Fresh water station*
HK	*Heating circuit(s) (on-site)*
SR-xxx	*SolvisStrato stratified buffer tank*

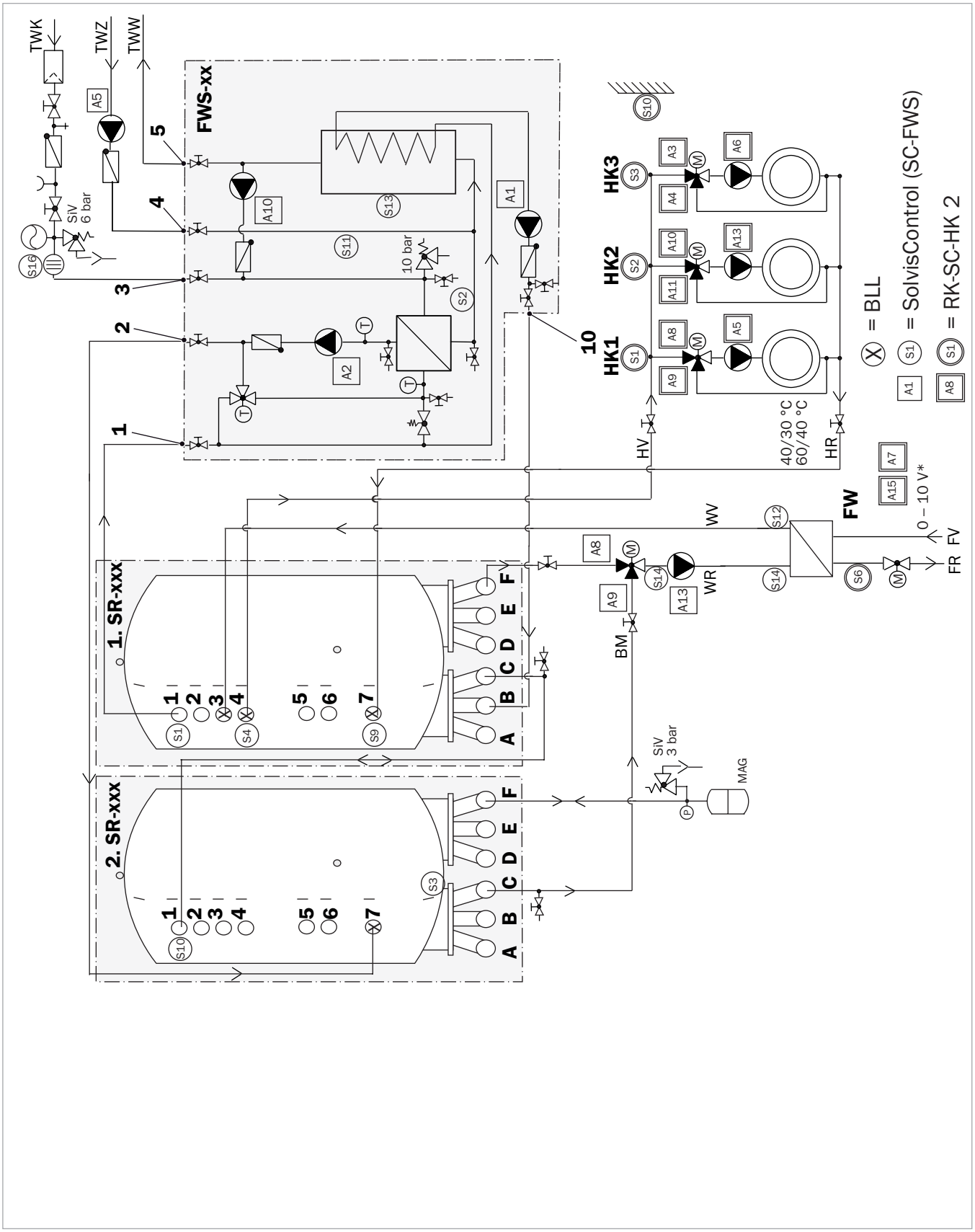


Fig. 24: SolvisVital 2 with district heating system and two storage tanks
** 0 - 10 V signal on analogue output A15 provides the on-site controller of the district heating station with a temperature setpoint.*

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

4.4.1 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***
S1	Top buffer sensor	**A1**	Load pump*
S2	Hot water sensor	**A2**	Hot water production pump*
S3	Storage tank reference sensor	**A3**	Pump transfer (for systems with two storage tanks)
S4	Hot water buffer sensor	**A4**	Unused
S5	Solar flow sensor, secondary	**A5**	Circulation pump
S6	Solar return sensor, secondary	**A6**	Solar circuit pump, primary*
S7	Solar flow sensor, primary	**A7**	Solar circuit pump, secondary*
S8	Solar collector sensor	**A8**	Mixer return (open)
S9	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
S13	Middle tank sensor	**A13**	Charge pump*
S14	Heat generator return sensor	**A14**	Data transfer signal
S15	Solar circuit volume flow encoder (e.g. VSG-S-2,5)	**A15**	Unused
S16	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*
S3	Heating circuit 3 flow sensor	**A3**	Mixer for heating circuit 3 (open)
S4	Unused	**A4**	Mixer for heating circuit 3 (closed)
S5	Unused	**A5**	Pump for heating circuit 1
S6	Unused/FW return display**	**A6**	Pump for heating circuit 3
S7	Unused	**A7**	Boiler alarm signal*
S8	Exhaust temperature sensor (optional)	**A8**	Mixer for heating circuit 1 (open)
S9	Unused	**A9**	Mixer for heating circuit 1 (closed)
S10	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~
S13	Unused	**A13**	Pump for heating circuit 2
S14	Unused	**A14**	Data transfer signal
S15	Volume flow encoder, heating circuits (optional)	**A15**	Analogue 0-10 V signal (boiler temperature/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)*

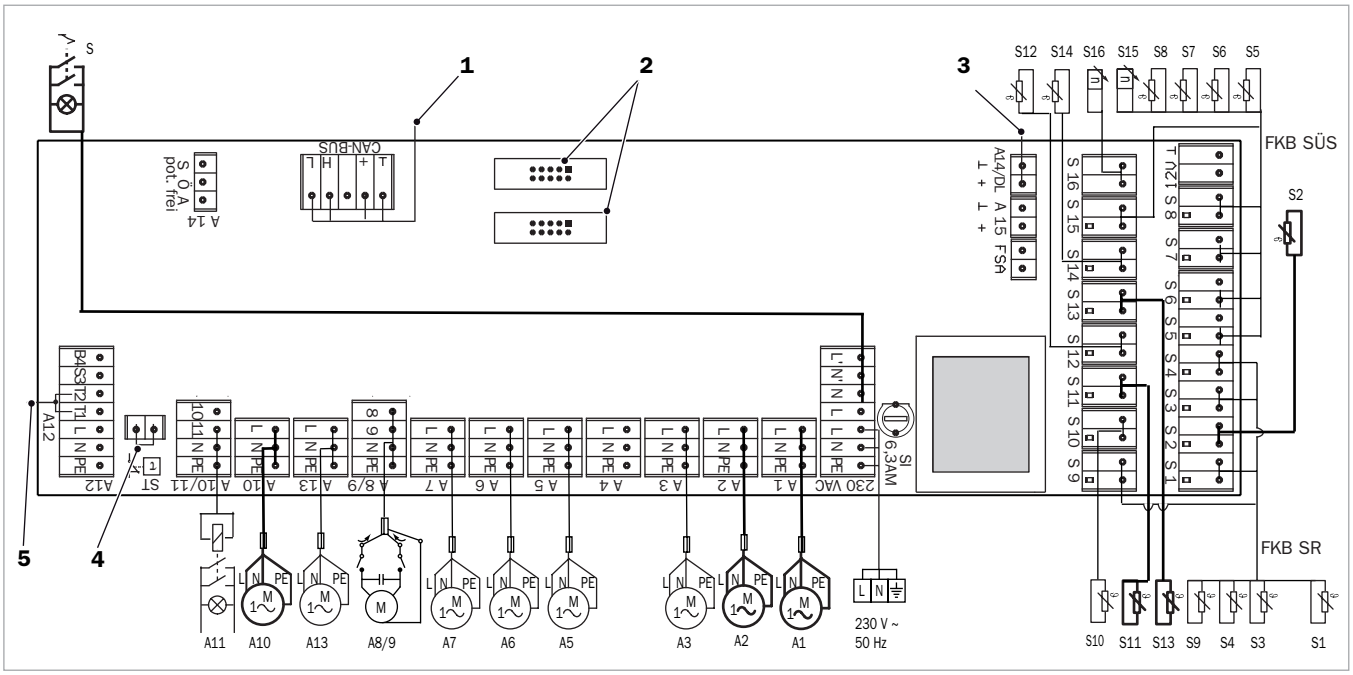


Fig. 25: Mains module of control console SC-FWS

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*

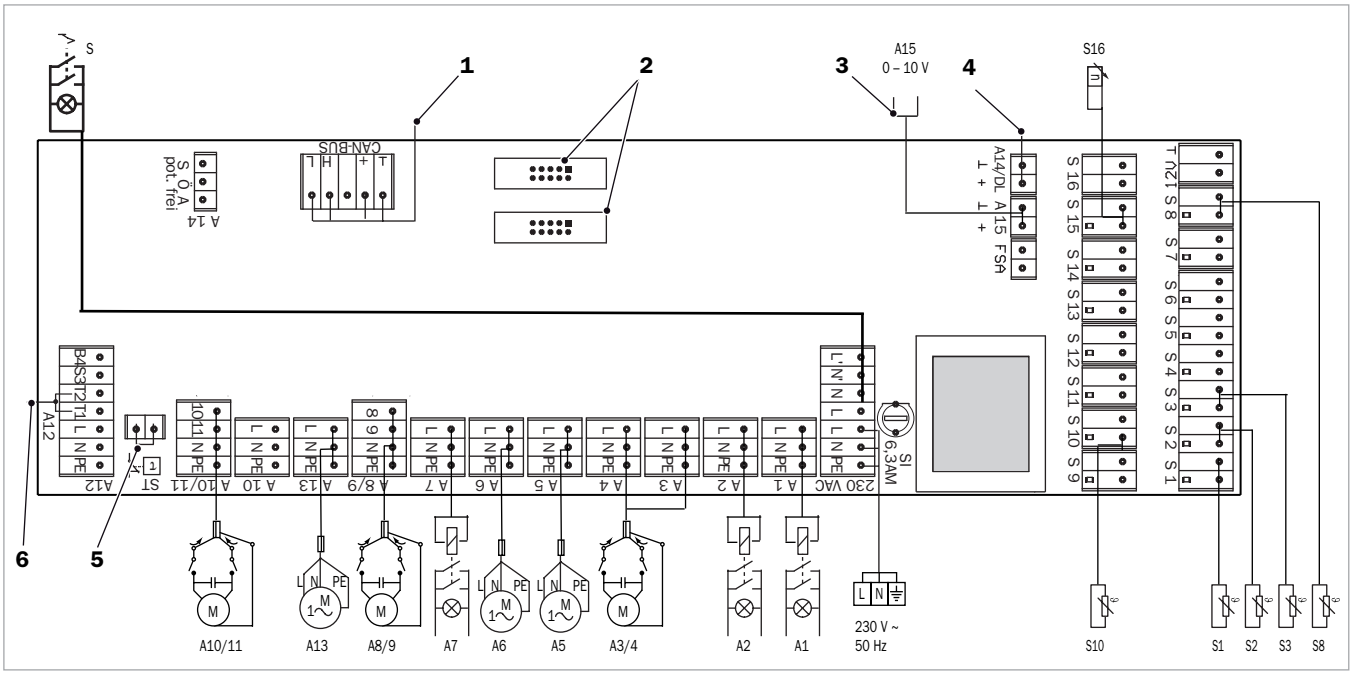


Fig. 26: Mains module of control console RK-SC-HK-2

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...		*To...*	
Component	***Connection***	***Connection***	***Component***
SR-xxx SolvisStrato	1	1	FWS fresh water station, flow HW-PHE (1)
	2*	WV	Heat generator, flow(2)
	3*	10	FWS fresh water station, return CB(1)
	4*	HV	Heating circuit(s), flow(2)
	5*	HR	Heating circuit(s), return(2)
	6*	WR	Heat generator, return(2)
	7*	2	FWS fresh water station, return HW-PHE(1)
	C	BM	Admixture to the heat generator return and drain valve (on-site)(3)
	E	SV	Solar transfer station, flow(4)
	F	SR	Solar transfer station, return(4)
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*
(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*

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*

Modules:

FW	*District heating (on-site)*
BLL	*Charging lance*
FWS-xx	*Fresh water station*
HK	*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*
V̇	*Volume flow adjusting valve*

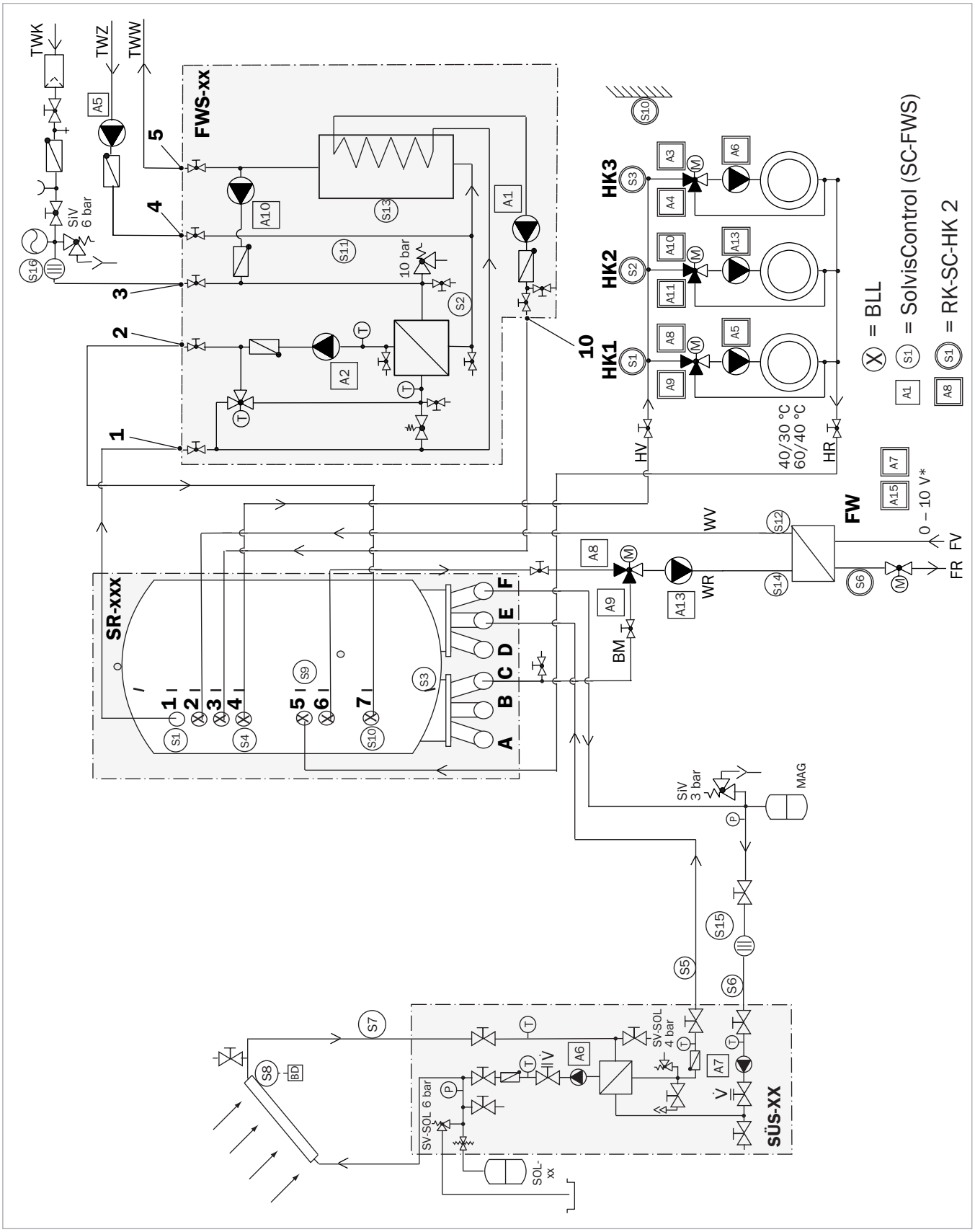


Fig. 27: SolvisVital 2 with district heating system, a storage tank and solar system
** 0 - 10 V signal on analogue output A15 provides the on-site controller of the district heating station with a temperature setpoint.*

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...		*To...*	
Component	***Connection***	***Connection***	***Component***
1. SR-xxx SolvisStrato, storage tank 1	1	1	FWS fresh water station, flow HW-PHE (1)
	3*	WV	Heat generator, flow(2)
	4*	HV	Heating circuit(s), flow(2)
	7*	HR	Heating circuit(s), return(2)
	B	10	FWS fresh water station, return CB(1)
	C	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(2)
2. SR-xxx SolvisStrato, storage tank 2	7*	2	FWS fresh water station, return HW-PHE(1)
	C	BM	Admixture to the heat generator return and drain valve (on-site)(3)
	F	SR	Solar transfer station SÜS-xx, return(4)
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*
(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*
(5) *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*

Modules:

FW	*District heating (on-site)*
BLL	*Charging lance*
FWS-xx	*Fresh water station*
HK	*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*
V̇	*Volume flow adjusting valve*

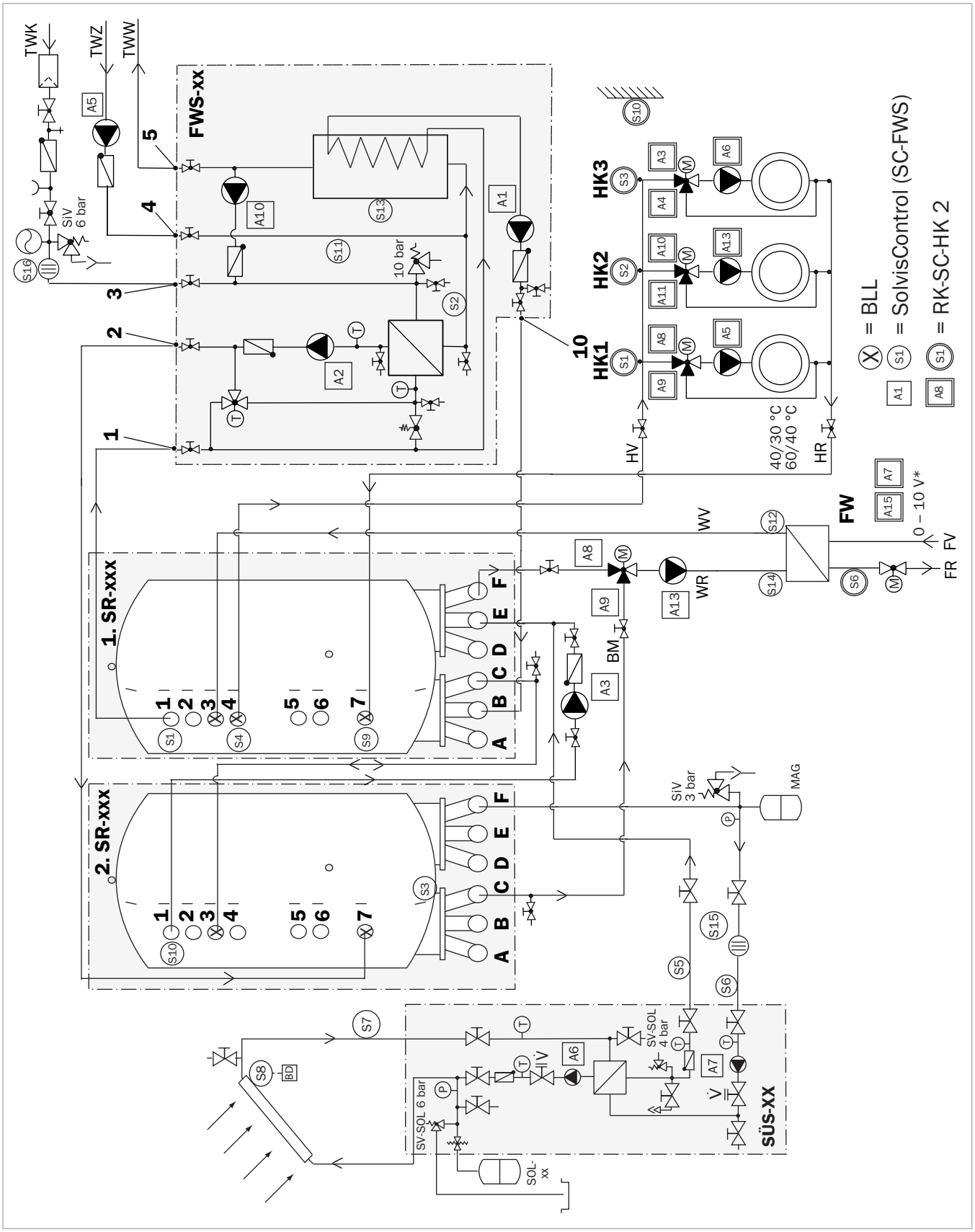


Fig. 28: SolvisVital 2 with district heating system, two storage tanks and solar system
** 0 - 10 V signal on analogue output A15 provides the on-site controller of the district heating station with a temperature setpoint.*

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

4.5.1 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***
S1	Top buffer sensor	**A1**	Load pump*
S2	Hot water sensor	**A2**	Hot water production pump*
S3	Storage tank reference sensor	**A3**	Pump transfer (for systems with two storage tanks)
S4	Hot water buffer sensor	**A4**	Unused
S5	Unused	**A5**	Circulation pump
S6	Unused	**A6**	Unused
S7	Unused	**A7**	Unused
S8	Unused	**A8**	Mixer return (open)
S9	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
S13	Middle tank sensor	**A13**	Charge pump*
S14	Heat generator return sensor	**A14**	Data transfer signal
S15	Unused	**A15**	Unused
S16	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*
S3	Heating circuit 3 flow sensor	**A3**	Mixer for heating circuit 3 (open)
S4	Unused	**A4**	Mixer for heating circuit 3 (closed)
S5	Unused	**A5**	Pump for heating circuit 1
S6	Unused/FW return display**	**A6**	Pump for heating circuit 3
S7	Unused	**A7**	Boiler alarm signal*
S8	Exhaust temperature sensor (optional)	**A8**	Mixer for heating circuit 1 (open)
S9	Unused	**A9**	Mixer for heating circuit 1 (closed)
S10	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~
S13	Unused	**A13**	Pump for heating circuit 2
S14	Unused	**A14**	Data transfer signal
S15	Volume flow encoder, heating circuits (optional)	**A15**	Analogue 0-10 V signal (boiler temperature/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)*

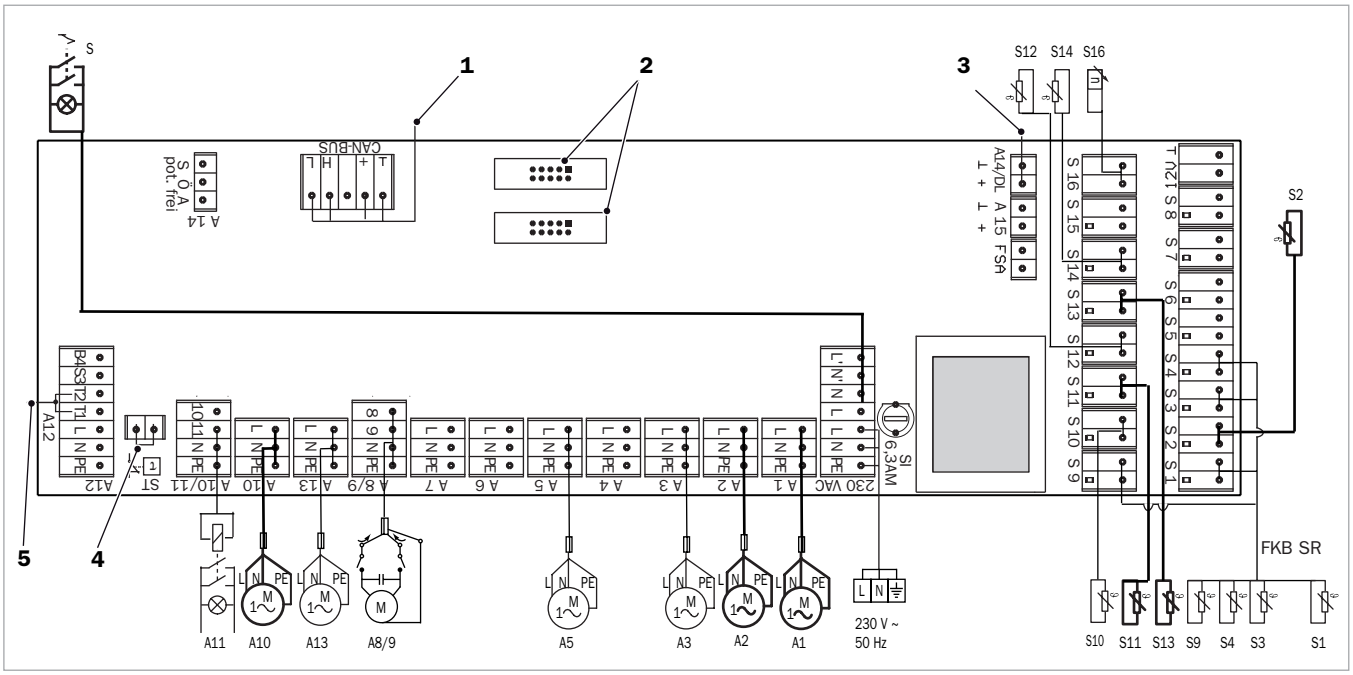


Fig. 29: Mains module of control console SC-FWS

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*

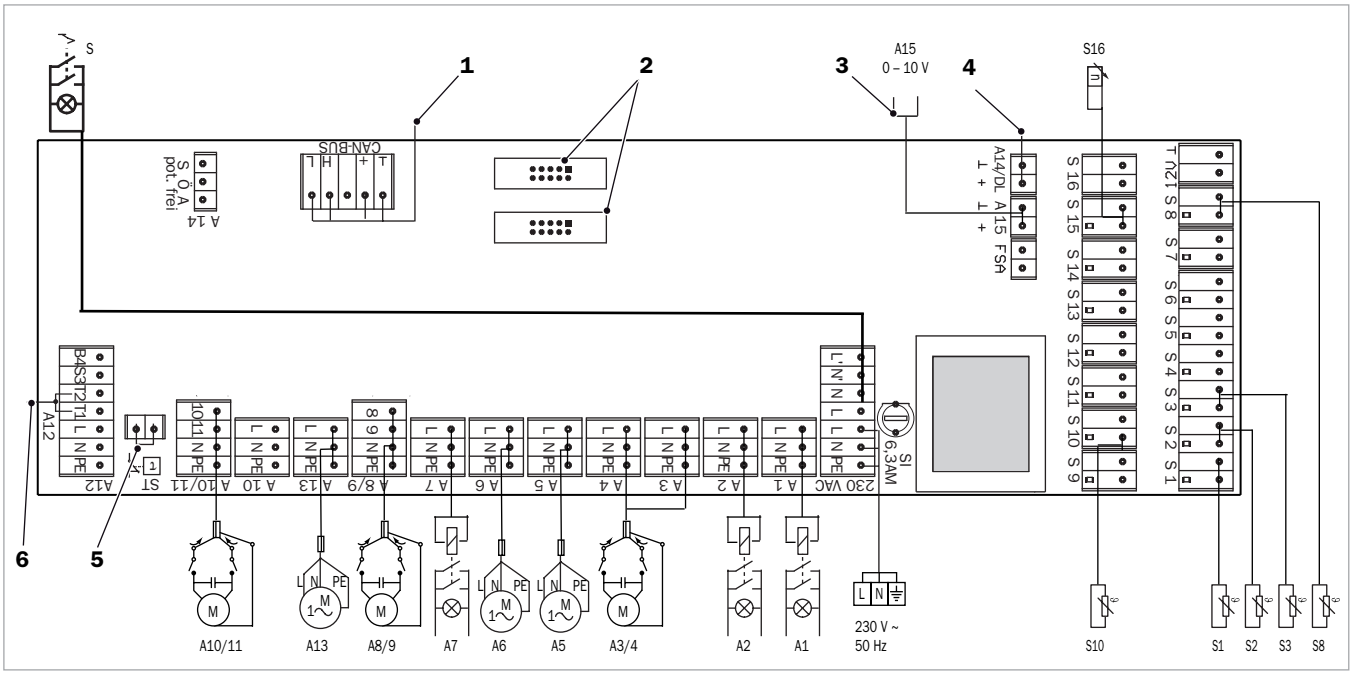


Fig. 30: Mains module of control console RK-SC-HK-2

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...		*To...*	
Component	***Connection***	***Connection***	***Component***
SR-xxx SolvisStrato	1	1	FWS fresh water station, flow HW-PHE (1)
	2*	WV	Heat generator, flow(2)
	3*	10	FWS fresh water station, return CB(1)
	4*	HV	Heating circuit(s), flow(2)
	5*	HR	Heating circuit(s), return(2)
	6*	WR	Heat generator, return(2)
	7*	2	FWS fresh water station, return HW-PHE(1)
	C	BM	Admixture to the heat generator return and drain valve (on-site)(3)
	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	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*

(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*

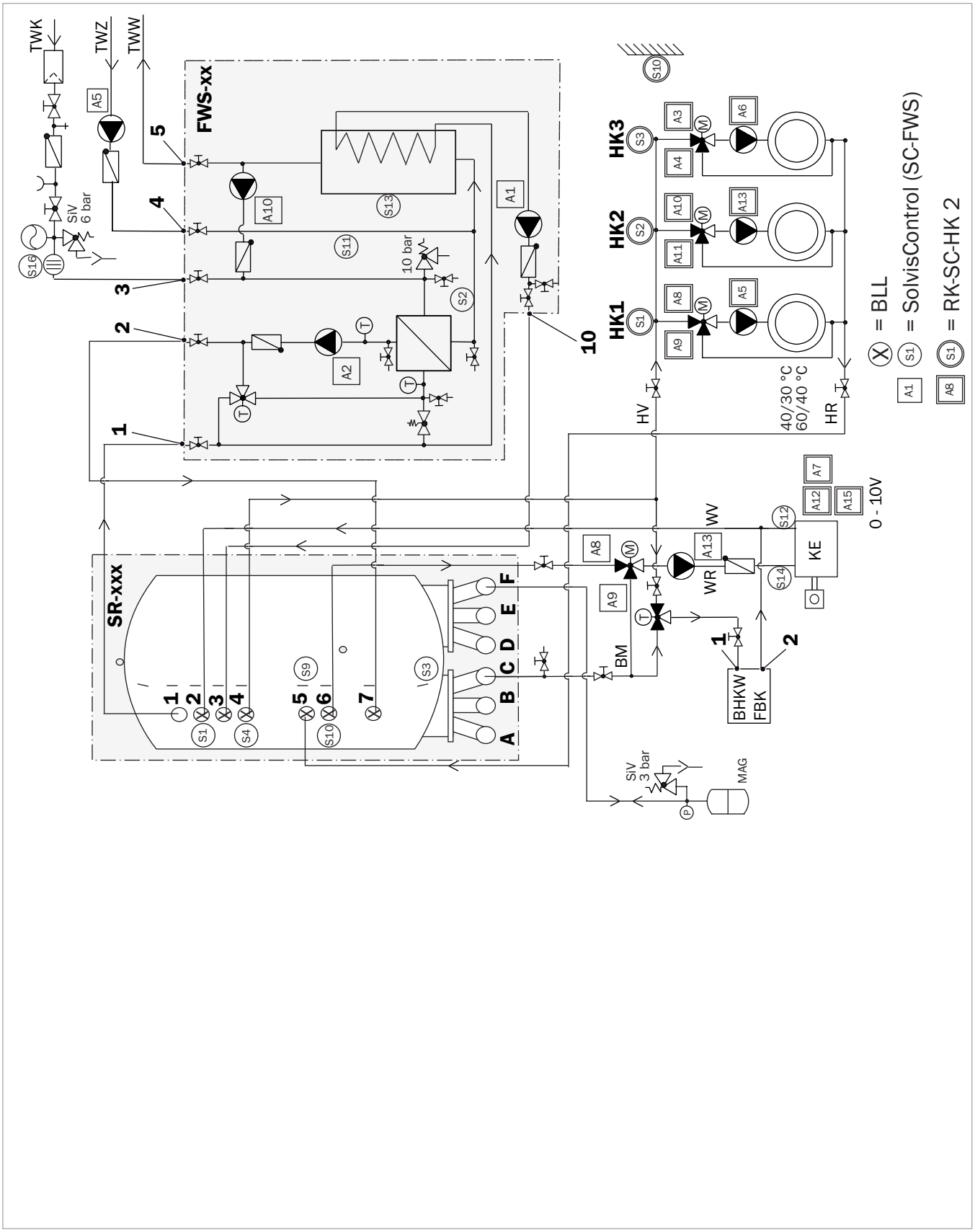


Fig. 31: SolvisVital 2 with modulating gas or oil boiler, storage tank and BHKW or solid fuel boiler

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...		*To...*	
Component	***Connection***	***Connection***	***Component***
1. SR-xxx SolvisStrato, storage tank 1	1	1	FWS fresh water station, flow HW-PHE (1)
	3*	WV	Heat generator, flow(2)
	4*	HV	Heating circuit(s), flow(2)
	7*	HR	Heating circuit(s), return(2)
	B	10	FWS fresh water station, return CB(1)
	C	1	Storage tank SR2, connection 1 (DN40)
	E	1	Combined heat and power plant or solid fuel boiler, return
	F	WR	Heat generator, return(2)
2. SR-xxx SolvisStrato, storage tank 2	7*	2	FWS fresh water station, return HW-PHE(1)
	C	BM	Admixture to the heat generator return and drain valve (on-site)(3)
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*
(1) *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*

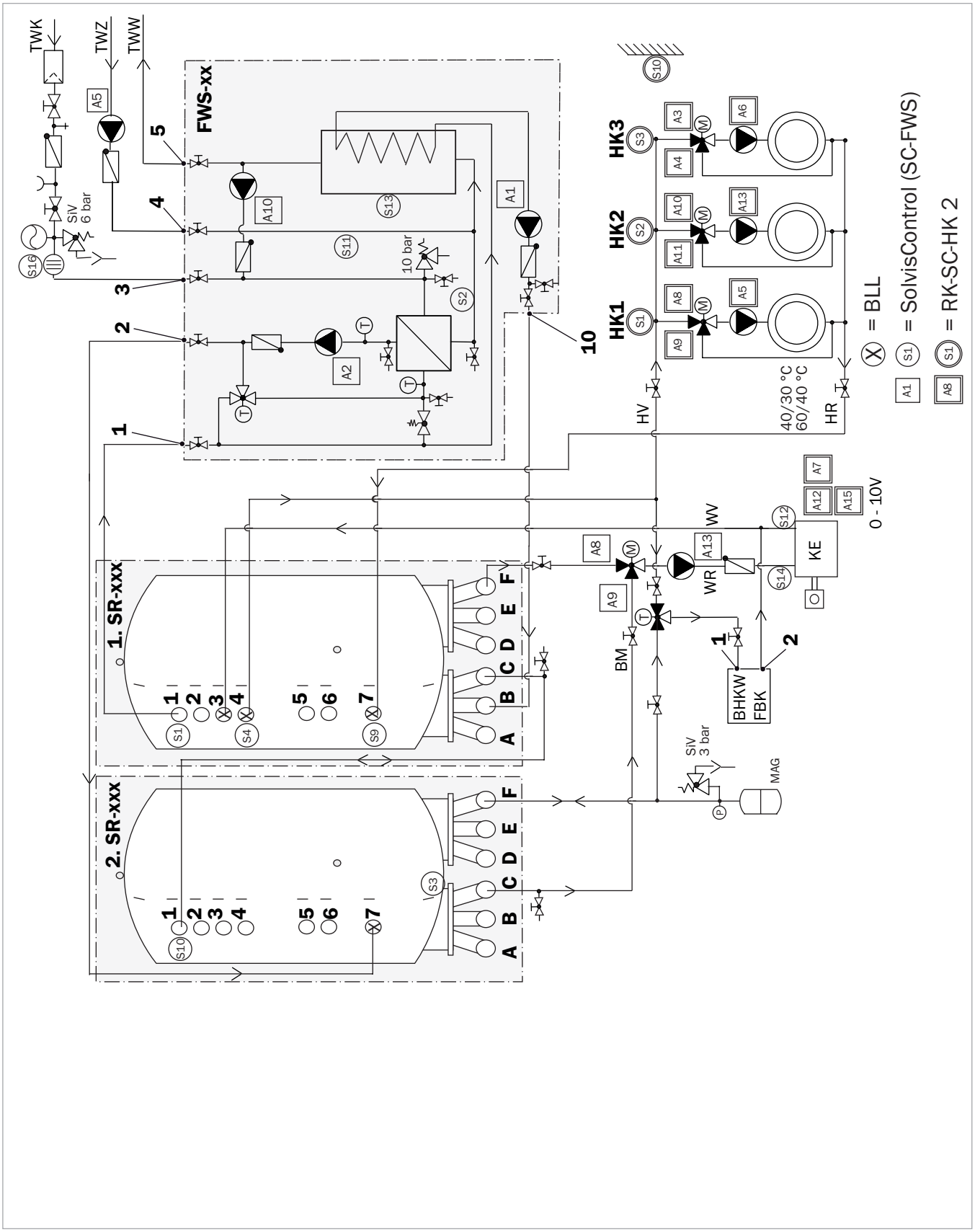


Fig. 32: SolvisVital 2 with modulating gas or oil boiler, two storage tanks and BHKW or solid fuel boiler

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

4.6.1 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***
S1	Top buffer sensor	**A1**	Load pump*
S2	Hot water sensor	**A2**	Hot water production pump*
S3	Storage tank reference sensor	**A3**	Pump transfer (for systems with two storage tanks)
S4	Hot water buffer sensor	**A4**	Unused
S5	Solar flow sensor, secondary	**A5**	Circulation pump
S6	Solar return sensor, secondary	**A6**	Solar circuit pump, primary*
S7	Solar flow sensor, primary	**A7**	Solar circuit pump, secondary*
S8	Solar collector sensor	**A8**	Mixer return (open)
S9	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
S13	Middle tank sensor	**A13**	Charge pump*
S14	Heat generator return sensor	**A14**	Data transfer signal
S15	Solar circuit volume flow encoder (e.g. VSG-S-2,5)	**A15**	Unused
S16	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*
S3	Heating circuit 3 flow sensor	**A3**	Mixer for heating circuit 3 (open)
S4	Unused	**A4**	Mixer for heating circuit 3 (closed)
S5	Unused	**A5**	Pump for heating circuit 1
S6	Unused/FW return display**	**A6**	Pump for heating circuit 3
S7	Unused	**A7**	Boiler alarm signal*
S8	Exhaust temperature sensor (optional)	**A8**	Mixer for heating circuit 1 (open)
S9	Unused	**A9**	Mixer for heating circuit 1 (closed)
S10	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~
S13	Unused	**A13**	Pump for heating circuit 2
S14	Unused	**A14**	Data transfer signal
S15	Volume flow encoder, heating circuits (optional)	**A15**	Analogue 0-10 V signal (boiler temperature/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)*

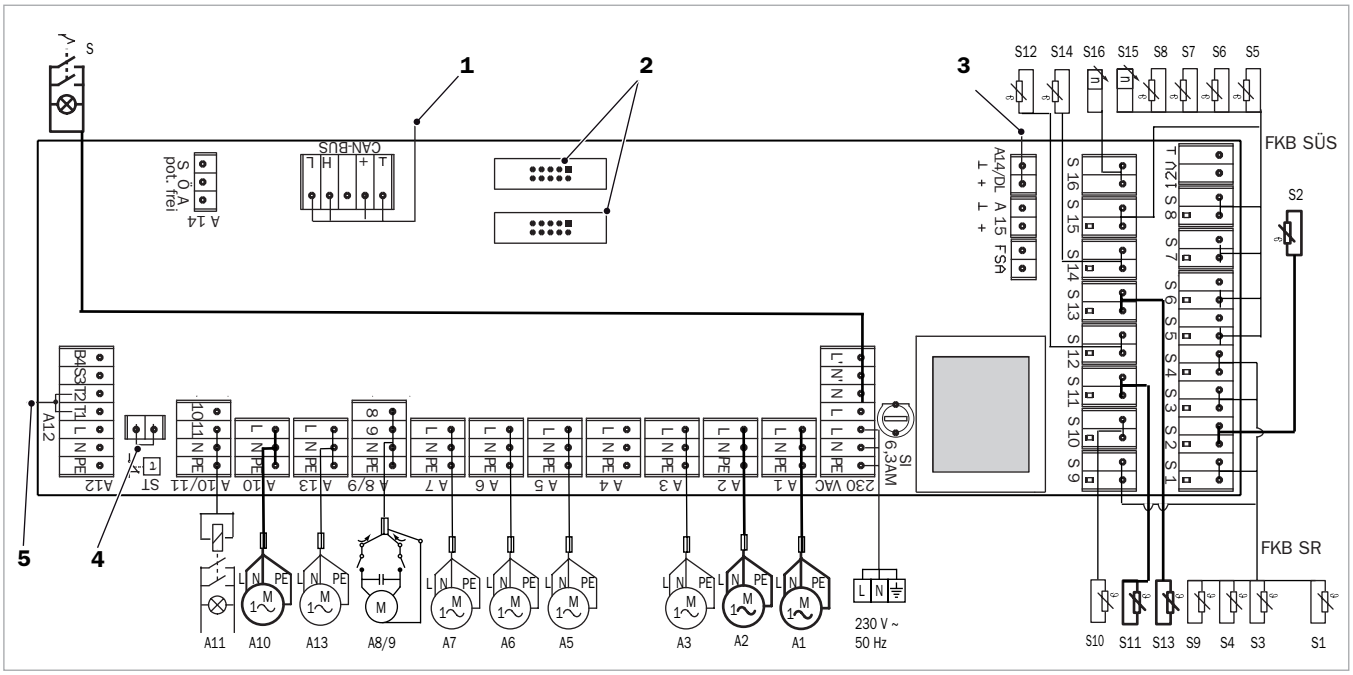


Fig. 33: Mains module of control console SC-FWS

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*

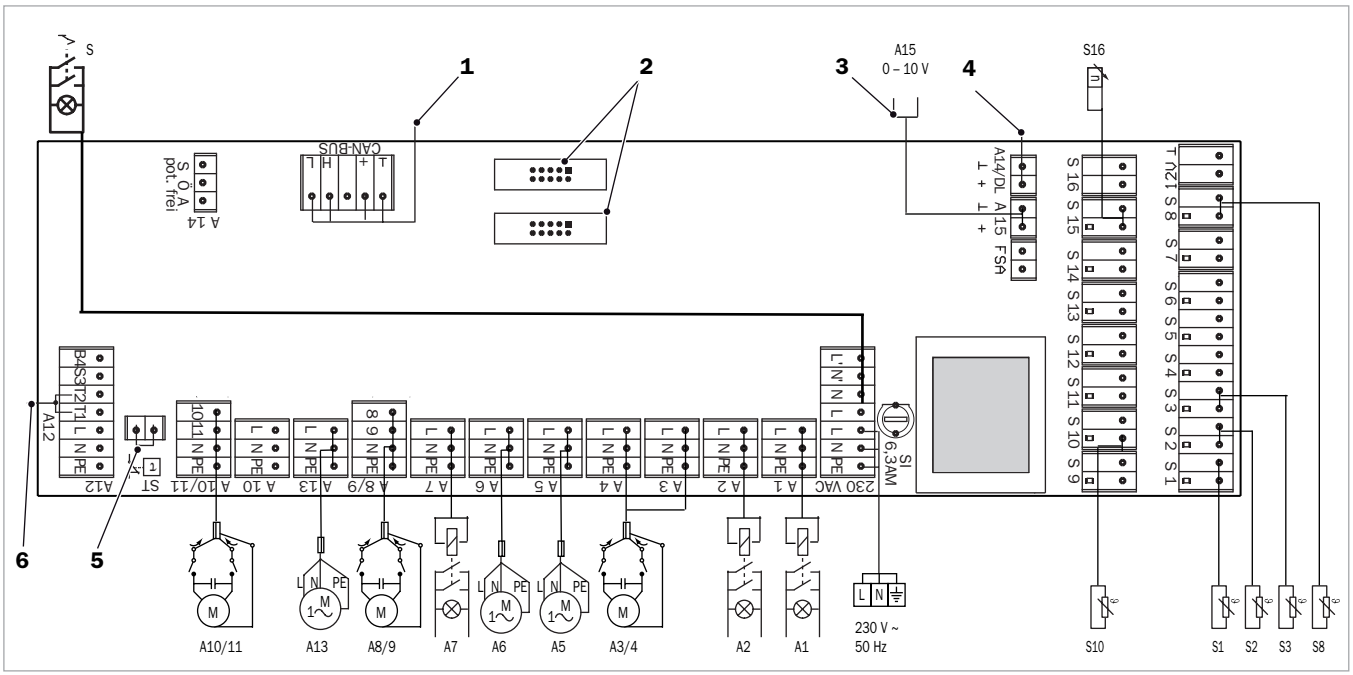


Fig. 34: Mains module of control console RK-SC-HK-2

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...		*To...*	
Component	***Connection***	***Connection***	***Component***
SR-xxx SolvisStrato	1	1	FWS fresh water station, flow HW-PHE (1)
	2*	WV	Heat generator, flow(2)
	3*	10	FWS fresh water station, return CB(1)
	4*	HV	Heating circuit(s), flow(2)
	5*	HR	Heating circuit(s), return(2)
	6*	WR	Heat generator, return(2)
	7*	2	FWS fresh water station, return HW-PHE(1)
	C	BM	Admixture to the heat generator return and drain valve (on-site)(3)
	E	SV	Solar transfer station, flow(4)
	F	SR	Solar transfer station, return(4)
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*
(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*

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*

Modules:

NW	*Local heating station (on-site)*
BLL	*Charging lance*
FWS-xx	*Fresh water station*
HK	*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*
V̇	*Volume flow adjusting valve*

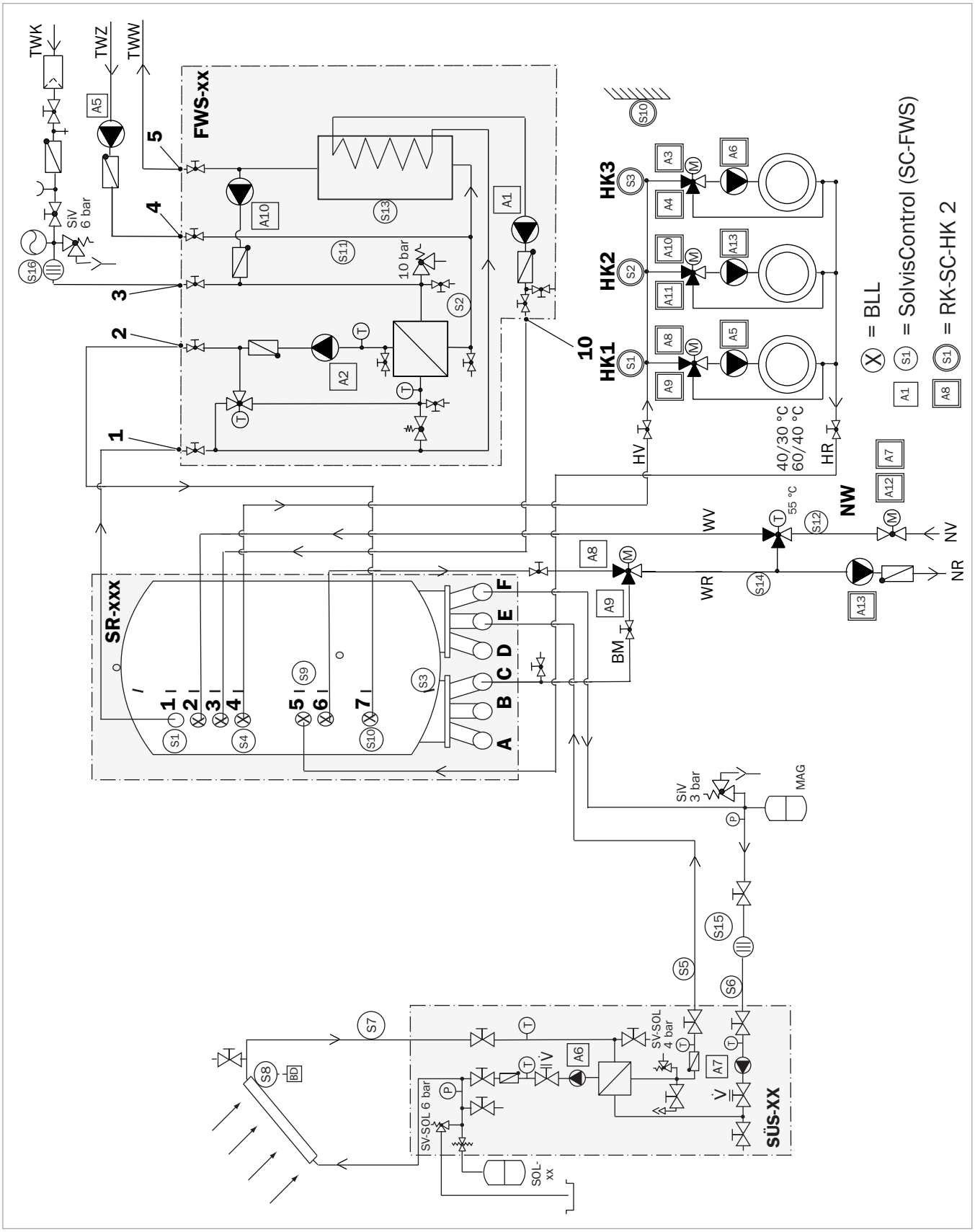


Fig. 35: SolvisVital 2 with local heating system, a storage tank and solar system

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...		*To...*	
Component	***Connection***	***Connection***	***Component***
1. SR-xxx SolvisStrato, storage tank 1	1	1	FWS fresh water station, flow HW-PHE (1)
	3*	WV	Heat generator, flow(2)
	4*	HV	Heating circuit(s), flow(2)
	7*	HR	Heating circuit(s), return(2)
	B	10	FWS fresh water station, return CB(1)
	C	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(2)
2. SR-xxx SolvisStrato, storage tank 2	7*	2	FWS fresh water station, return HW-PHE(1)
	C	BM	Admixture to the heat generator return and drain valve (on-site)(3)
	F	SR	Solar transfer station SÜS-xx, return(4)
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*
(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*
(5) *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*

Modules:

NW	*Local heating station (on-site)*
BLL	*Charging lance*
FWS-xx	*Fresh water station*
HK	*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*
V̇	*Volume flow adjusting valve*

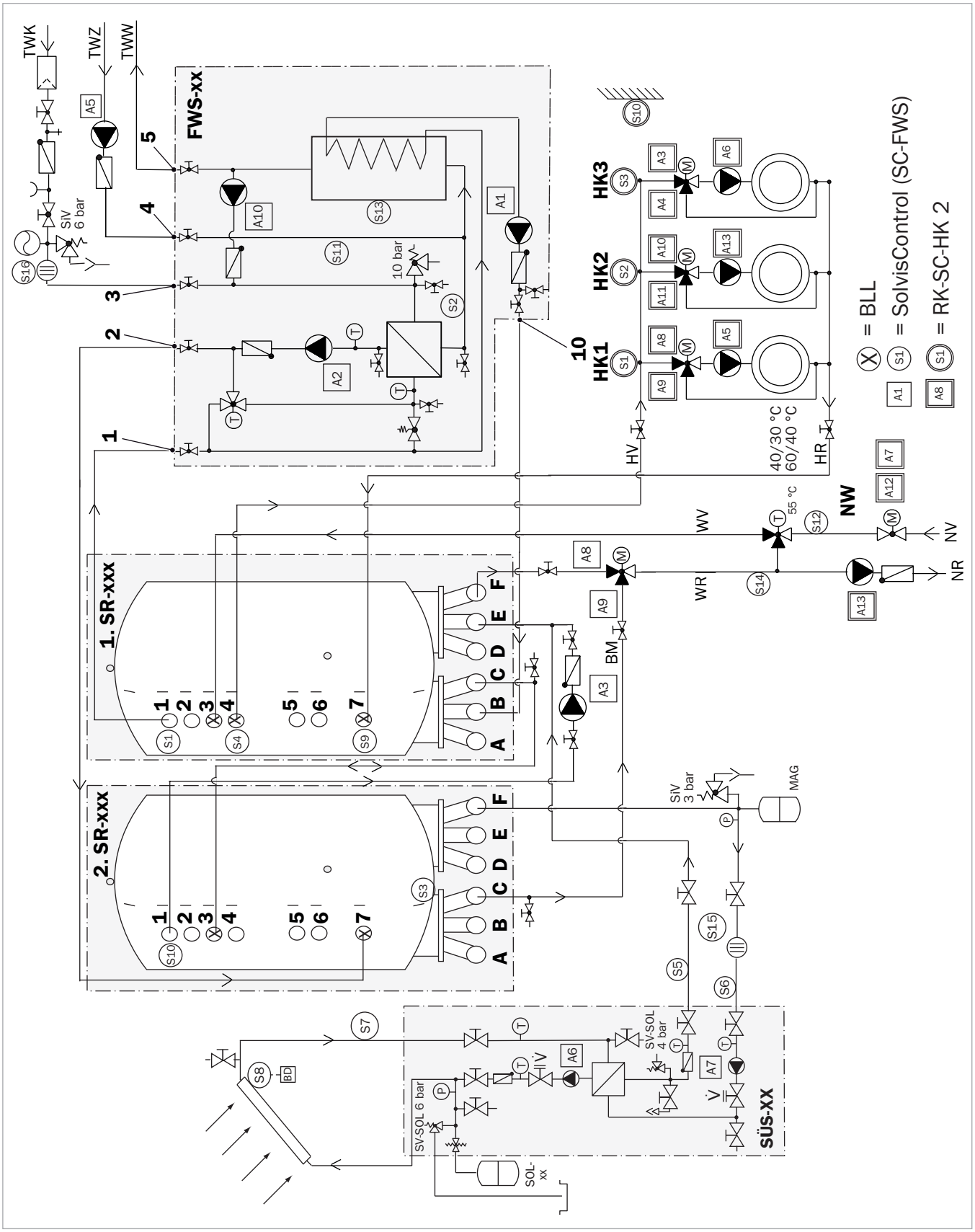


Fig. 36: SolvisVital2 with local heating system, two storage tanks and solar system

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

4.7.1 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***
S1	Top buffer sensor	**A1**	Load pump*
S2	Hot water sensor	**A2**	Hot water production pump*
S3	Storage tank reference sensor	**A3**	Pump transfer (for systems with two storage tanks)
S4	Hot water buffer sensor	**A4**	Unused
S5	Unused	**A5**	Circulation pump
S6	Unused	**A6**	Unused
S7	Unused	**A7**	Unused
S8	Unused	**A8**	Mixer return (open)
S9	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
S13	Middle tank sensor	**A13**	Charge pump*
S14	Heat generator return sensor	**A14**	Data transfer signal
S15	Unused	**A15**	Unused
S16	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*
S3	Heating circuit 3 flow sensor	**A3**	Mixer for heating circuit 3 (open)
S4	Unused	**A4**	Mixer for heating circuit 3 (closed)
S5	Unused	**A5**	Pump for heating circuit 1
S6	Unused/FW return display**	**A6**	Pump for heating circuit 3
S7	Unused	**A7**	Boiler alarm signal*
S8	Exhaust temperature sensor (optional)	**A8**	Mixer for heating circuit 1 (open)
S9	Unused	**A9**	Mixer for heating circuit 1 (closed)
S10	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~
S13	Unused	**A13**	Pump for heating circuit 2
S14	Unused	**A14**	Data transfer signal
S15	Volume flow encoder, heating circuits (optional)	**A15**	Analogue 0-10 V signal (boiler temperature/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)*

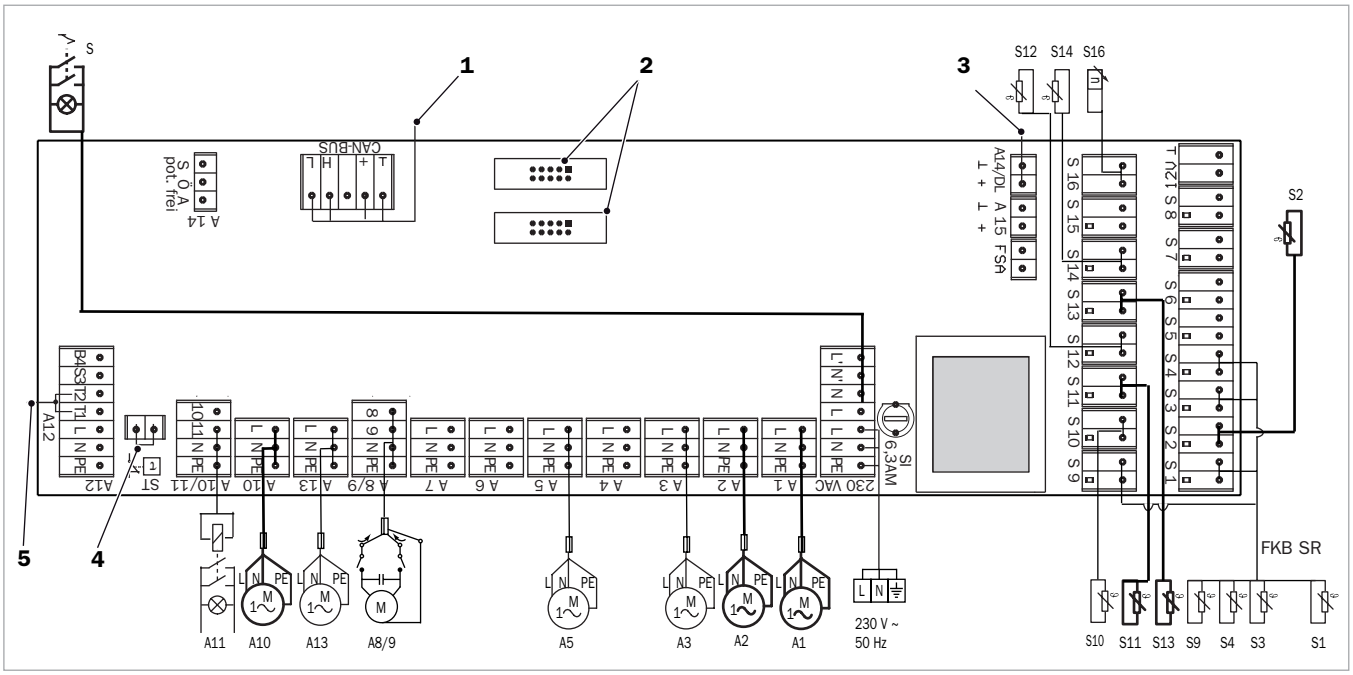


Fig. 37: Mains module of control console SC-FWS

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*

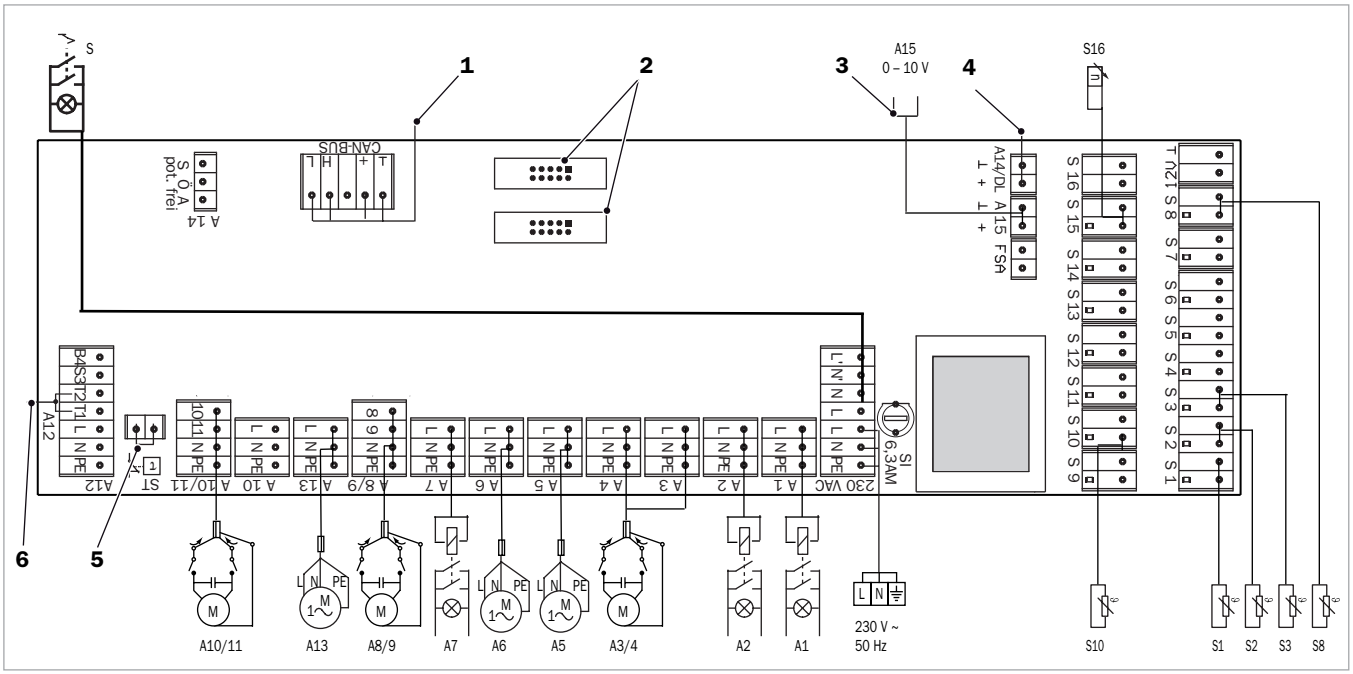


Fig. 38: Mains module of control console RK-SC-HK-2

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...		*To...*	
Component	***Connection***	***Connection***	***Component***
SR-xxx SolvisStrato	1	1	FWS fresh water station, flow HW-PHE (1)
	2*	WV	Heat generator, flow(2)
	3*	10	FWS fresh water station, return CB(1)
	4*	HV	Heating circuit(s), flow(2)
	5*	HR	Heating circuit(s), return(2)
	6*	WR	Heat generator, return(2)
	7*	2	FWS fresh water station, return HW-PHE(1)
	C	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*
(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*
BLL	*Charging lance*
FWS-xx	*Fresh water station*
HK	*Heating circuit(s) (on-site)*
SR-xxx	*SolvisStrato stratified buffer tank*

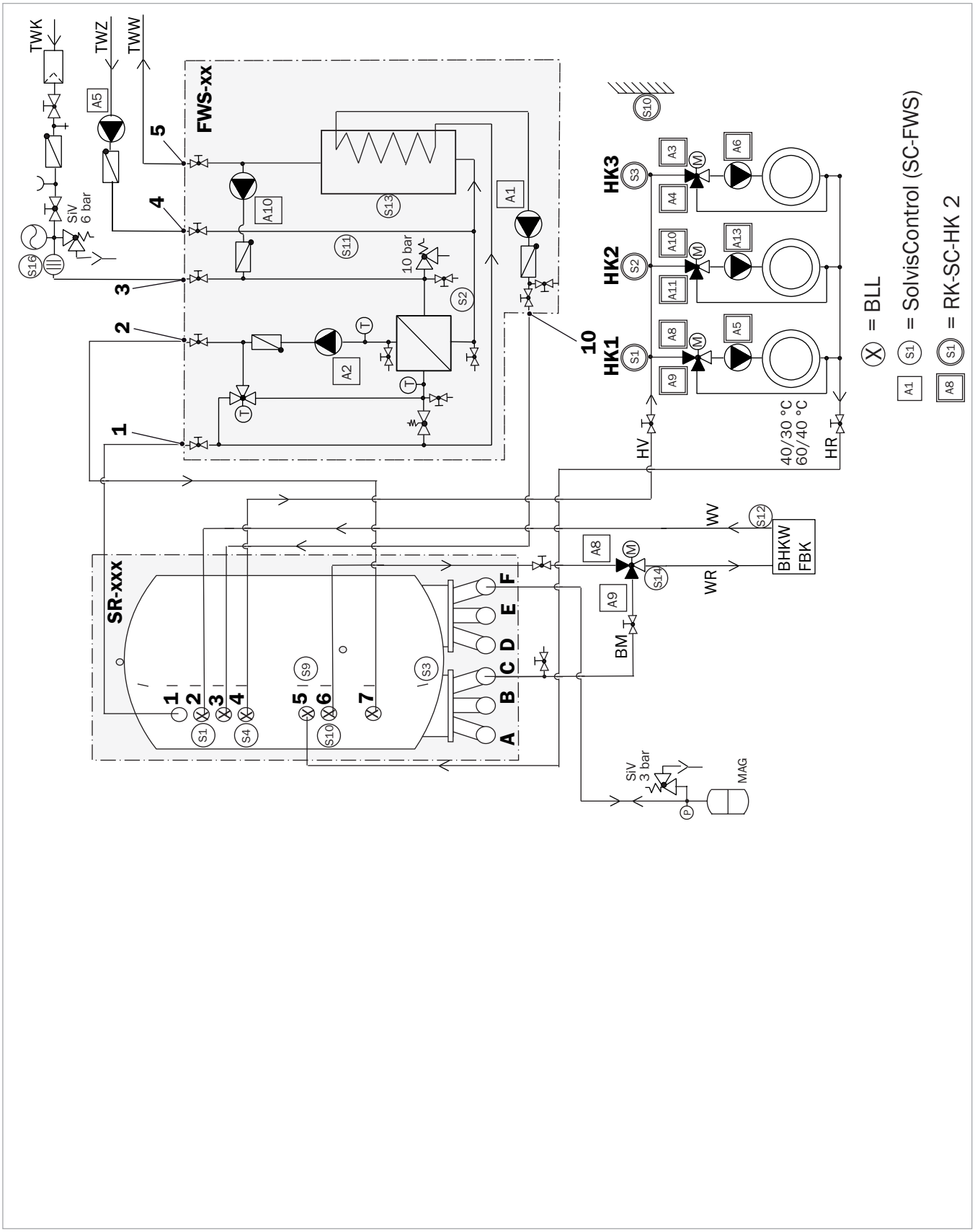


Fig. 39: SolvisVital 2 with a storage tank and combined heat and power plant or solid fuel boiler

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...		*To...*	
Component	***Connection***	***Connection***	***Component***
1. SR-xxx SolvisStrato, storage tank 1	1	1	FWS fresh water station, flow HW-PHE (1)
	3*	WV	Heat generator, flow(2)
	4*	HV	Heating circuit(s), flow(2)
	7*	HR	Heating circuit(s), return(2)
	B	10	FWS fresh water station, return CB(1)
	C	1	Storage tank SR2, connection 1 (DN40)
	F	WR	Heat generator, return(2)
2. SR-xxx SolvisStrato, storage tank 2	7*	2	FWS fresh water station, return HW-PHE(1)
	C	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*
(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*
BLL	*Charging lance*
FWS-xx	*Fresh water station*
HK	*Heating circuit(s) (on-site)*
SR-xxx	*SolvisStrato stratified buffer tank*

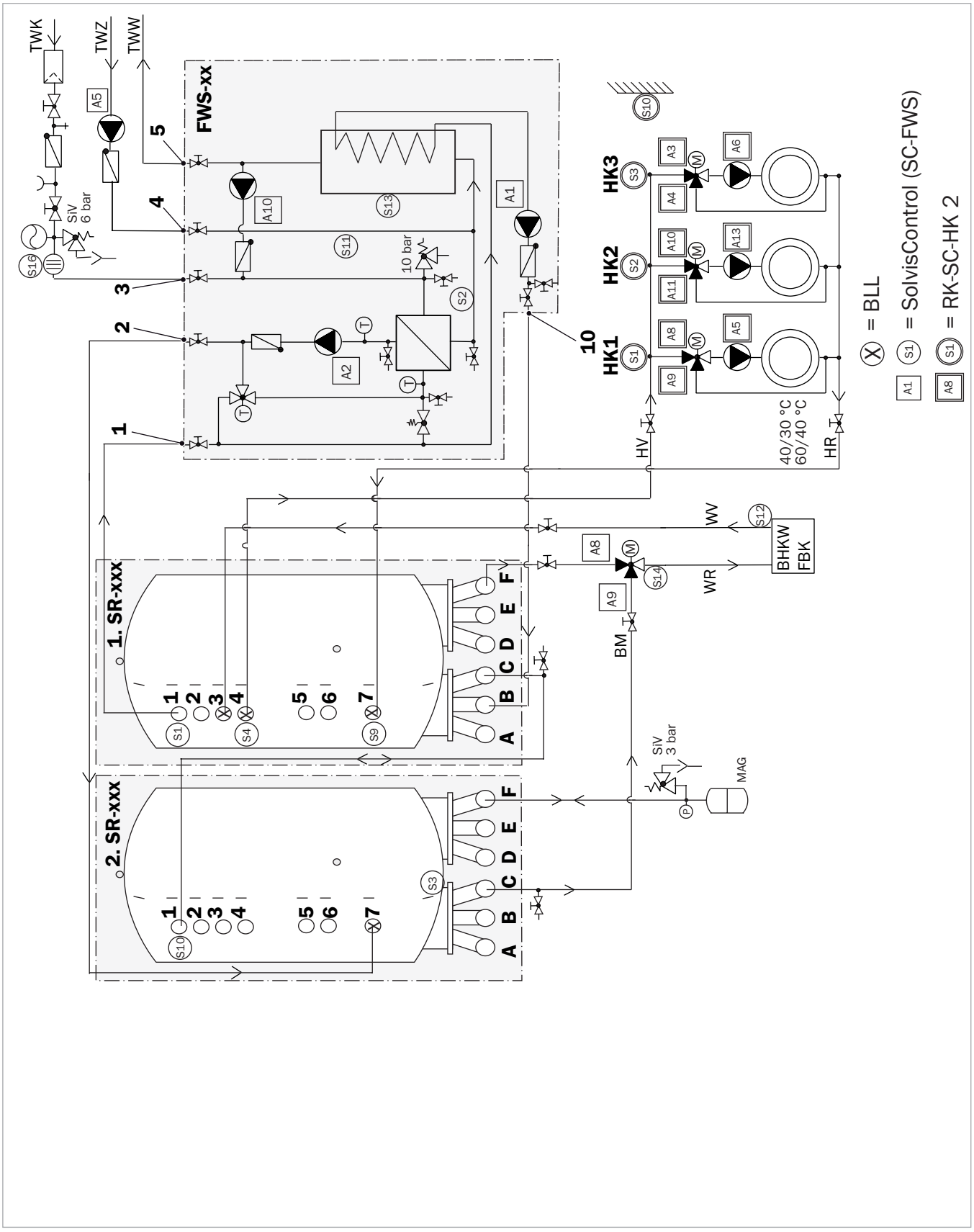


Fig. 40: SolvisVital 2 with two storage tanks and combined heat and power plant or solid fuel boiler

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

4.8.1 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***
S1	Top buffer sensor	**A1**	Load pump*
S2	Hot water sensor	**A2**	Hot water production pump*
S3	Storage tank reference sensor	**A3**	Pump transfer (for systems with two storage tanks)
S4	Hot water buffer sensor	**A4**	Unused
S5	Solar flow sensor, secondary	**A5**	Circulation pump
S6	Solar return sensor, secondary	**A6**	Solar circuit pump, primary*
S7	Solar flow sensor, primary	**A7**	Solar circuit pump, secondary*
S8	Solar collector sensor	**A8**	Mixer return (open)
S9	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
S13	Middle tank sensor	**A13**	Charge pump*
S14	Heat generator return sensor	**A14**	Data transfer signal
S15	Solar circuit volume flow encoder (e.g. VSG-S-2,5)	**A15**	Unused
S16	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*
S3	Heating circuit 3 flow sensor	**A3**	Mixer for heating circuit 3 (open)
S4	Unused	**A4**	Mixer for heating circuit 3 (closed)
S5	Unused	**A5**	Pump for heating circuit 1
S6	Unused/FW return display**	**A6**	Pump for heating circuit 3
S7	Unused	**A7**	Boiler alarm signal*
S8	Exhaust temperature sensor (optional)	**A8**	Mixer for heating circuit 1 (open)
S9	Unused	**A9**	Mixer for heating circuit 1 (closed)
S10	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~
S13	Unused	**A13**	Pump for heating circuit 2
S14	Unused	**A14**	Data transfer signal
S15	Volume flow encoder, heating circuits (optional)	**A15**	Analogue 0-10 V signal (boiler temperature/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)*

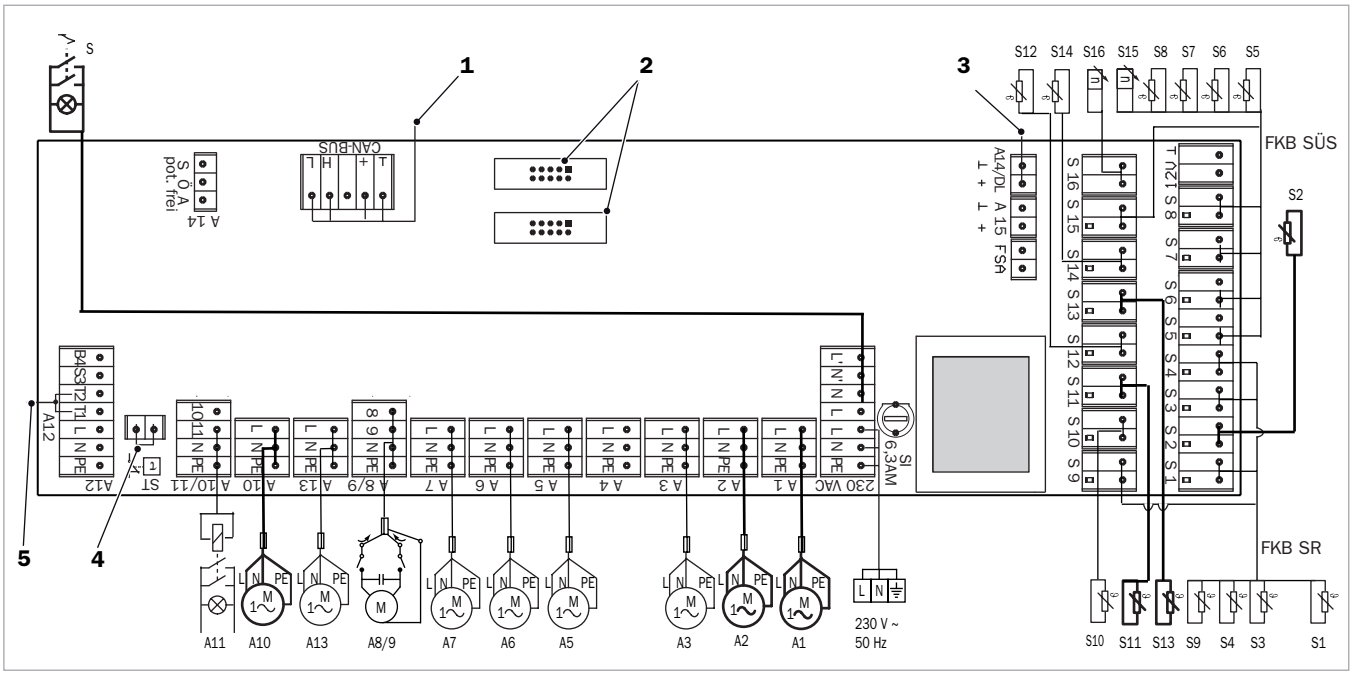


Fig. 41: Mains module of control console SC-FWS

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*

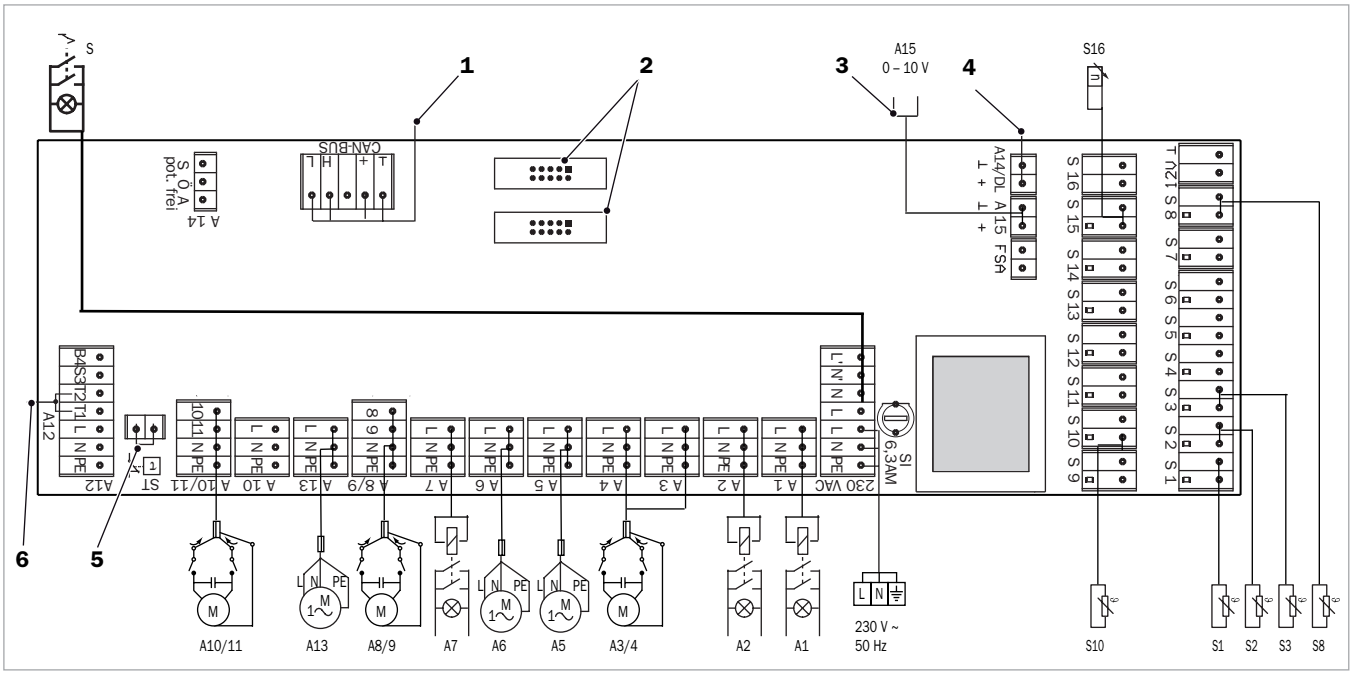


Fig. 42: Mains module of control console RK-SC-HK-2

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...		*To...*	
Component	***Connection***	***Connection***	***Component***
SR-xxx SolvisStrato	1	1	FWS fresh water station, flow HW-PHE (1)
	2*	WV	Heat generator, flow(2)
	3*	10	FWS fresh water station, return CB(1)
	4*	HV	Heating circuit(s), flow(2)
	5*	HR	Heating circuit(s), return(2)
	6*	WR	Heat generator, return(2)
	7*	2	FWS fresh water station, return HW-PHE(1)
	C	BM	Admixture to the heat generator return and drain valve (on-site)(3)
	E	SV	Solar transfer station, flow(4)
	F	SR	Solar transfer station, return(4)
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*
(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*

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*

Modules:

BHKW	*Combined heat and power plant*
FBK	*Solid fuel boiler*
BLL	*Charging lance*
FWS-xx	*Fresh water station*
HK	*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*
V̇	*Volume flow adjusting valve*

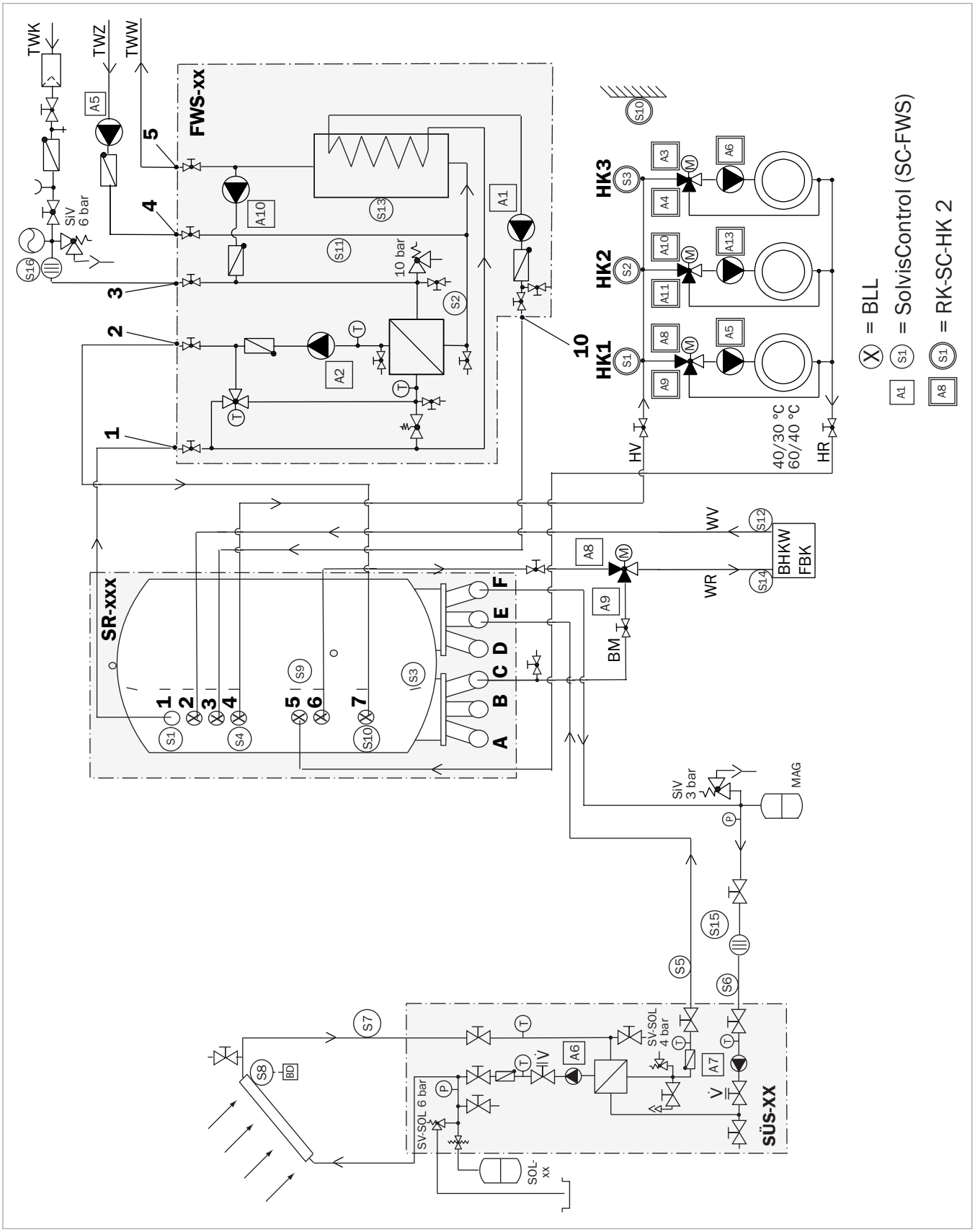


Fig. 43: SolvisVital 2 with a storage tank, solar system and combined heat and power plant or solid fuel boiler

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.

4.8.3 System diagram of a system with two storage tanks

Connections

From...		*To...*	
Component	***Connection***	***Connection***	***Component***
1. SR-xxx SolvisStrato, storage tank 1	1	1	FWS fresh water station, flow HW-PHE (1)
	3*	WV	Heat generator, flow(2)
	4*	HV	Heating circuit(s), flow(2)
	7*	HR	Heating circuit(s), return(2)
	B	10	FWS fresh water station, return CB(1)
	C	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(2)
2. SR-xxx SolvisStrato, storage tank 2	7*	2	FWS fresh water station, return HW-PHE(1)
	C	BM	Admixture to the heat generator return and drain valve (on-site)(3)
	F	SR	Solar transfer station SÜS-xx, return(4)
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*
(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*
(5) *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*

Modules:

BHKW	*Combined heat and power plant*
FBK	*Solid fuel boiler*
BLL	*Charging lance*
FWS-xx	*Fresh water station*
HK	*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*
V̇	*Volume flow adjusting valve*

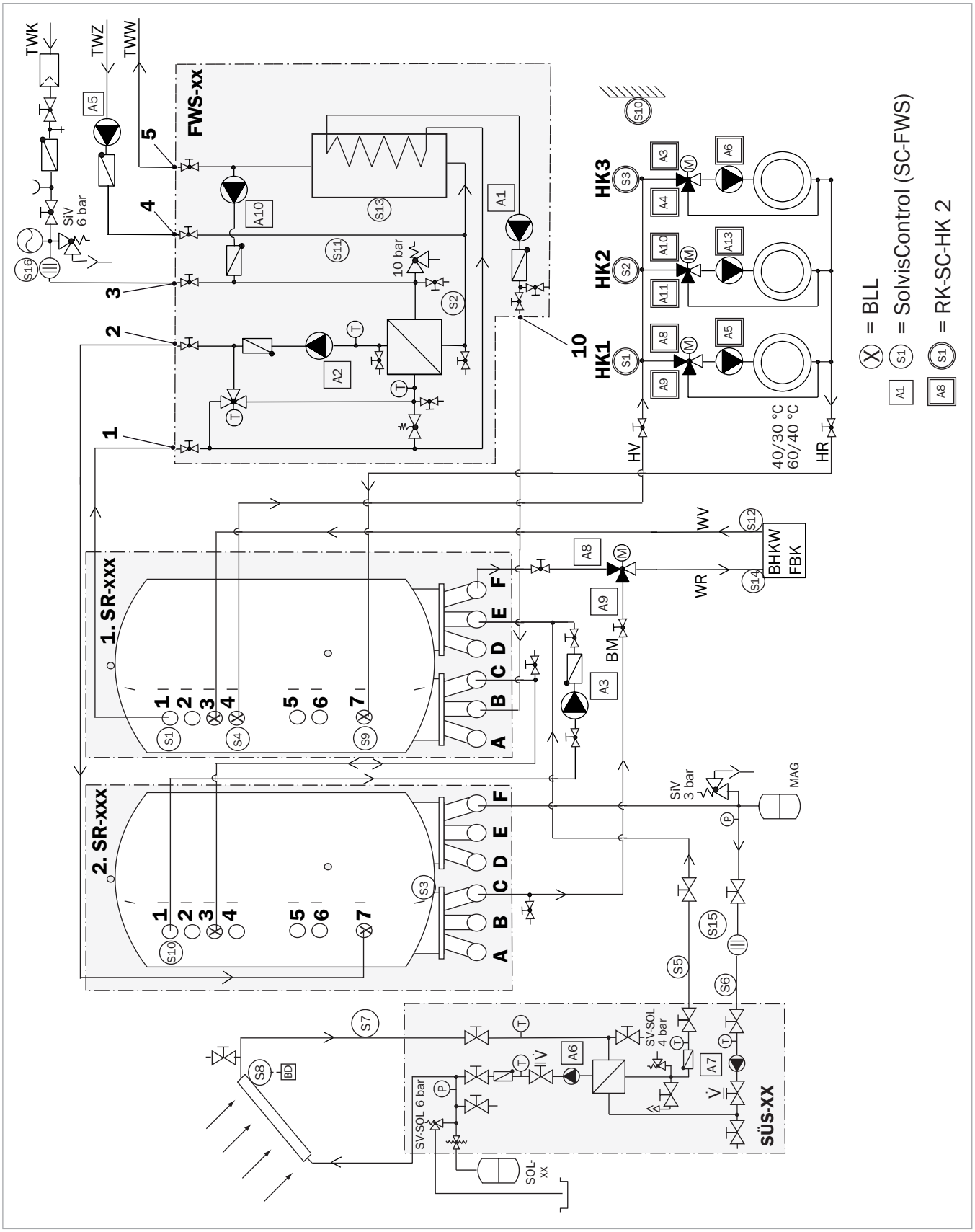


Fig. 44: SolvisVital 2 with two storage tanks, solar system and combined heat and power plant or solid fuel boiler

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.

4.9 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
- Non-modulating low-temperature or standard boilers with gas, oil or pellet firing
- Optional solar support

4.9.1 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***
S1	Top buffer sensor	**A1**	Load pump*
S2	Hot water sensor	**A2**	Hot water production pump*
S3	Storage tank reference sensor	**A3**	Pump transfer (for systems with two storage tanks)
S4	Hot water buffer sensor	**A4**	Unused
S5	Unused	**A5**	Circulation pump
S6	Unused	**A6**	Unused
S7	Unused	**A7**	Unused
S8	Unused	**A8**	Mixer return (open)
S9	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
S13	Middle tank sensor	**A13**	Charge pump*
S14	Heat generator return sensor	**A14**	Data transfer signal
S15	Unused	**A15**	Unused
S16	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*
S3	Heating circuit 3 flow sensor	**A3**	Mixer for heating circuit 3 (open)
S4	Unused	**A4**	Mixer for heating circuit 3 (closed)
S5	Unused	**A5**	Pump for heating circuit 1
S6	Unused/FW return display**	**A6**	Pump for heating circuit 3
S7	Unused	**A7**	Boiler alarm signal*
S8	Exhaust temperature sensor (optional)	**A8**	Mixer for heating circuit 1 (open)
S9	Unused	**A9**	Mixer for heating circuit 1 (closed)
S10	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~
S13	Unused	**A13**	Pump for heating circuit 2
S14	Unused	**A14**	Data transfer signal
S15	Volume flow encoder, heating circuits (optional)	**A15**	Analogue 0-10 V signal (boiler temperature/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)*

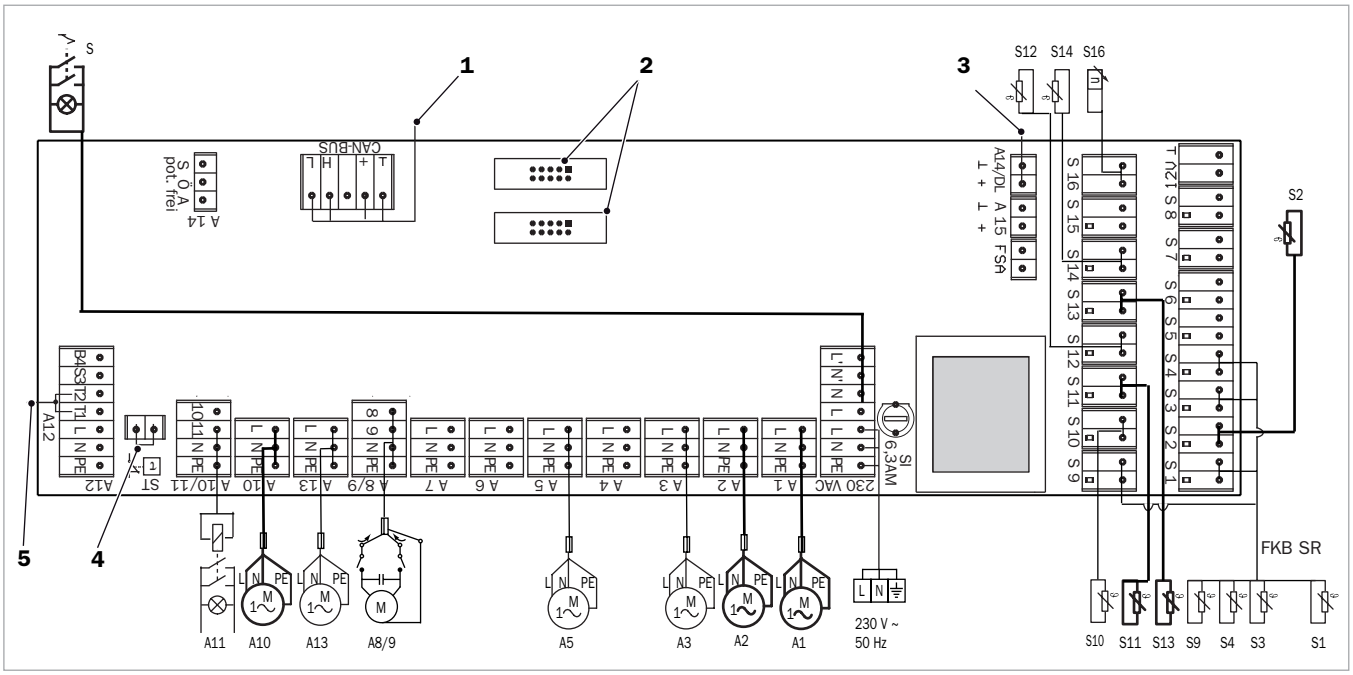


Fig. 45: Mains module of control console SC-FWS

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*

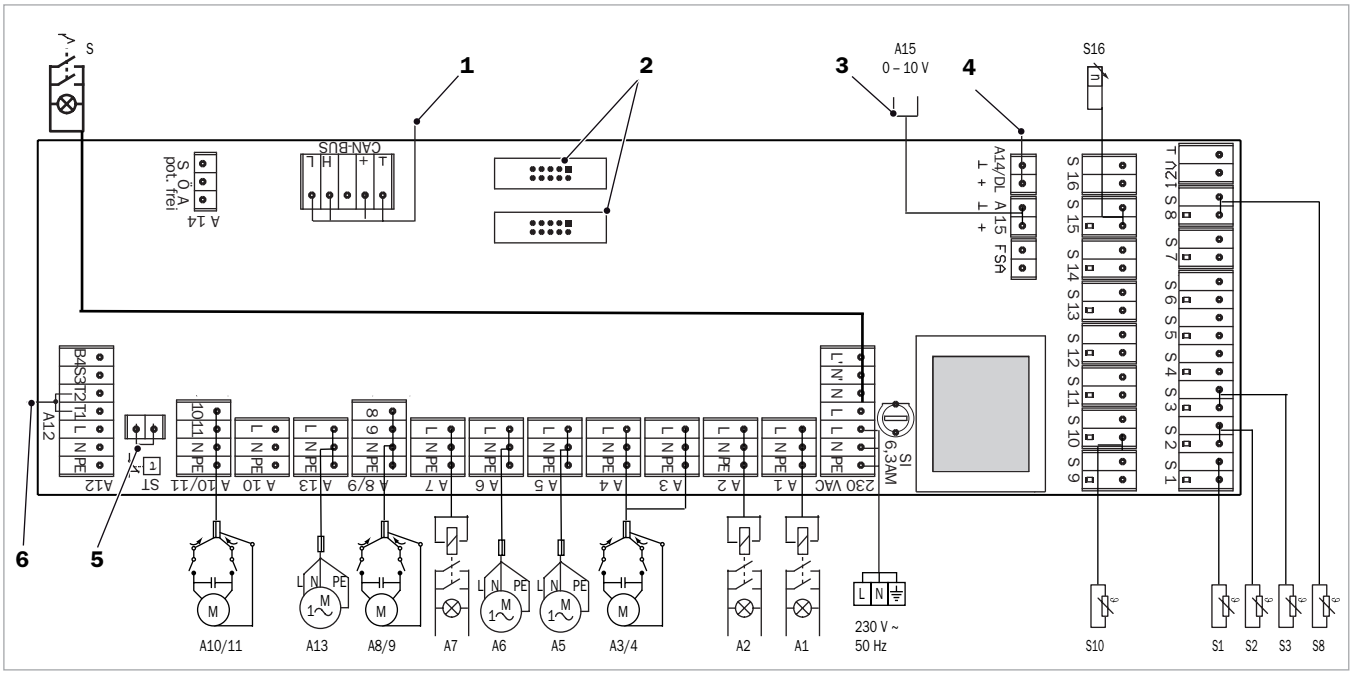


Fig. 46: Mains module of control console RK-SC-HK-2

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...		*To...*	
Component	***Connection***	***Connection***	***Component***
SR-xxx SolvisStrato	1	1	FWS fresh water station, flow HW-PHE (1)
	2*	WV	Heat generator, flow(2)
	3*	10	FWS fresh water station, return CB(1)
	4*	HV	Heating circuit(s), flow(2)
	5*	WR	Heat generator, return(2)
	6*	HR	Heating circuit(s), return(2)
	7*	2	FWS fresh water station, return HW-PHE(1)
	C	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*
(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:

SK	*Non-modulating gas, oil or pellet boiler (on-site)*
BLL	*Charging lance*
FWS-xx	*Fresh water station*
HK	*Heating circuit(s) (on-site)*
SR-xxx	*SolvisStrato stratified buffer tank*

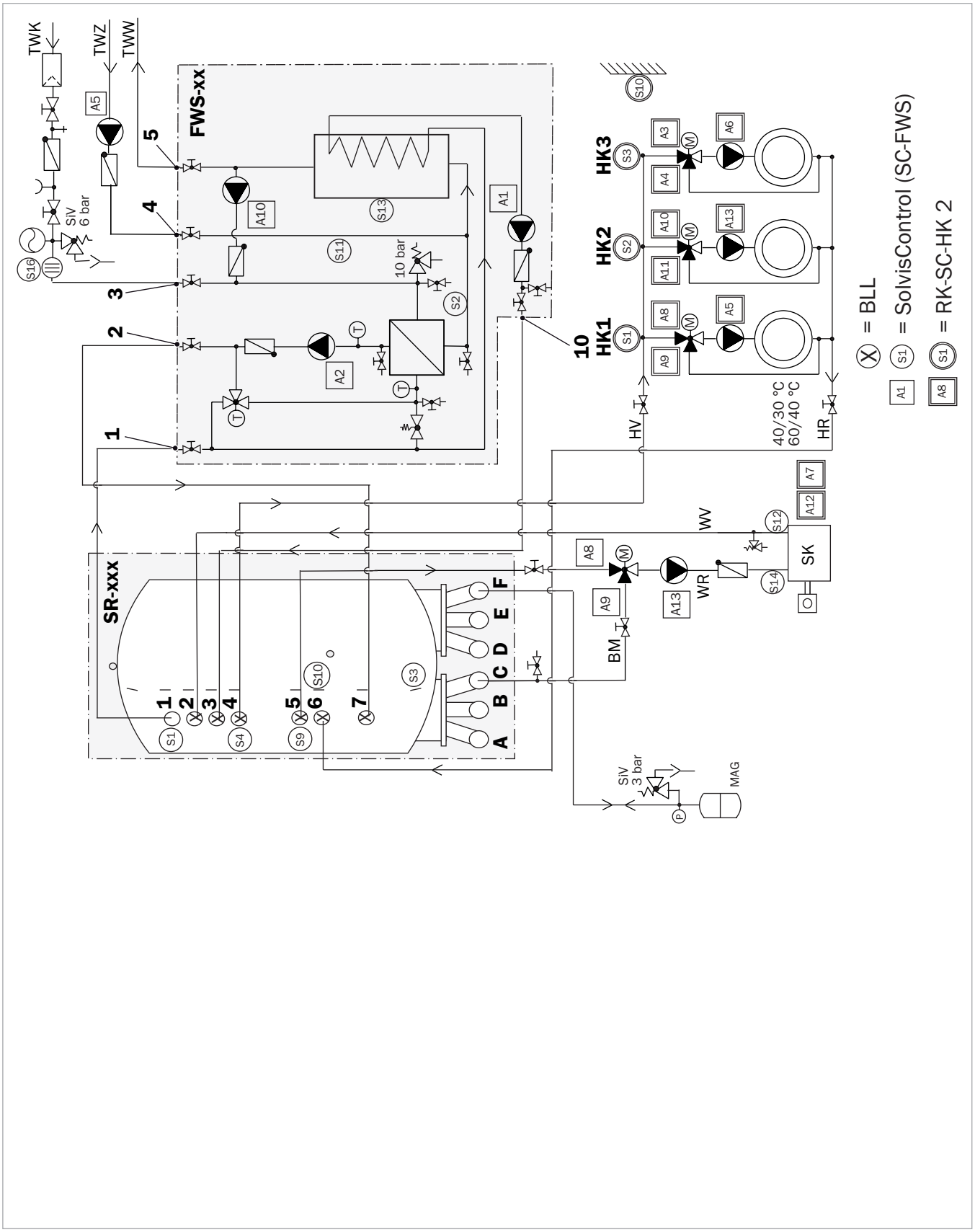


Fig. 47: SolvisVital 2 with non-modulating gas, oil or pellet boiler and storage tank

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...		*To...*	
Component	***Connection***	***Connection***	***Component***
1. SR-xxx SolvisStrato, storage tank 1	1	1	FWS fresh water station, flow HW-PHE (1)
	3*	WV	Heat generator, flow(2)
	4*	HV	Heating circuit(s), flow(2)
	7*	WR	Heat generator, return(2)
	B	10	FWS fresh water station, return CB(1)
	C	1	Storage tank SR2, connection 1 (DN40)
	F	HR	Heating circuit(s), return(2)
2. SR-xxx SolvisStrato, storage tank 2	7*	2	FWS fresh water station, return HW-PHE(1)
	C	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*
(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:

SK	*Non-modulating gas, oil or pellet boiler (on-site)*
BLL	*Charging lance*
FWS-xx	*Fresh water station*
HK	*Heating circuit(s) (on-site)*
SR-xxx	*SolvisStrato stratified buffer tank*

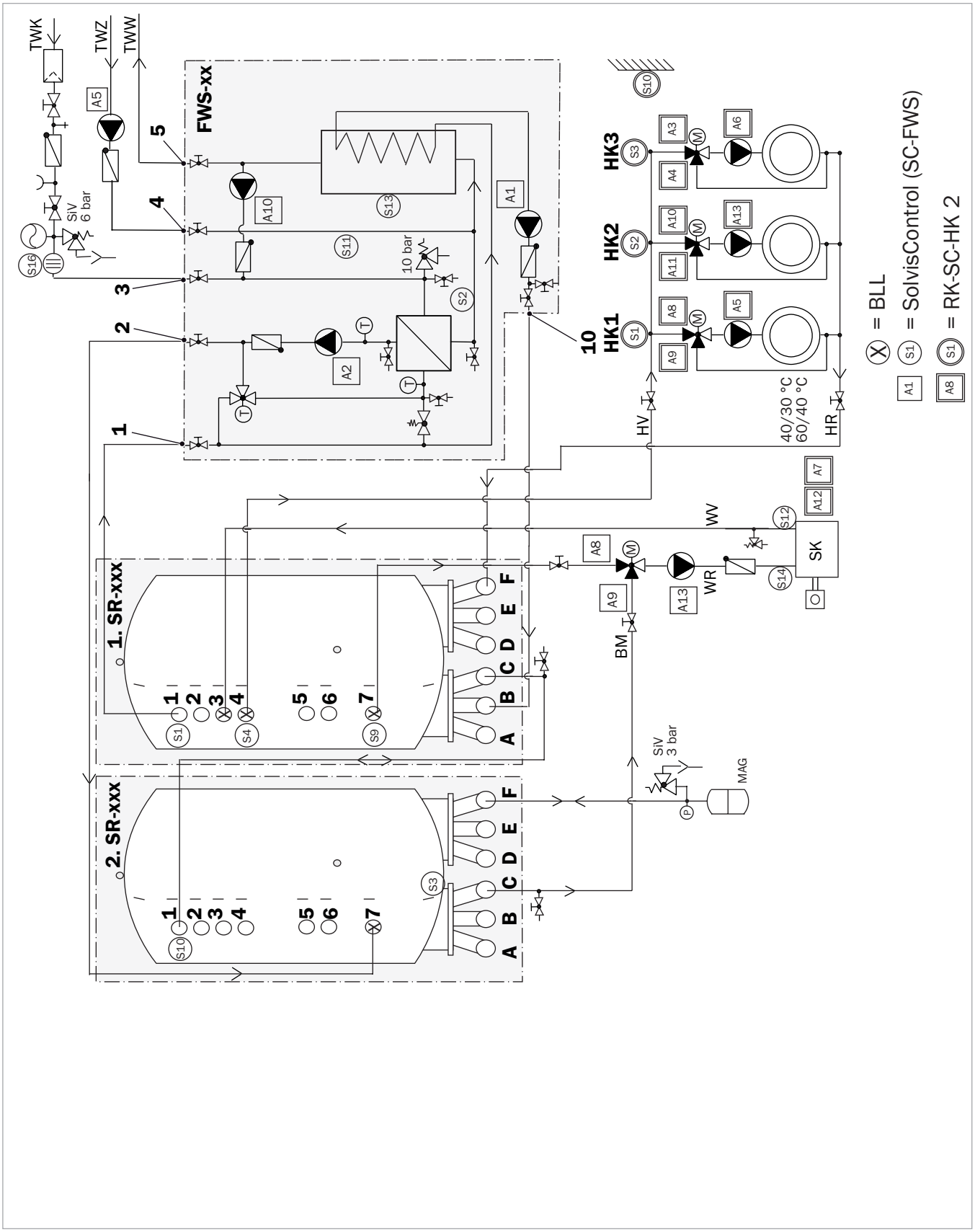


Fig. 48: SolvisVital 2 with non-modulating gas, oil or pellet boiler and two storage tanks

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

4.10.1 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***
S1	Top buffer sensor	**A1**	Load pump*
S2	Hot water sensor	**A2**	Hot water production pump*
S3	Storage tank reference sensor	**A3**	Pump transfer (for systems with two storage tanks)
S4	Hot water buffer sensor	**A4**	Unused
S5	Solar flow sensor, secondary	**A5**	Circulation pump
S6	Solar return sensor, secondary	**A6**	Solar circuit pump, primary*
S7	Solar flow sensor, primary	**A7**	Solar circuit pump, secondary*
S8	Solar collector sensor	**A8**	Mixer return (open)
S9	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
S13	Middle tank sensor	**A13**	Charge pump*
S14	Heat generator return sensor	**A14**	Data transfer signal
S15	Solar circuit volume flow encoder (e.g. VSG-S-2,5)	**A15**	Unused
S16	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*
S3	Heating circuit 3 flow sensor	**A3**	Mixer for heating circuit 3 (open)
S4	Unused	**A4**	Mixer for heating circuit 3 (closed)
S5	Unused	**A5**	Pump for heating circuit 1
S6	Unused/FW return display**	**A6**	Pump for heating circuit 3
S7	Unused	**A7**	Boiler alarm signal*
S8	Exhaust temperature sensor (optional)	**A8**	Mixer for heating circuit 1 (open)
S9	Unused	**A9**	Mixer for heating circuit 1 (closed)
S10	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~
S13	Unused	**A13**	Pump for heating circuit 2
S14	Unused	**A14**	Data transfer signal
S15	Volume flow encoder, heating circuits (optional)	**A15**	Analogue 0-10 V signal (boiler temperature/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)*

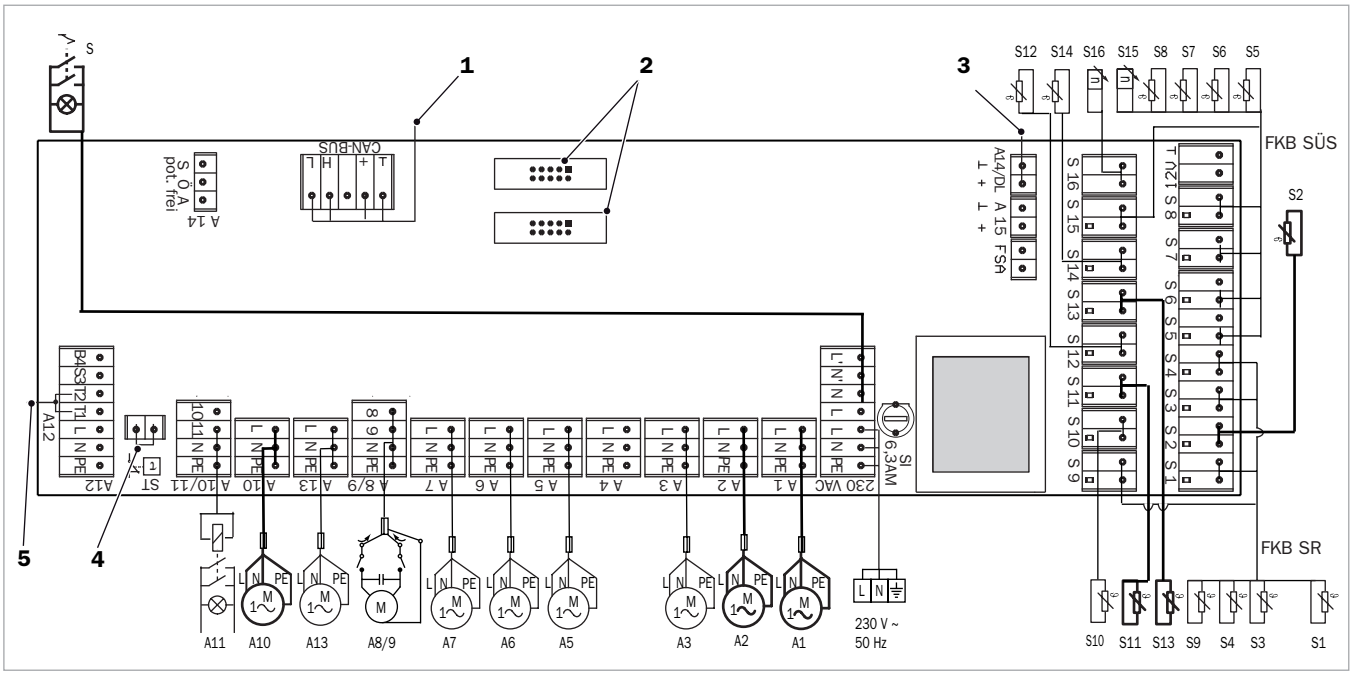


Fig. 49: Mains module of control console SC-FWS

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*

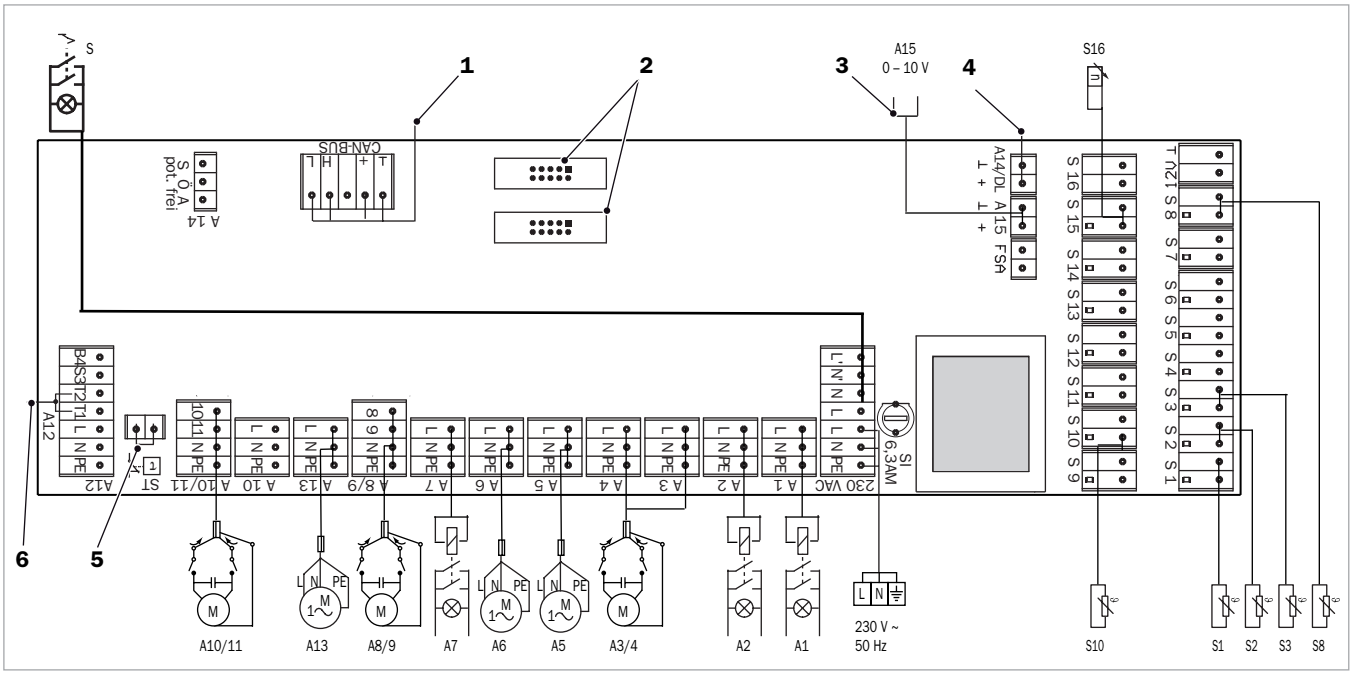


Fig. 50: Mains module of control console RK-SC-HK-2

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...		*To...*	
Component	***Connection***	***Connection***	***Component***
SR-xxx SolvisStrato	1	1	FWS fresh water station, flow HW-PHE (1)
	2*	WV	Heat generator, flow(2)
	3*	10	FWS fresh water station, return CB(1)
	4*	HV	Heating circuit(s), flow(2)
	5*	WR	Heat generator, return(2)
	6*	HR	Heating circuit(s), return(2)
	7*	2	FWS fresh water station, return HW-PHE(1)
	C	BM	Admixture to the heat generator return and drain valve (on-site)(3)
	E	SV	Solar transfer station, flow(4)
	F	SR	Solar transfer station, return(4)
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*
(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*

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*

Modules:

SK	*Non-modulating gas, oil or pellet boiler (on-site)*
BLL	*Charging lance*
FWS-xx	*Fresh water station*
HK	*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*
V̇	*Volume flow adjusting valve*

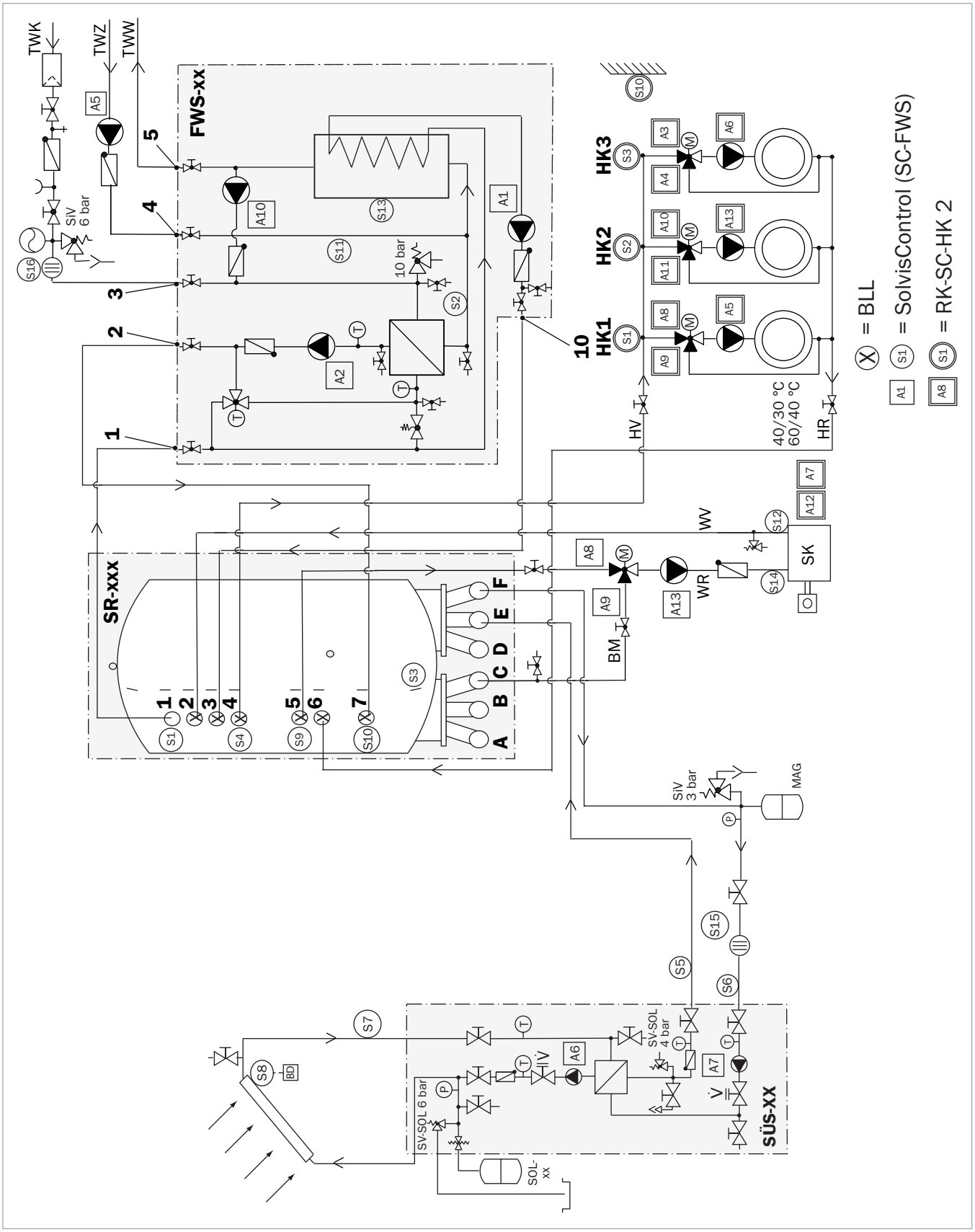


Fig. 51: SolvisVital 2 with non-modulating gas, oil or pellet boiler as well as a storage tank and solar system

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.

4.10.3 System diagram of a system with two storage tanks

Connections

From...		*To...*	
Component	***Connection***	***Connection***	***Component***
1. SR-xxx SolvisStrato, storage tank 1	1	1	FWS fresh water station, flow HW-PHE (1)
	3*	WV	Heat generator, flow(2)
	4*	HV	Heating circuit(s), flow(2)
	7*	WR	Heat generator, return(2)
	B	10	FWS fresh water station, return CB(1)
	C	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(2)
2. SR-xxx SolvisStrato, storage tank 2	7*	2	FWS fresh water station, return HW-PHE(1)
	C	BM	Admixture to the heat generator return and drain valve (on-site)(3)
	F	SR	Solar transfer station SÜS-xx, return(4)
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*
(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*
(5) *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*

Modules:

SK	*Non-modulating gas, oil or pellet boiler (on-site)*
BLL	*Charging lance*
FWS-xx	*Fresh water station*
HK	*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*
V̇	*Volume flow adjusting valve*

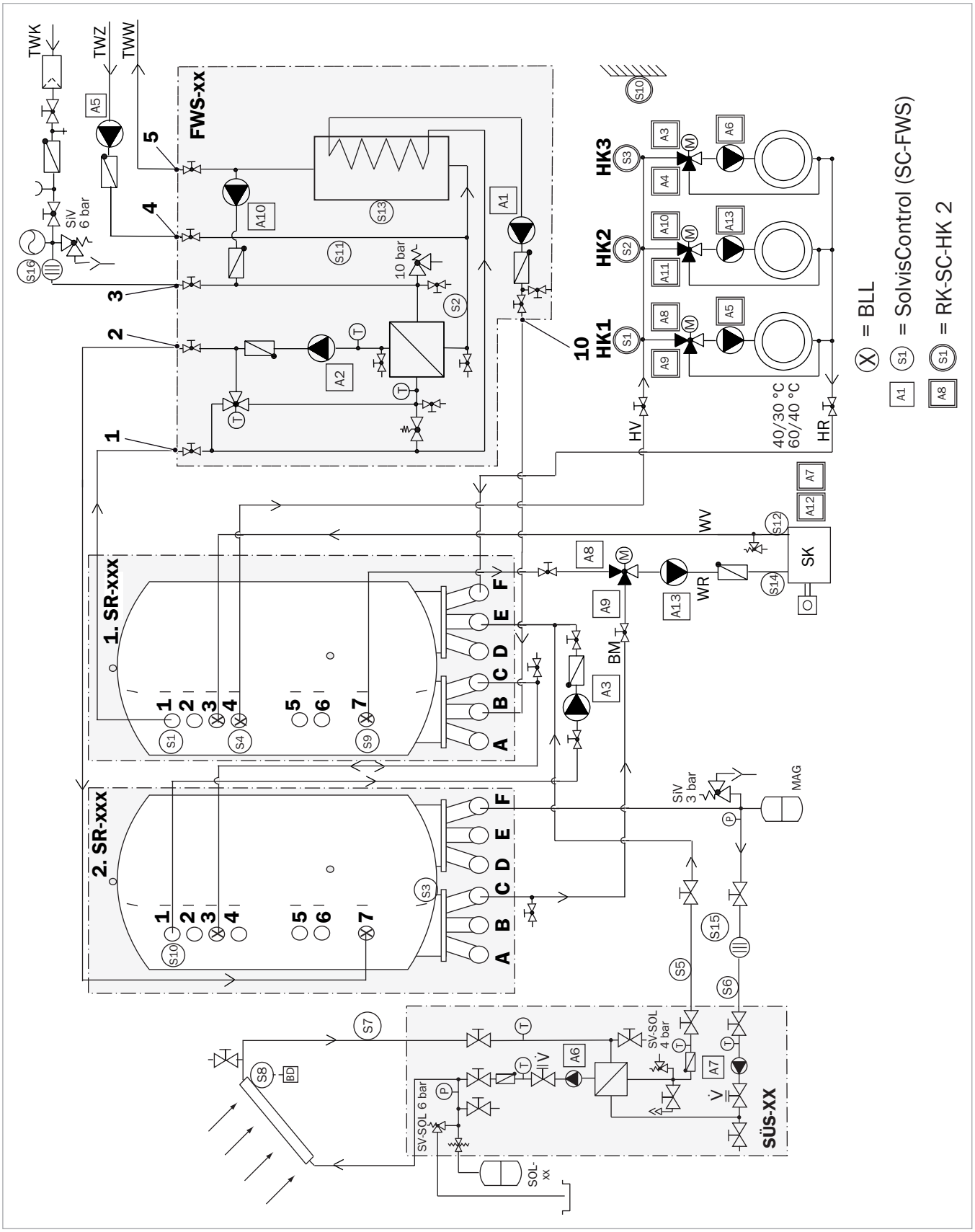


Fig. 52: SolvisVital 2 with non-modulating gas, oil or pellet boiler as well as two storage tanks and solar system

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.

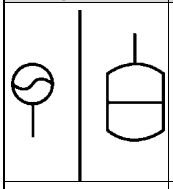
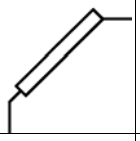
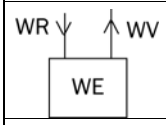
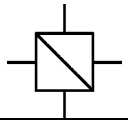
5 Appendix

5.1 Hydraulic elements

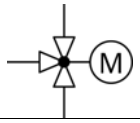
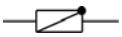
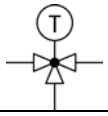
Valves

Symbol	*Meaning*
	Manometer
	Thermometer

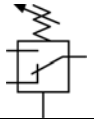
Components

Symbol	*Meaning*
	Membrane expansion vessel
	Membrane expansion vessel coupling
	Oil or gas burner
	Solar collector
	Consumers in the heating circuit
	Heat generator, general (WR/V = heat return/flow)
	Heat exchanger

Valves

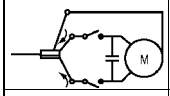
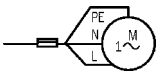
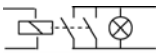
Symbol	*Meaning*
	Shut-off valve
	Adjusting valve
	Bleeding valve
	Air separator
	Motor-driven mixing valve
	Gravity brake
	Safety valve
	Thermostatic mixing valve

Other components

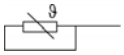
Symbol	*Meaning*
	Connection point for measurement and control equipment
	Pressure controller, solar circuit
	Volume flow encoder
	Pump
	Sludge separator
	Filter, drinking water

5.2 Electrical switching symbol

Actuators

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

Sensors

Symbol	*Meaning*
S8	Sensor, general (temperature sensor, volume flow encoder, etc.)
	Volume flow encoder
	Temperature sensor

Other components

Symbol	*Meaning*
	Jumper
	On/off switch (button with lock function)
	Fuse, 6.3 A semi time-lag (upright view)

SOLVIS GmbH & Co KG • Grotrian-Steinweg-Straße 12 • D-38112 Braunschweig • Tel.: +49 (0) 531 28904-0 • Fax: +49 (0) 531 28904-100 • www.solvis.de