System Diagram
SolvisMax

Connection Diagrams and System Diagrams for the SolvisMax System

- Gas und Öl
- Fernwärme (with district heating)
- Pellet, third-party boiler
- Teo
- Vaero

Wärme. Leben. Zukunft

Contents

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.

Copyright

A list of our international representatives is provided at www.solvis.com.
Please understand that the telephone numbers are reserved for use by our installers.
Interested system operators should contact their installer.

Symbols used

DANGER
Immediate danger, with serious health consequences and even death.

WARNING
Danger, with potentially serious health consequences.

CAUTION
Possible risk of moderate or light injury.

CAUTION
Risk of damage to unit or system.

Useful information, notes and work tips.

Change of document, referring to another document.

Energy-saving tip with suggestions on how to save energy. This reduces costs and helps protect the environment.

2 Gas, Öl, Fernwärme (District Heating), Pellet, Third-Party Boiler

2.1 SolvisMax Gas and Öl

2.1.1 Basic equipment

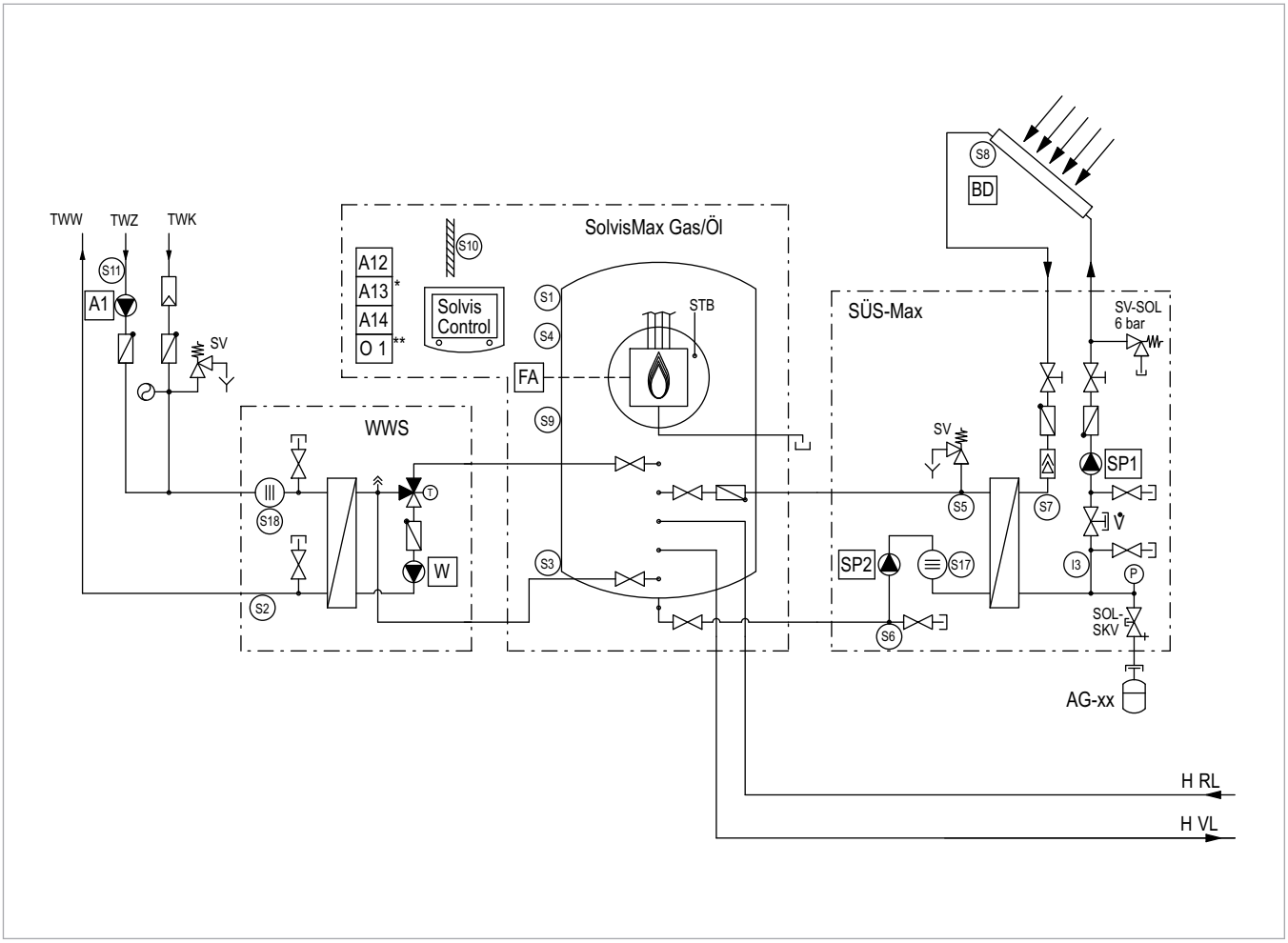


Fig. 1: SolvisMax Gas / SolvisMax Öl basic version with three mixed heating circuits – Part 1

* Only applies to SÖ, ** Only applies to SX

Equipment

- SolvisControl 2 system controller
- Drinking water heating
- Two mixed heating circuits
- Solar circuit with one collector (field)
- Oil or gas condensing system
- An additional temperature-limited or mixed heating circuit

Modules:

BD	*Lightning protection box*
HKS-G	*Heating circuit station, mixed*
AG-xx	*Solar expansion vessel*
WWS	*Hot water station*
SG-H	*Heating circuit safety group*
SÜS-MAX	*Solar heat transferstation*
VTL-3	*Distributor bar, 3-way*

Abbreviations

LA	*Air separator*
AG	*Expansion vessel*
SAS	*Sludge separator*
SV	*Safety valve*
SOL-SKV	*Solar cap valve*
SV-SOL	*Solar safety valve*
TWK	*Drinking water network, cold connection*
TWW	*Drinking water network, hot connection*
TWZ	*Drinking water network, circulation connection*
V̇	*Adjusting valve*
HK1-3	*Heating circuit 1 to 3*
FA	*Automatic firing system*
H-RL	*Heating return*
H-VL	*Heating flow*
STB	*Safety temperature limiter*

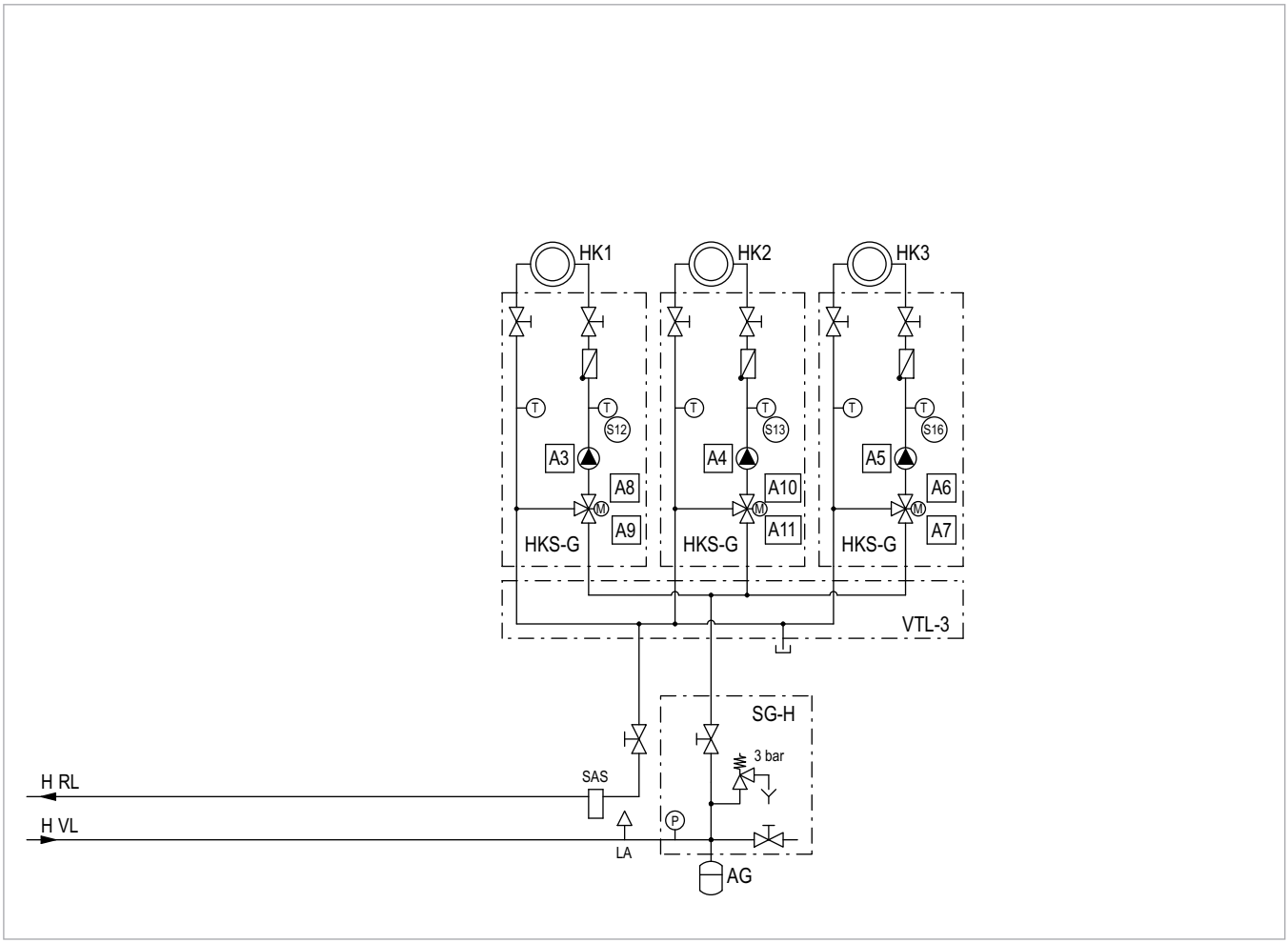


Fig. 2: SolvisMax Gas / SolvisMax Öl basic version with three mixed heating circuits – Part 2

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.

2.1.2 East/west roof

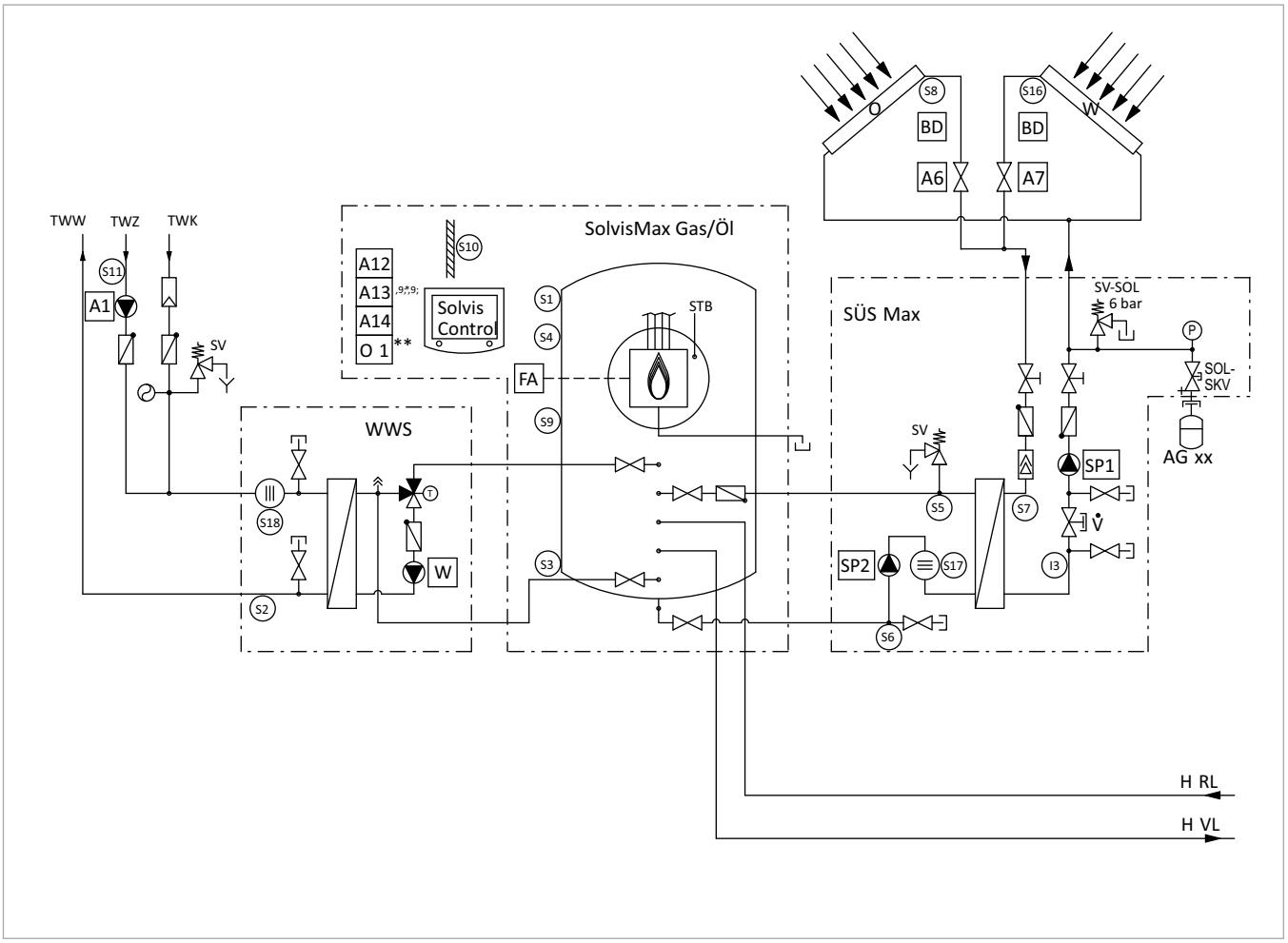


Fig. 3: SolvisMax Gas / SolvisMax Öl with east-west roof, two mixed heating circuits – Part 1

* Only applies to SÖ, ** Only applies to SX

Equipment

- SolvisControl 2 system controller
- Drinking water heating
- Two mixed heating circuits
- Solar circuit with one collector (field)
- Oil or gas condensing system
- Additional collector(field) on the opposite half of the roof (east-west roof)

Modules:

BD	*Lightning protection box*
HKS-G	*Heating circuit station, mixed*
AG-xx	*Solar expansion vessel*
WWS	*Hot water station*
SG-H	*Heating circuit safety group*
SÜS-MAX	*Solar heat transferstation*
VTL-3	*Distributor bar, 3-way*

Abbreviations

LA	*Air separator*
AG	*Expansion vessel*
SAS	*Sludge separator*
SV	*Safety valve*
SOL-SKV	*Solar cap valve*
SV-SOL	*Solar safety valve*
TWK	*Drinking water network, cold connection*
TWW	*Drinking water network, hot connection*
TWZ	*Drinking water network, circulation connection*
$\dot{V}$	*Adjusting valve*
HK1-3	*Heating circuit 1 to 3*
FA	*Automatic firing system*
H-RL	*Heating return*
H-VL	*Heating flow*
STB	*Safety temperature limiter*
O	*Collector (field) on the east roof*
W	*Collector (field) on the west roof*

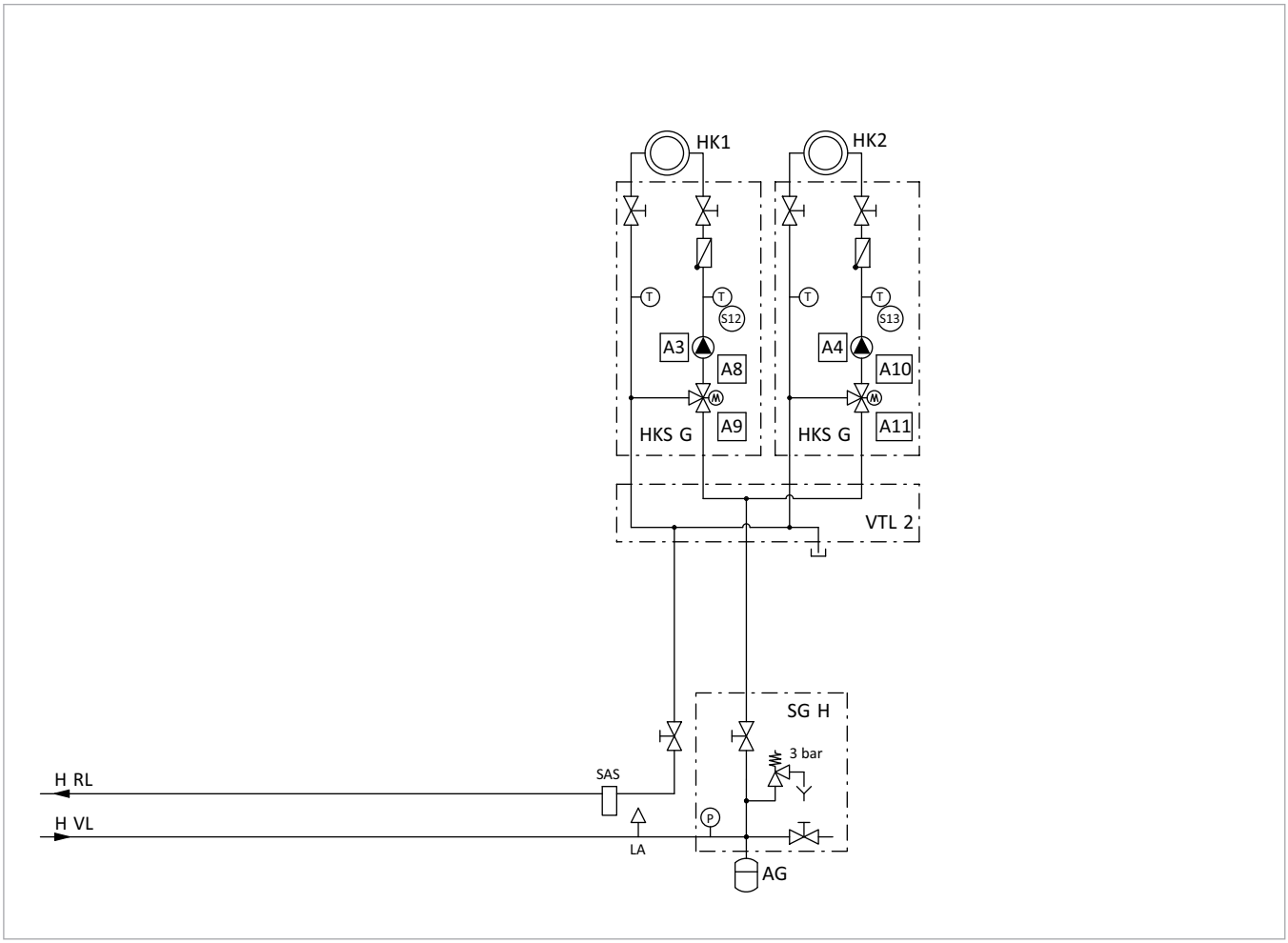


Fig. 4: SolvisMax Gas / SolvisMax Öl with an east-west roof, two mixed heating circuits – Part 2

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.

2.1.3 Solid fuel boiler

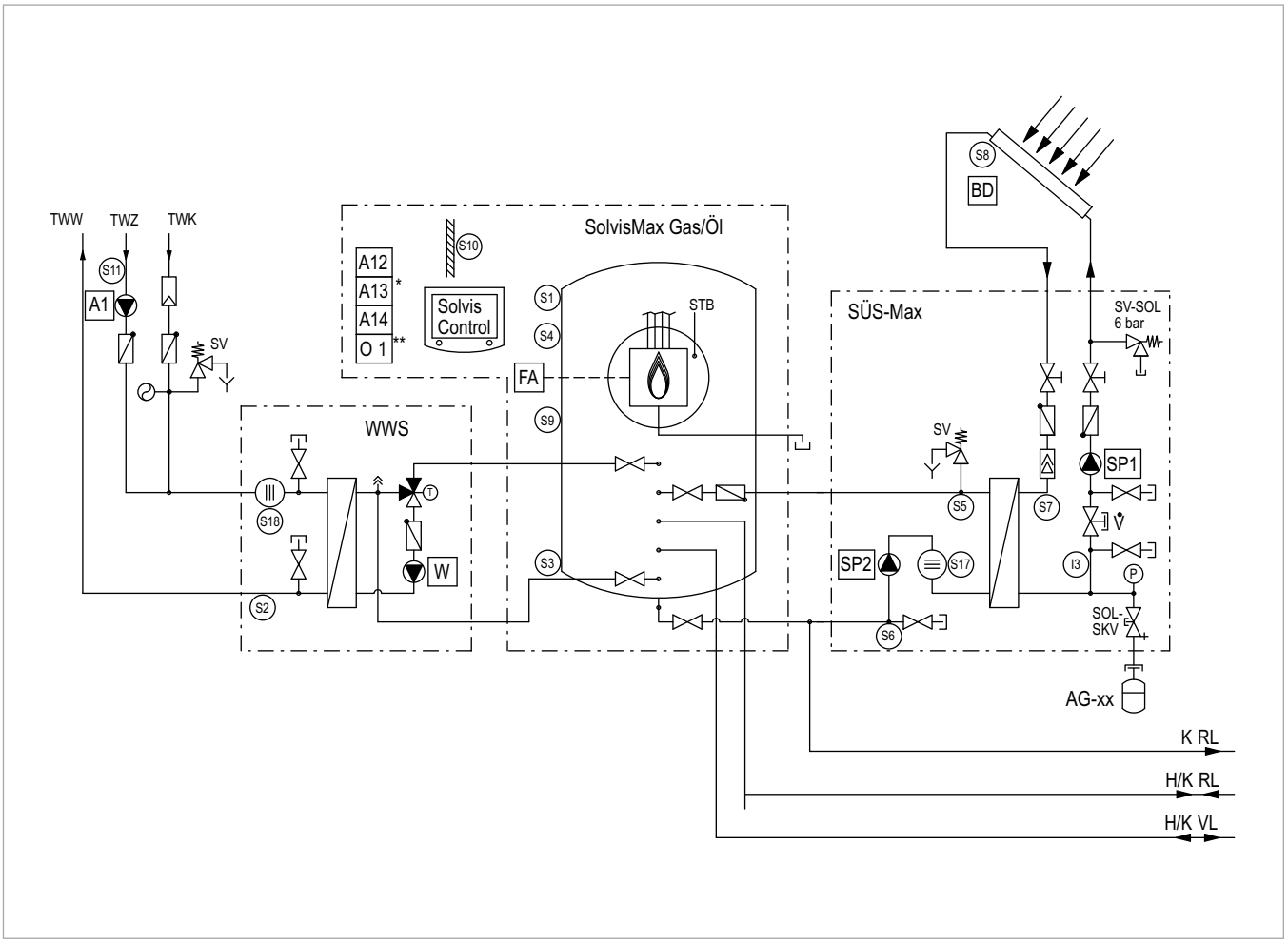


Fig. 5: SolvisMax Gas / SolvisMax Öl with a solid fuel boiler, two mixed heating circuits – Part 1

* Only applies to SÖ, ** Only applies to SX

Equipment

- SolvisControl 2 system controller
- Drinking water heating
- Two mixed heating circuits
- Solar circuit with one collector (field)
- Oil or gas condensing system
- additional solid fuel boiler

Modules:

BD	*Lightning protection box*
HKS-G	*Heating circuit station, mixed*
AG-xx	*Solar expansion vessel*
WWS	*Hot water station*
SG-H	*Heating circuit safety group*
SÜS-MAX	*Solar heat transferstation*
VTL-3	*Distributor bar, 3-way*
PLAS	*Buffer charging station*

Abbreviations

LA	*Air separator*
AG	*Expansion vessel*
SAS	*Sludge separator*
SV	*Safety valve*
SOL-SKV	*Solar cap valve*
SV-SOL	*Solar safety valve*
TWK	*Drinking water network, cold connection*
TWW	*Drinking water network, hot connection*
TWZ	*Drinking water network, circulation connection*
V̇	*Adjusting valve*
FA	*Automatic firing system*
HK1-3	*Heating circuit 1 to 3*
H-RL	*Heating return*
H/K-VL	*Heating and boiler flow*
K-RL	*Boiler return*
STB	*Safety temperature limiter*
FBK	*Solid fuel boiler*
TAS	*Thermal discharge safety device*

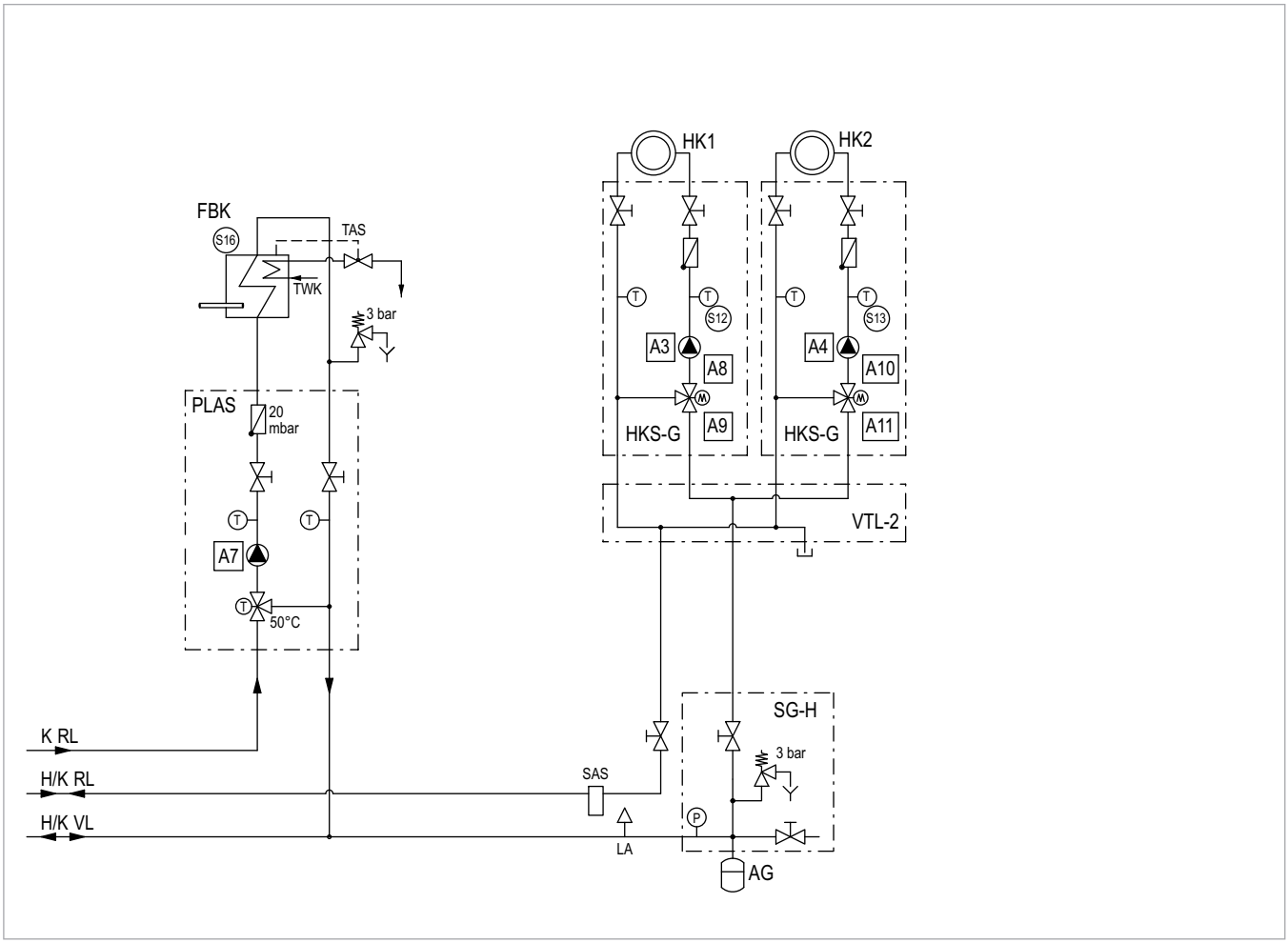


Fig. 6: SolvisMax Gas / SolvisMax Öl with a solid fuel boiler, two mixed heating circuits – Part 2

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.

2.1.4 Swimming pool

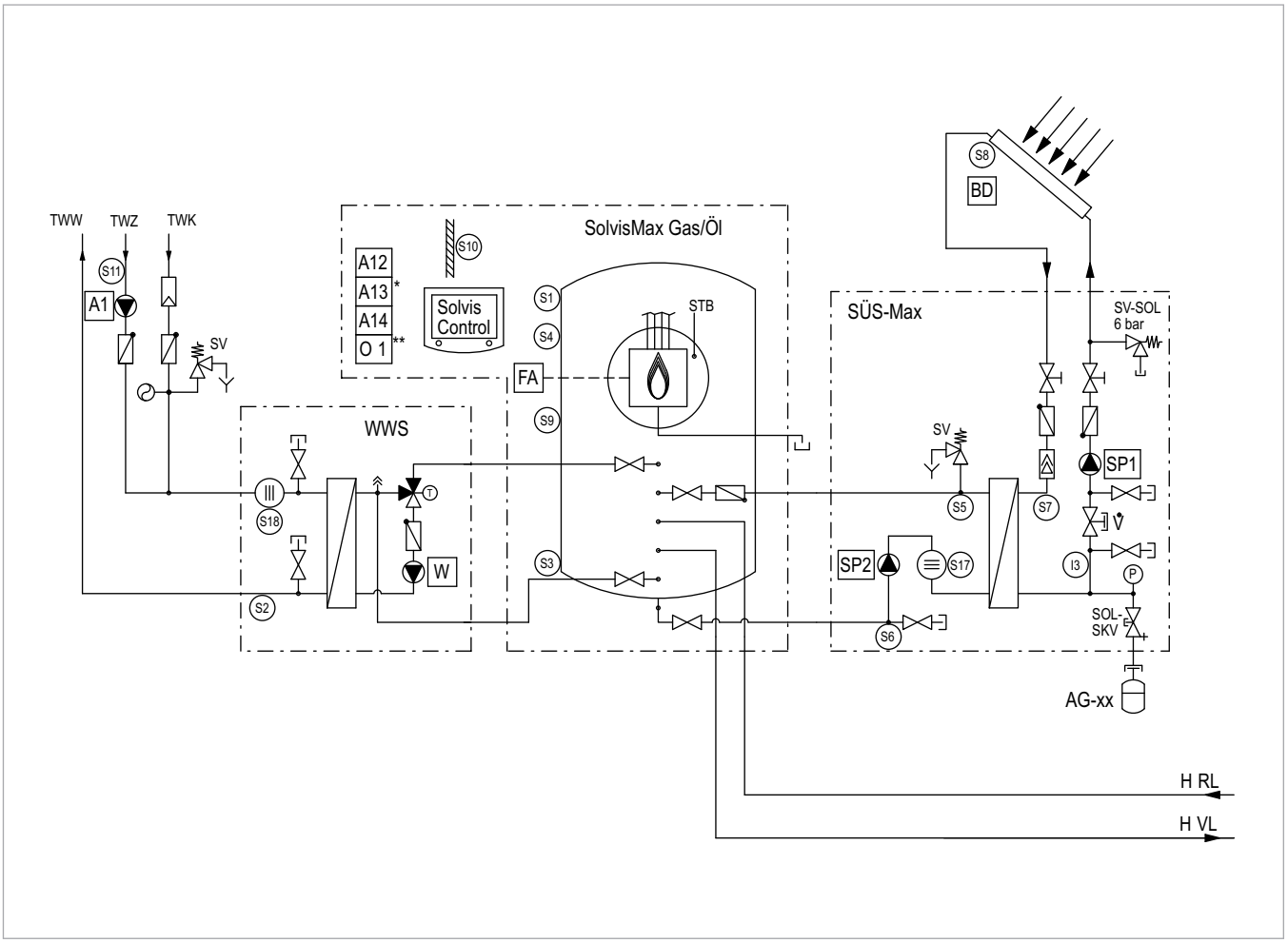


Fig. 7: SolvisMax Gas / SolvisMax Öl with swimming pool heating and two mixed heating circuits – Part 1

* Only applies to SÖ, ** Only applies to SX

Equipment

- SolvisControl 2 system controller
- Drinking water heating
- Two mixed heating circuits
- Solar circuit with one collector (field)
- Oil or gas condensing system
- Solar swimming pool heating

Modules:

BD	*Lightning protection box*
HKS-G	*Heating circuit station, mixed*
AG-xx	*Solar expansion vessel*
WWS	*Hot water station*
SG-H	*Heating circuit safety group*
SÜS-MAX	*Solar heat transferstation*
VTL-2	*Distributor bar, 2-way*
RF	*Pool sensor BE-SC-2-O-SEN*

Abbreviations

LA	*Air separator*
AG	*Expansion vessel*
SAS	*Sludge separator*
SV	*Safety valve*
SOL-SKV	*Solar cap valve*
SV-SOL	*Solar safety valve*
TWK	*Drinking water network, cold connection*
TWW	*Drinking water network, hot connection*
TWZ	*Drinking water network, circulation connection*
V̇	*Adjusting valve*
HK1-2	*Heating circuit 1 to 2*
FA	*Automatic firing system*
H-RL	*Heating return*
H-VL	*Heating flow*
STB	*Safety temperature limiter*
Pool	*Swimming pool*
R3	*Connection for room sensor 3*
SC2	*SolvisControl 2*

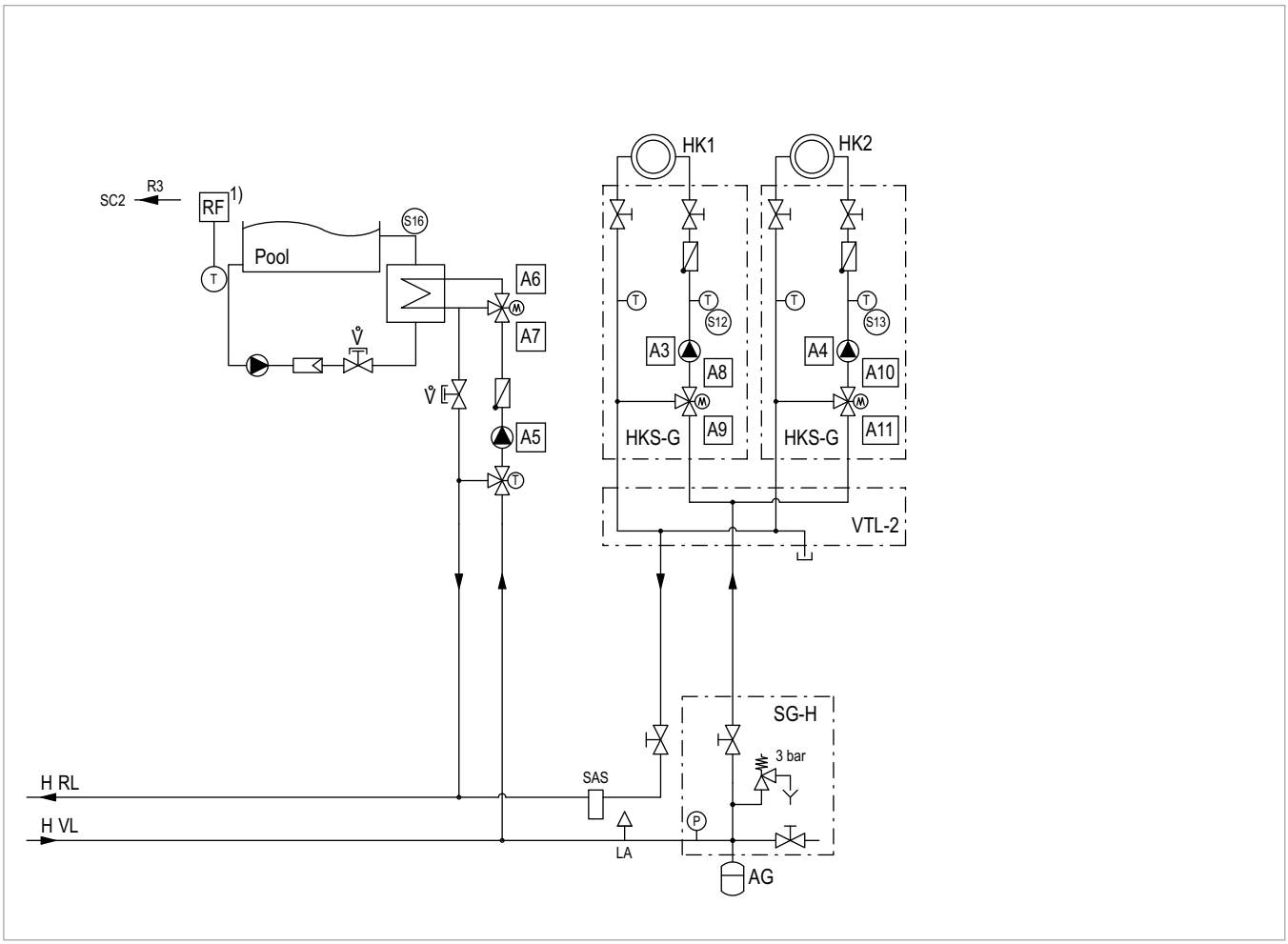


Fig. 8: SolvisMax Gas / SolvisMax Öl with swimming pool heating and two mixed heating circuits – Part 2

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.

2.1.5 Additional storage tank

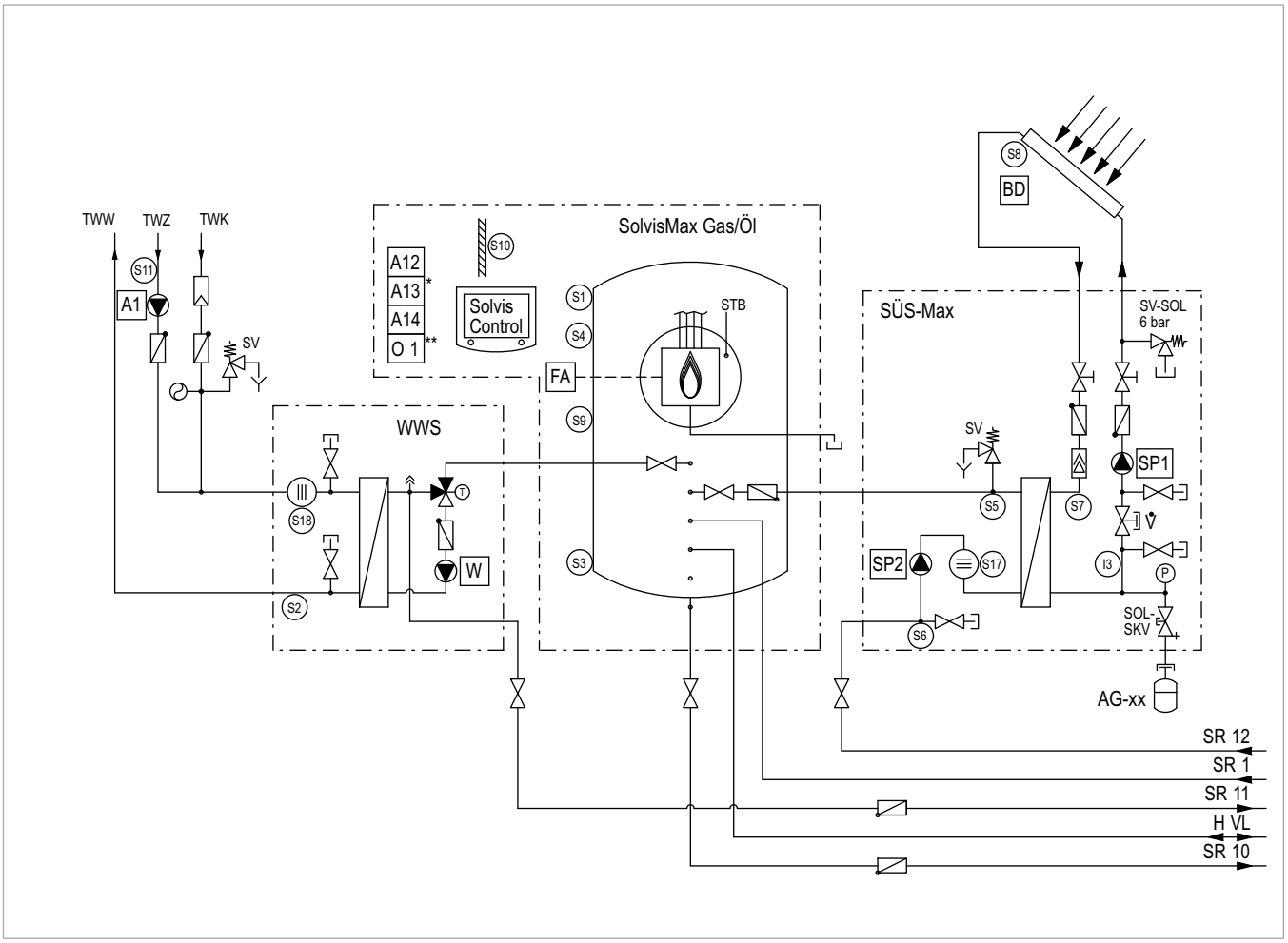


Fig. 9: SolvisMax Gas/Öl, 2 storage tanks with a solid fuel boiler, two mixed heating circuits – Part 1

* Only applies to SÖ, ** Only applies to SX

Equipment

- SolvisControl 2 system controller
- Drinking water heating
- Two mixed heating circuits
- Solar circuit with one collector (field)
- Oil or gas condensing system
- additional solid fuel boiler
- additional storage (SolvisStrato)

Modules:

BD	*Lightning protection box*
HKS-G	*Heating circuit station, mixed*
AG-xx	*Solar expansion vessel*
WWS	*Hot water station*
SG-H	*Heating circuit safety group*
SÜS-MAX	*Solar heat transferstation*
VTL-3	*Distributor bar, 3-way*
PLAS	*Buffer charging station*

Abbreviations

LA	*Air separator*
AG	*Expansion vessel*
SAS	*Sludge separator*
SV	*Safety valve*
SOL-SKV	*Solar cap valve*
SV-SOL	*Solar safety valve*
TWK	*Drinking water network, cold connection*
TWW	*Drinking water network, hot connection*
TWZ	*Drinking water network, circulation connection*
V̇	*Adjusting valve*
FA	*Automatic firing system*
HK1-3	*Heating circuit 1 to 3*
H-VL	*Heating flow*
SR xx	*Connection to SolvisStrato*
STB	*Safety temperature limiter*
FBK	*Solid fuel boiler*
TAS	*Thermal discharge safety device*

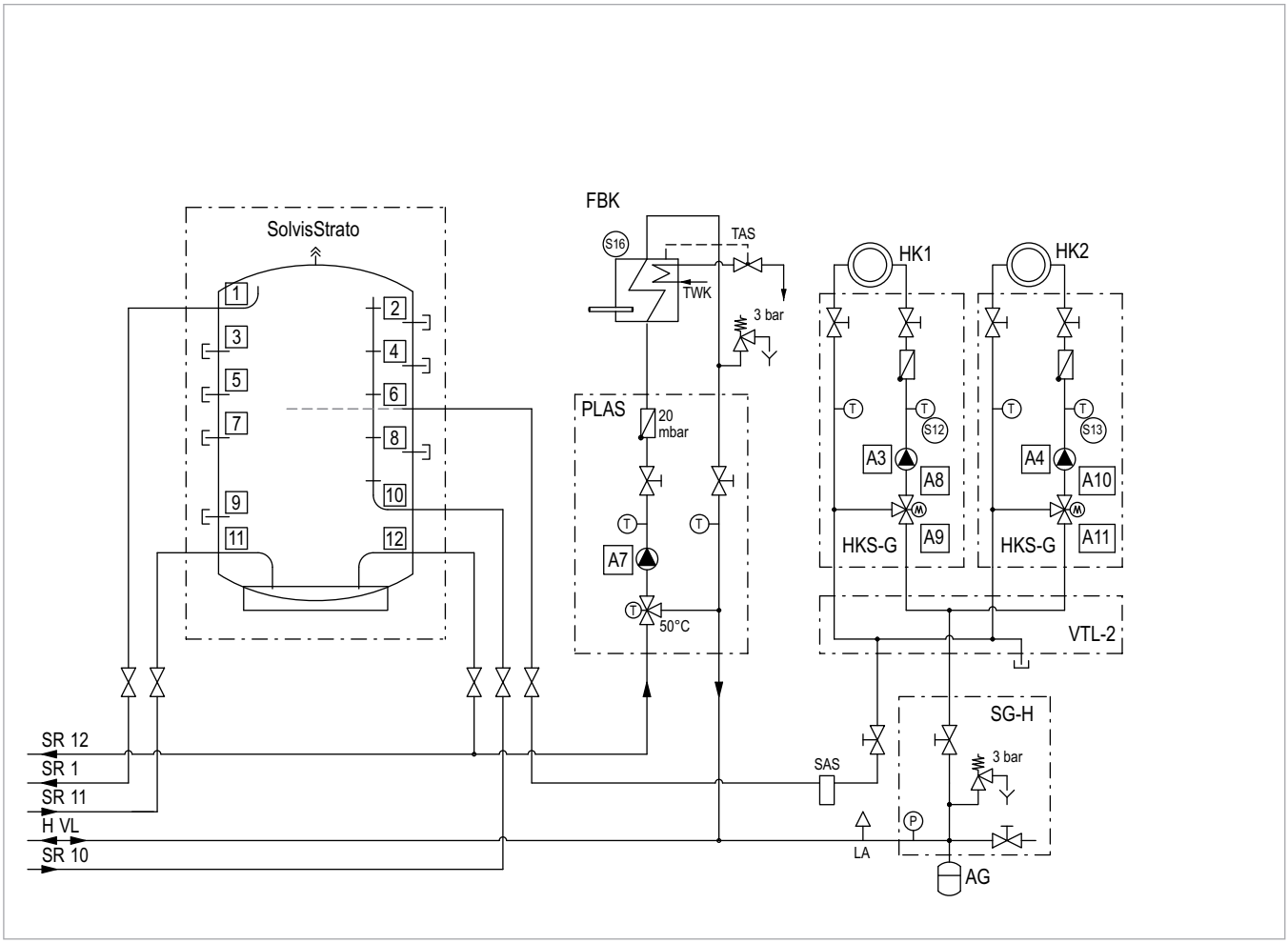


Fig. 10: SolvisMax Gas/Öl, two storage tanks with a solid fuel boiler, two mixed heating circuits – Part 2

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.

2.2 SolvisMax Fernwärme (with district heating)

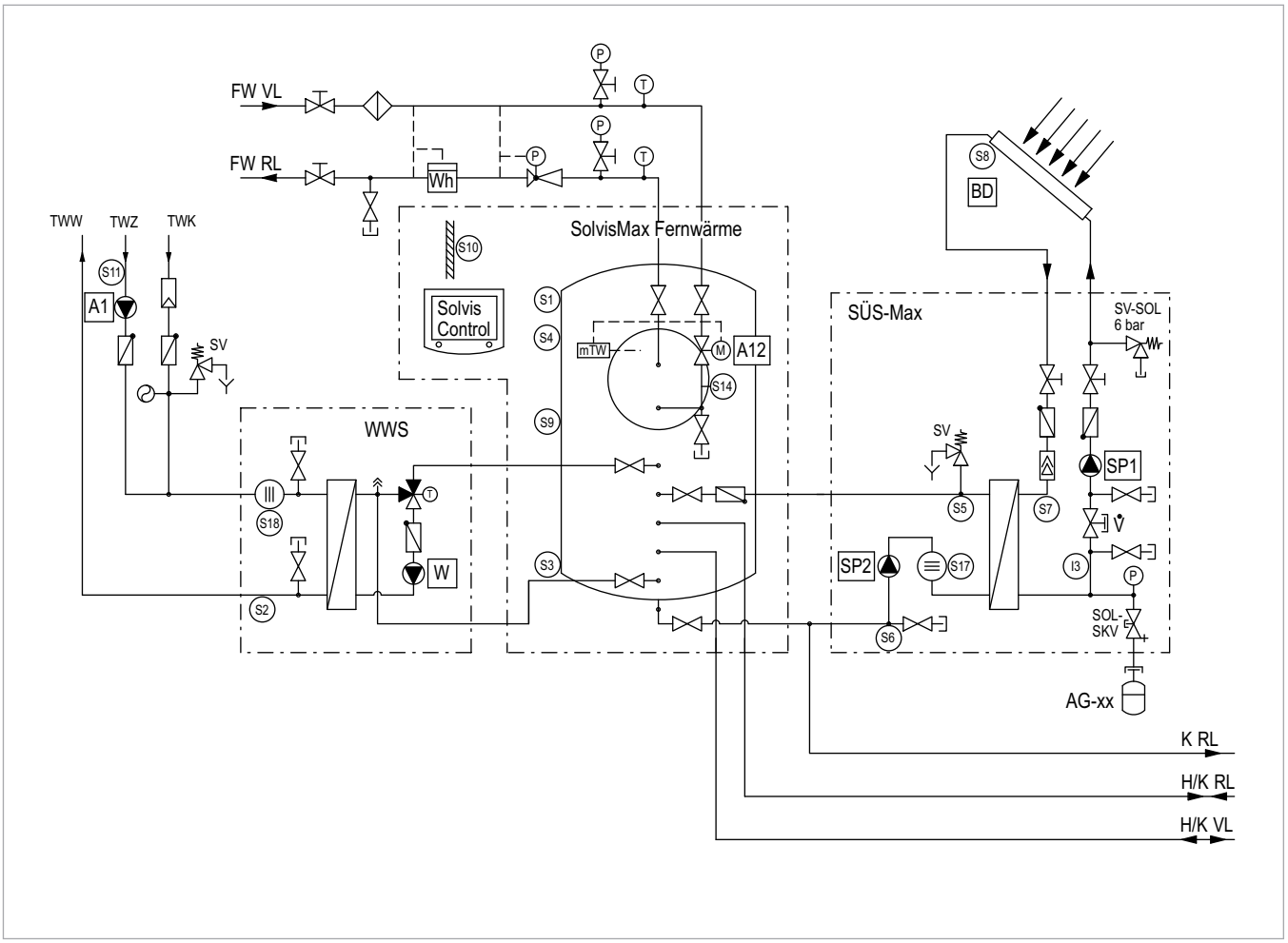


Fig. 11: SolvisMax Fernwärme (with district heating) with a solid fuel boiler, two mixed heating circuits – Part 1

Equipment

- SolvisControl 2 system controller
- Drinking water heating
- Two mixed heating circuits
- Solar circuit with one collector (field)
- Building control station for district heating
- additional solid fuel boiler

Modules:

BD	*Lightning protection box*
HKS-G	*Heating circuit station, mixed*
AG-xx	*Solar expansion vessel*
WWS	*Hot water station*
SG-H	*Heating circuit safety group*
SÜS-MAX	*Solar heat transferstation*
VTL-3	*Distributor bar, 3-way*
PLAS	*Buffer charging station*

Abbreviations

LA	*Air separator*
AG	*Expansion vessel*
SAS	*Sludge separator*
SV	*Safety valve*
SOL-SKV	*Solar cap valve*
SV-SOL	*Solar safety valve*
TWK	*Drinking water network, cold connection*
TWW	*Drinking water network, hot connection*
TWZ	*Drinking water network, circulation connection*
V̇	*Adjusting valve*
HK1-3	*Heating circuit 1 to 3*
FW-RL	*District heating return*
FW-VL	*District heating flow*
H/K-VL	*Heating and boiler return*
H/K-VL	*Heating and boiler flow*
K-RL	*Boiler return*
mTW	*Mechanical temperature controller*
FBK	*Solid fuel boiler*
TAS	*Thermal discharge safety device*

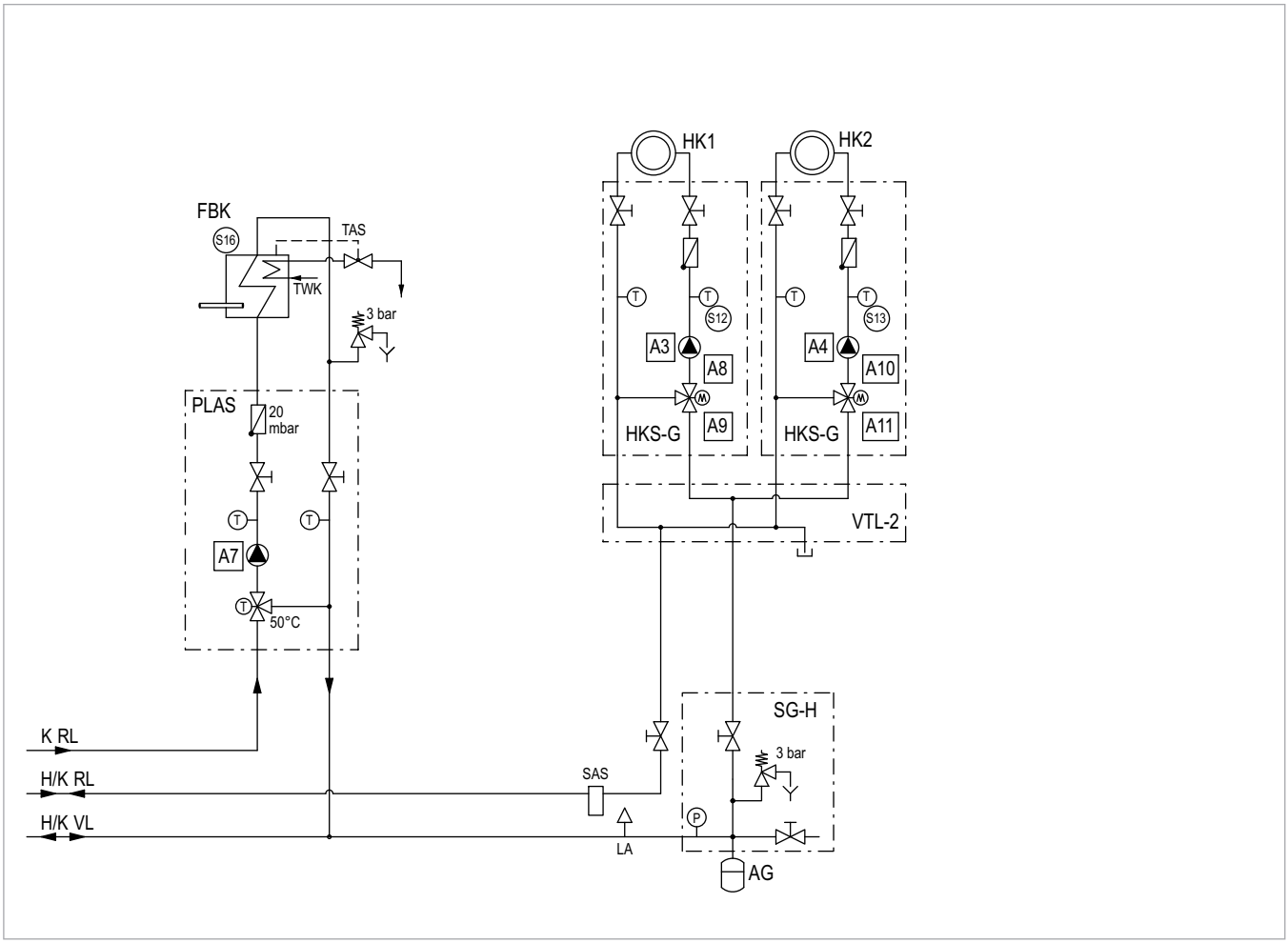


Fig. 12: SolvisMax Fernwärme (with district heating) with a solid fuel boiler, two mixed heating circuits – Part 2

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.

2.3 SolvisMax Solo with SolvisLino 4

2.3.1 Basic equipment

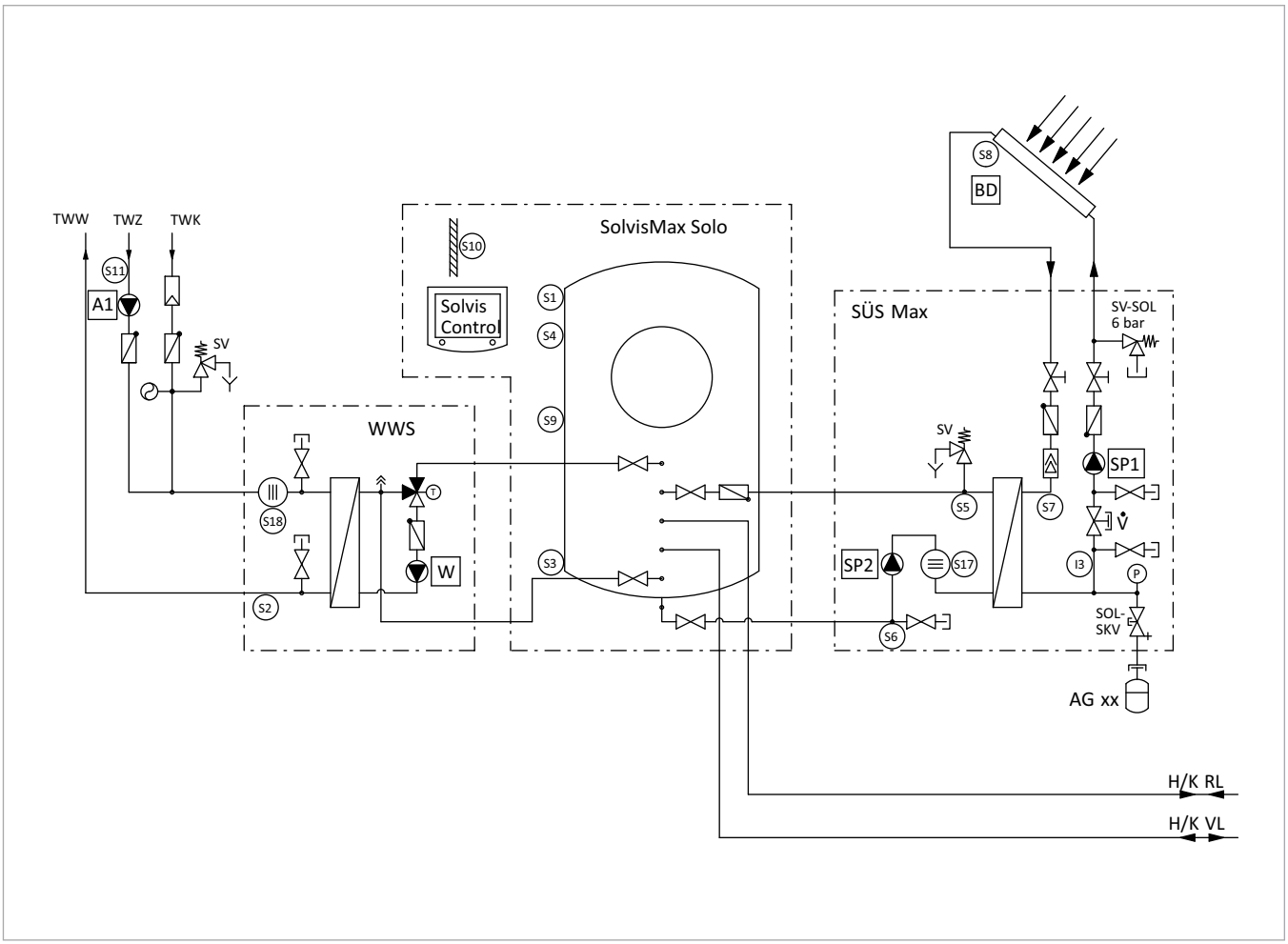


Fig. 13: SolvisMax Solo basic version with SolvisLino 4 and three mixed heating circuits – Part 1

Equipment

- SolvisControl 2 system controller
- Drinking water heating
- Two mixed heating circuits
- Solar circuit with one collector (field)
- Adjacent SolvisLino pellet boiler
- Buffer load circuit without return increase with speed-controlled load pump
- An additional temperature-limited or mixed heating circuit

Modules:

BD	*Lightning protection box*
HKS-G	*Heating circuit station, mixed*
AG-xx	*Solar expansion vessel*
WWS	*Hot water station*
SG-H	*Heating circuit safety group*
SÜS-MAX	*Solar heat transferstation*
VTL-3	*Distributor bar, 3-way*
PLAS	*Buffer charging station*

Abbreviations

LA	*Air separator*
AG	*Expansion vessel*
SAS	*Sludge separator*
SV	*Safety valve*
SOL-SKV	*Solar cap valve*
SV-SOL	*Solar safety valve*
TWK	*Drinking water network, cold connection*
TWW	*Drinking water network, hot connection*
TWZ	*Drinking water network, circulation connection*
$\dot{V}$	*Adjusting valve*
HK1-3	*Heating circuit 1 to 3*
H/K-VL	*Heating and boiler return*
H/K-VL	*Heating and boiler flow*

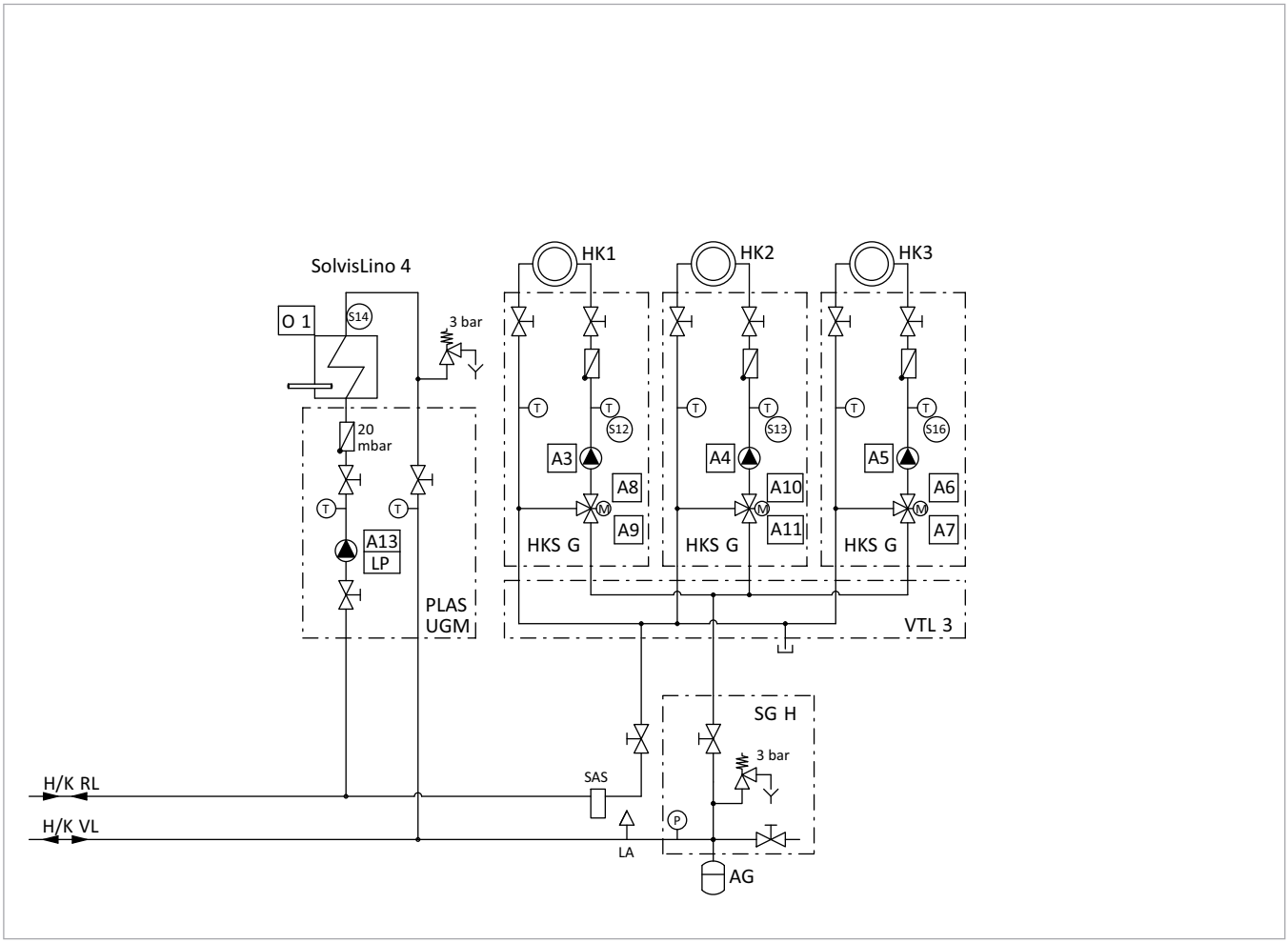


Fig. 14: SolvisMax Solo basic version with SolvisLino 4 and three mixed heating circuits – Part 2

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.

Requirement for operating SolvisLino 4 without return increase:

- Properly functioning speed control of the buffer load pump by SolvisControl 2 in software version MA201 or later
- Using the PLAS (unmixed) buffer charging station
- Connection of SolvisLino according to connection diagram.

2.3.2 East/west roof

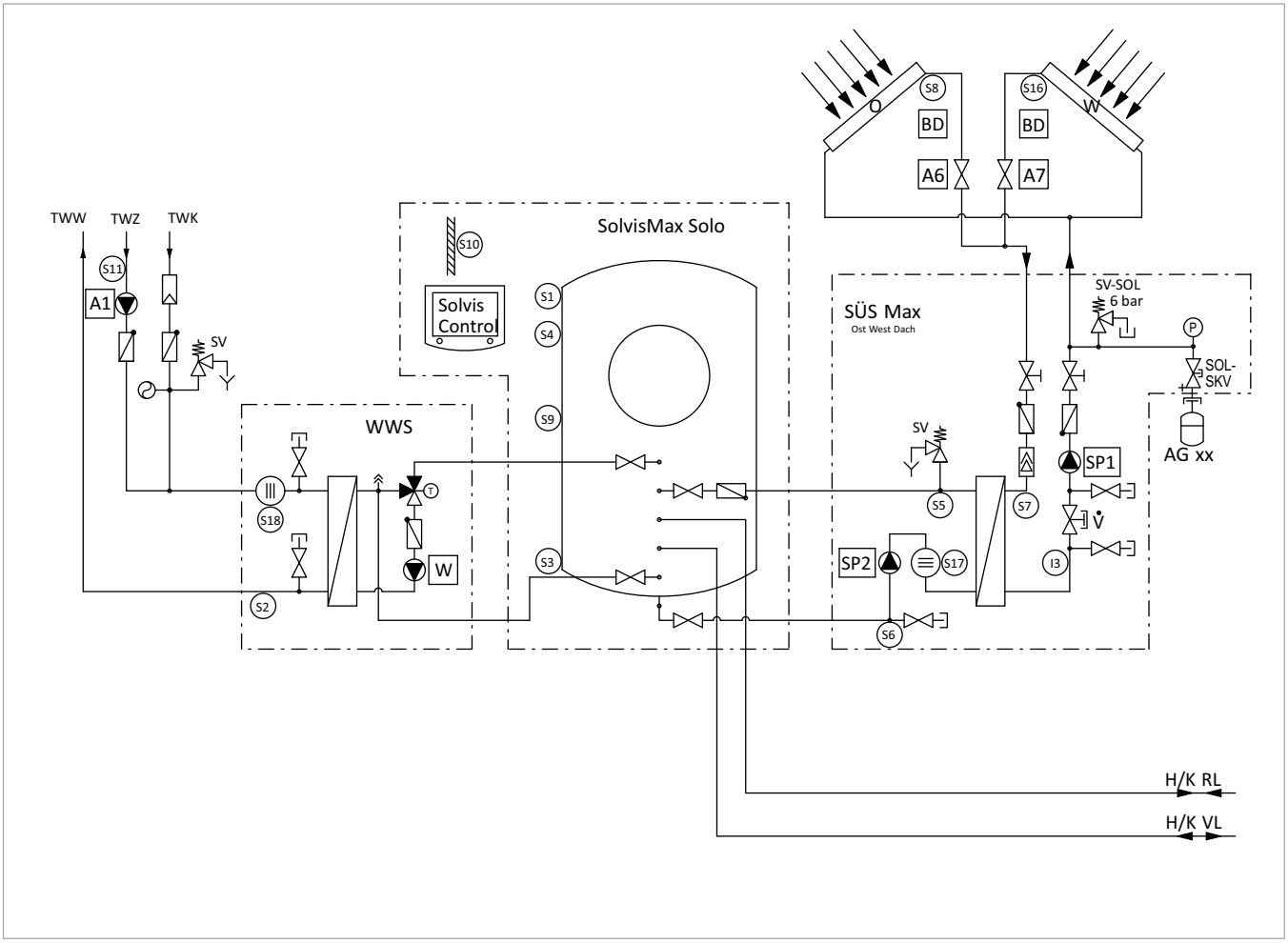


Fig. 15: SolvisMax Solo with an east-west roof, SolvisLino 4 and two mixed heating circuits – Part 1

Equipment

- SolvisControl 2 system controller
- Drinking water heating
- Two mixed heating circuits
- Solar circuit with one collector (field)
- Adjacent SolvisLino pellet boiler
- Buffer load circuit without return increase with speed-controlled load pump
- Additional collector(field) on the opposite half of the roof (east-west roof)

Modules:

BD	*Lightning protection box*
HKS-G	*Heating circuit station, mixed*
AG-xx	*Solar expansion vessel*
WWS	*Hot water station*
SG-H	*Heating circuit safety group*
SÜS-MAX	*Solar heat transferstation*
VTL-3	*Distributor bar, 3-way*
PLAS	*Buffer charging station*

Abbreviations

LA	*Air separator*
AG	*Expansion vessel*
SAS	*Sludge separator*
SV	*Safety valve*
SOL-SKV	*Solar cap valve*
SV-SOL	*Solar safety valve*
TWK	*Drinking water network, cold connection*
TWW	*Drinking water network, hot connection*
TWZ	*Drinking water network, circulation connection*
$\dot{V}$	*Adjusting valve*
HK1-2	*Heating circuit 1 to 2*
H/K-VL	*Heating and boiler return*
H/K-VL	*Heating and boiler flow*
O	*Collector (field) on the east roof*
W	*Collector (field) on the west roof*

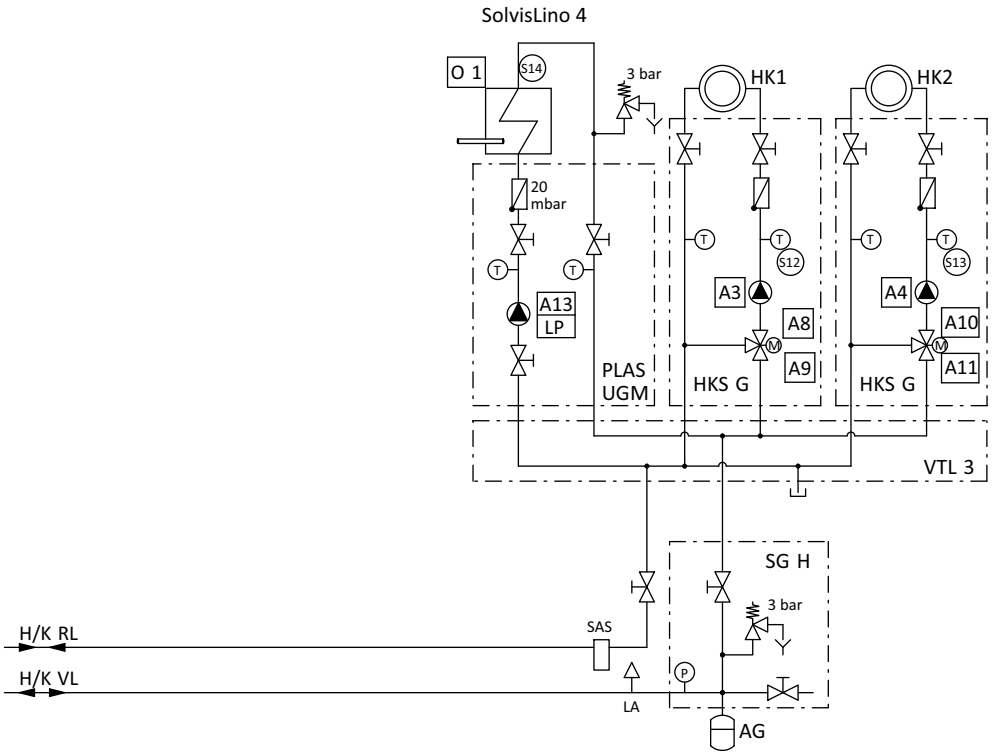


Fig. 16: SolvisMax Solo with an east-west roof, SolvisLino 4 and two mixed heating circuits – Part 2

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.

Requirement for operating SolvisLino 4 without return increase:

- Properly functioning speed control of the buffer load pump by SolvisControl 2 in software version MA201 or later
- Using the PLAS (unmixed) buffer charging station
- Connection of SolvisLino according to connection diagram.

2.3.3 Solid fuel boiler

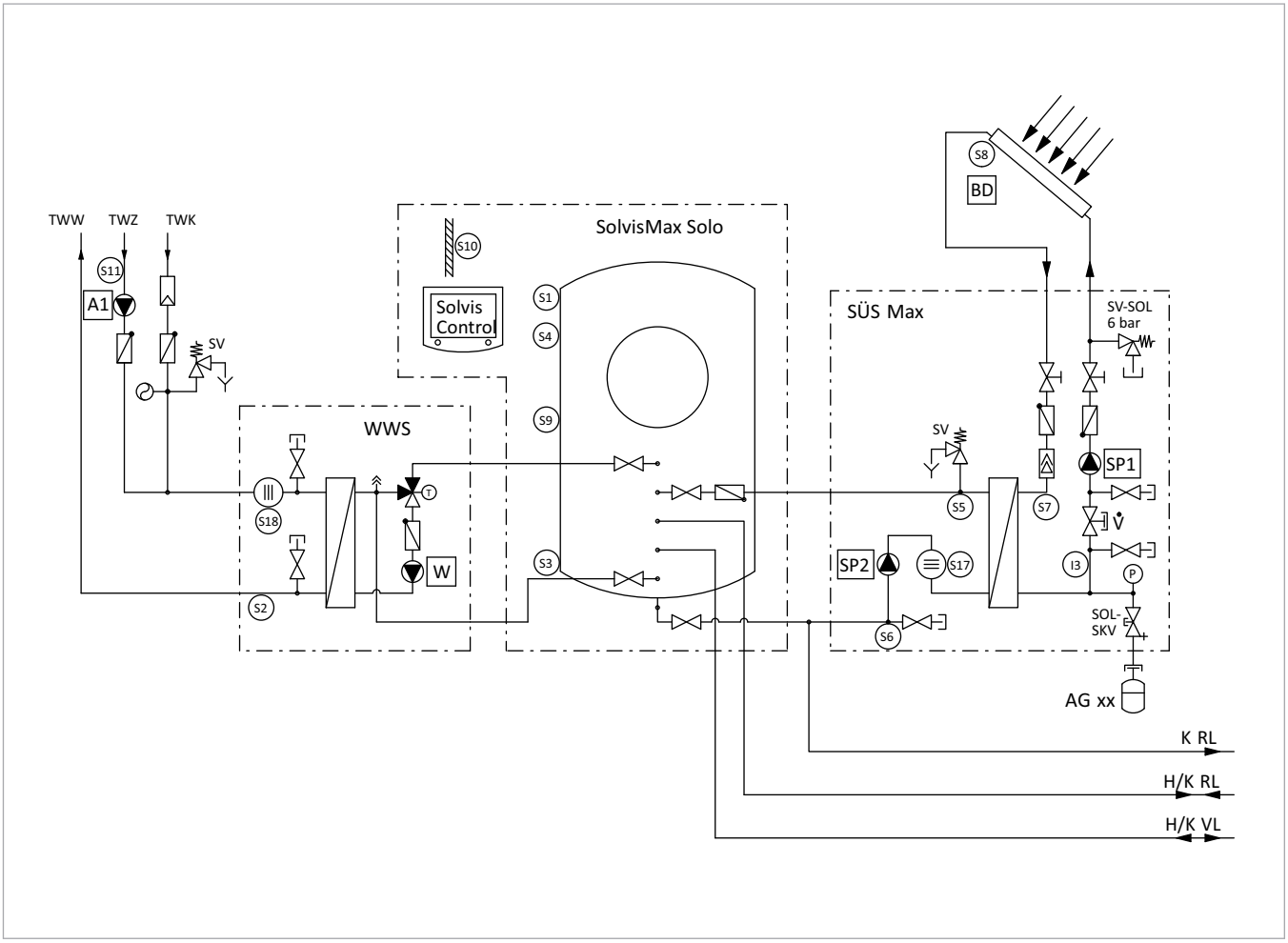


Fig. 17: SolvisMax Solo with SolvisLino 4, a solid fuel boiler and two mixed heating circuits – Part 1

Equipment

- SolvisControl 2 system controller
- Drinking water heating
- Two mixed heating circuits
- Solar circuit with one collector (field)
- Adjacent SolvisLino pellet boiler
- Buffer load circuit without return increase with speed-controlled load pump
- additional solid fuel boiler

Modules:

BD	*Lightning protection box*
HKS-G	*Heating circuit station, mixed*
AG-xx	*Solar expansion vessel*
WWS	*Hot water station*
SG-H	*Heating circuit safety group*
SÜS-MAX	*Solar heat transferstation*
VTL-3	*Distributor bar, 3-way*
PLAS	*Buffer charging station*

Abbreviations

LA	*Air separator*
AG	*Expansion vessel*
SAS	*Sludge separator*
SV	*Safety valve*
SOL-SKV	*Solar cap valve*
SV-SOL	*Solar safety valve*
TWK	*Drinking water network, cold connection*
TWW	*Drinking water network, hot connection*
TWZ	*Drinking water network, circulation connection*
$\dot{V}$	*Adjusting valve*
HK1-2	*Heating circuit 1 to 2*
H/K-VL	*Heating and boiler return*
H/K-VL	*Heating and boiler flow*
K-RL	*Boiler return*
FBK	*Solid fuel boiler*
TAS	*Thermal discharge safety device*

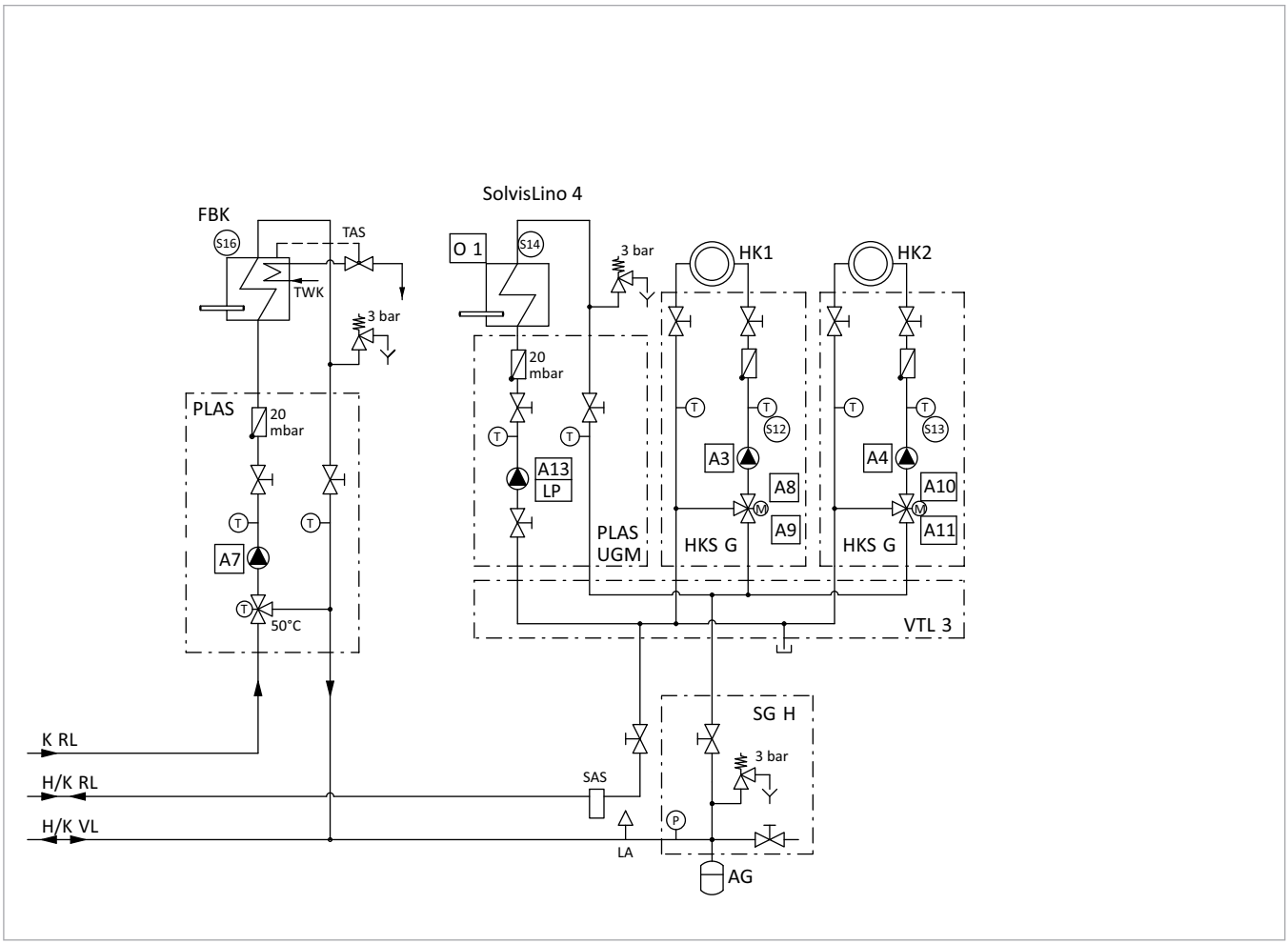


Fig. 18: SolvisMax Solo with SolvisLino 4, a solid fuel boiler and two mixed heating circuits – Part 2

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.

Requirement for operating SolvisLino 4 without return increase:

- Properly functioning speed control of the buffer load pump by SolvisControl 2 in software version MA201 or later
- Using the PLAS (unmixed) buffer charging station
- Connection of SolvisLino according to connection diagram.

2.3.4 Additional storage tank

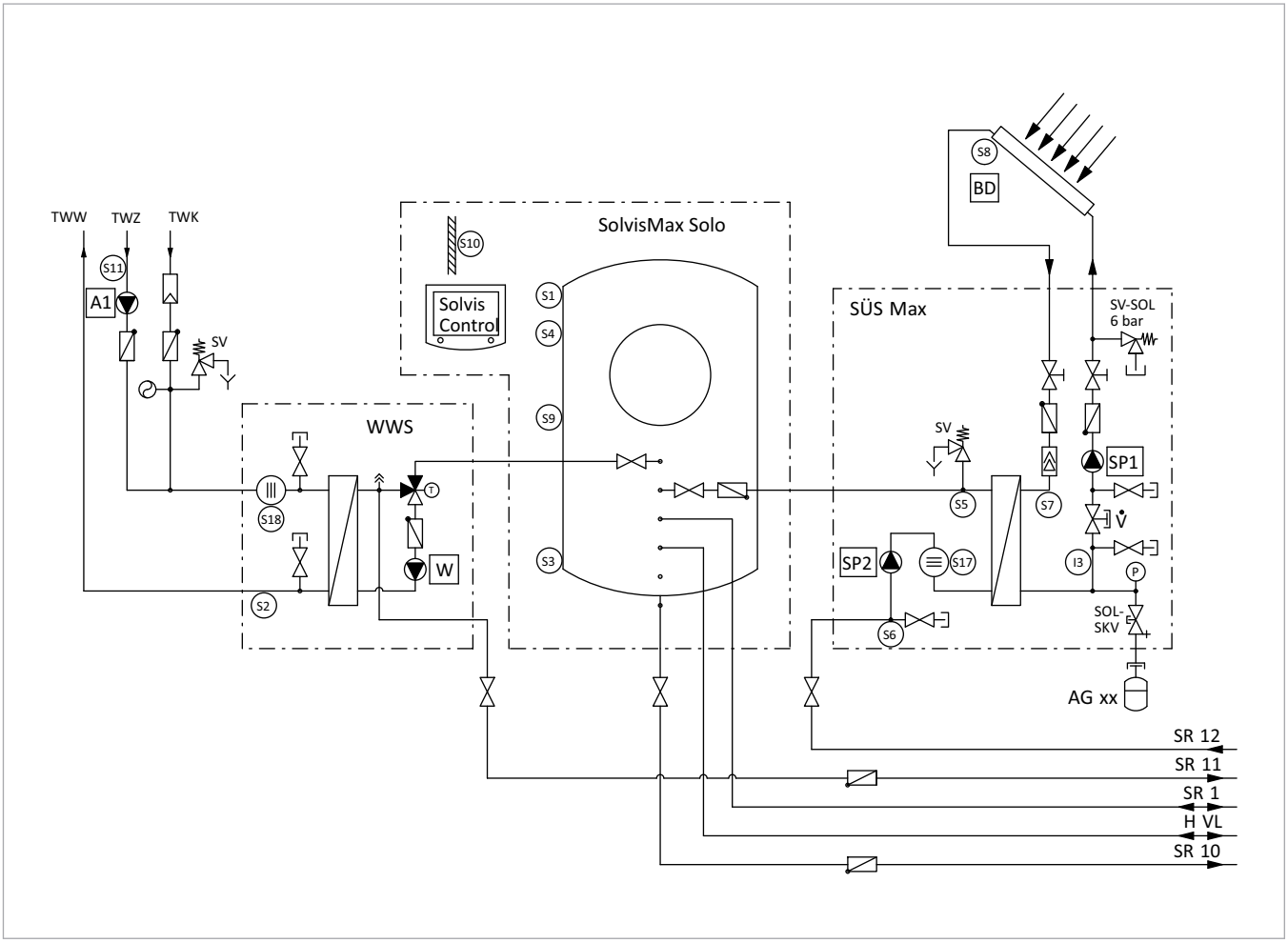


Fig. 19: SolvisMax Solo with SolvisLino 4, a second storage tank, a solid fuel boiler, two mixed heating circuits – Part 1

Equipment

- SolvisControl 2 system controller
- Drinking water heating
- Two mixed heating circuits
- Solar circuit with one collector (field)
- Adjacent SolvisLino pellet boiler
- additional solid fuel boiler
- additional storage (SolvisStrato)

Modules:

BD	*Lightning protection box*
HKS-G	*Heating circuit station, mixed*
AG-xx	*Solar expansion vessel*
WWS	*Hot water station*
SG-H	*Heating circuit safety group*
SÜS-MAX	*Solar heat transferstation*
VTL-3	*Distributor bar, 3-way*
PLAS	*Buffer charging station*

Abbreviations

LA	*Air separator*
AG	*Expansion vessel*
SAS	*Sludge separator*
SV	*Safety valve*
SOL-SKV	*Solar cap valve*
SV-SOL	*Solar safety valve*
TWK	*Drinking water network, cold connection*
TWW	*Drinking water network, hot connection*
TWZ	*Drinking water network, circulation connection*
$\dot{V}$	*Adjusting valve*
HK1-3	*Heating circuit 1 to 3*
H-VL	*Heating flow*
SR xx	*Connection to SolvisStrato*
FBK	*Solid fuel boiler*
TAS	*Thermal discharge safety device*

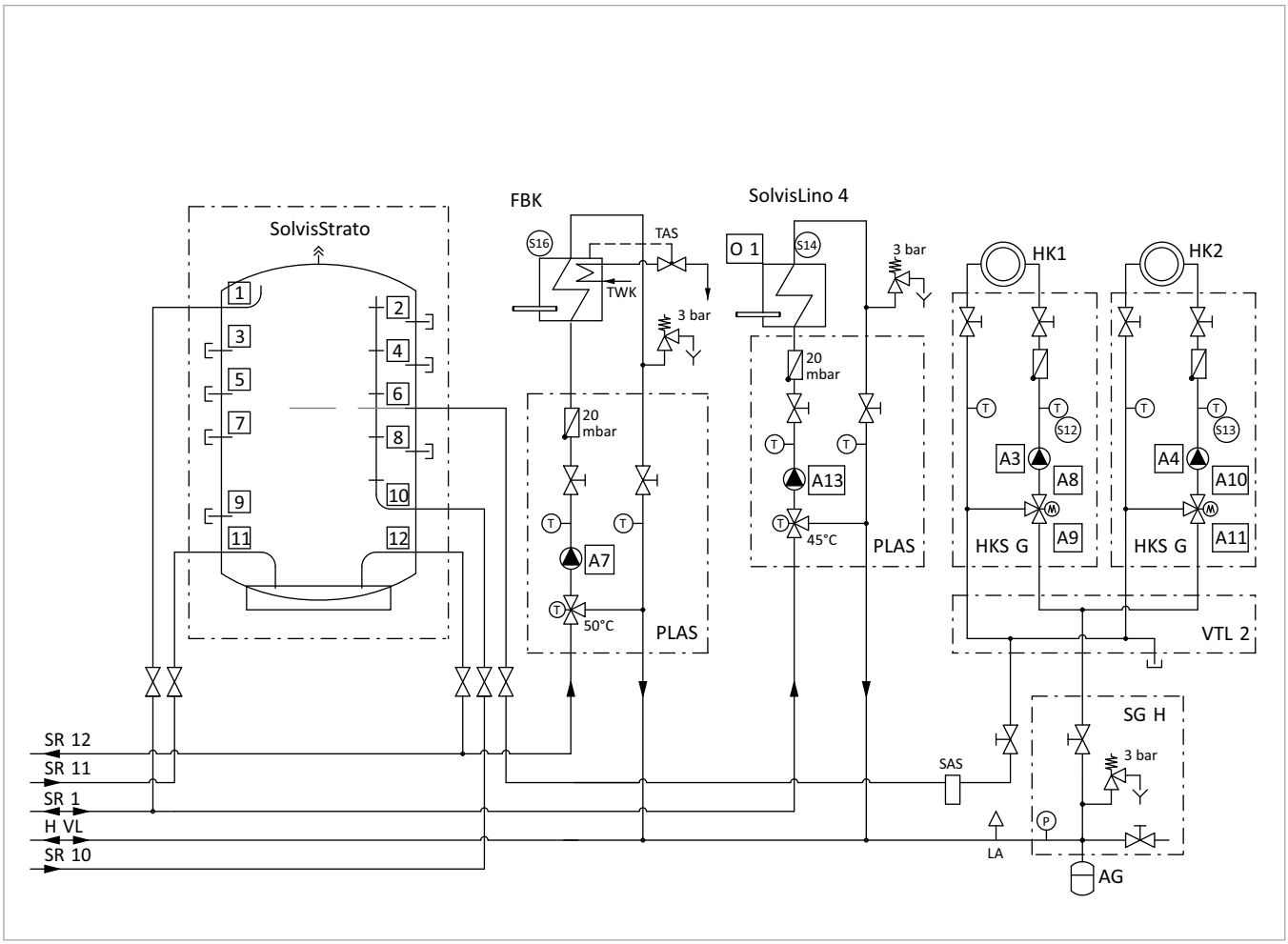


Fig. 20: SolvisMax Solo with SolvisLino 4, a second storage tank, a solid fuel boiler, two mixed heating circuits – Part 2

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.

2.4 SolvisMax Solo with third-party boiler

2.4.1 Basic equipment

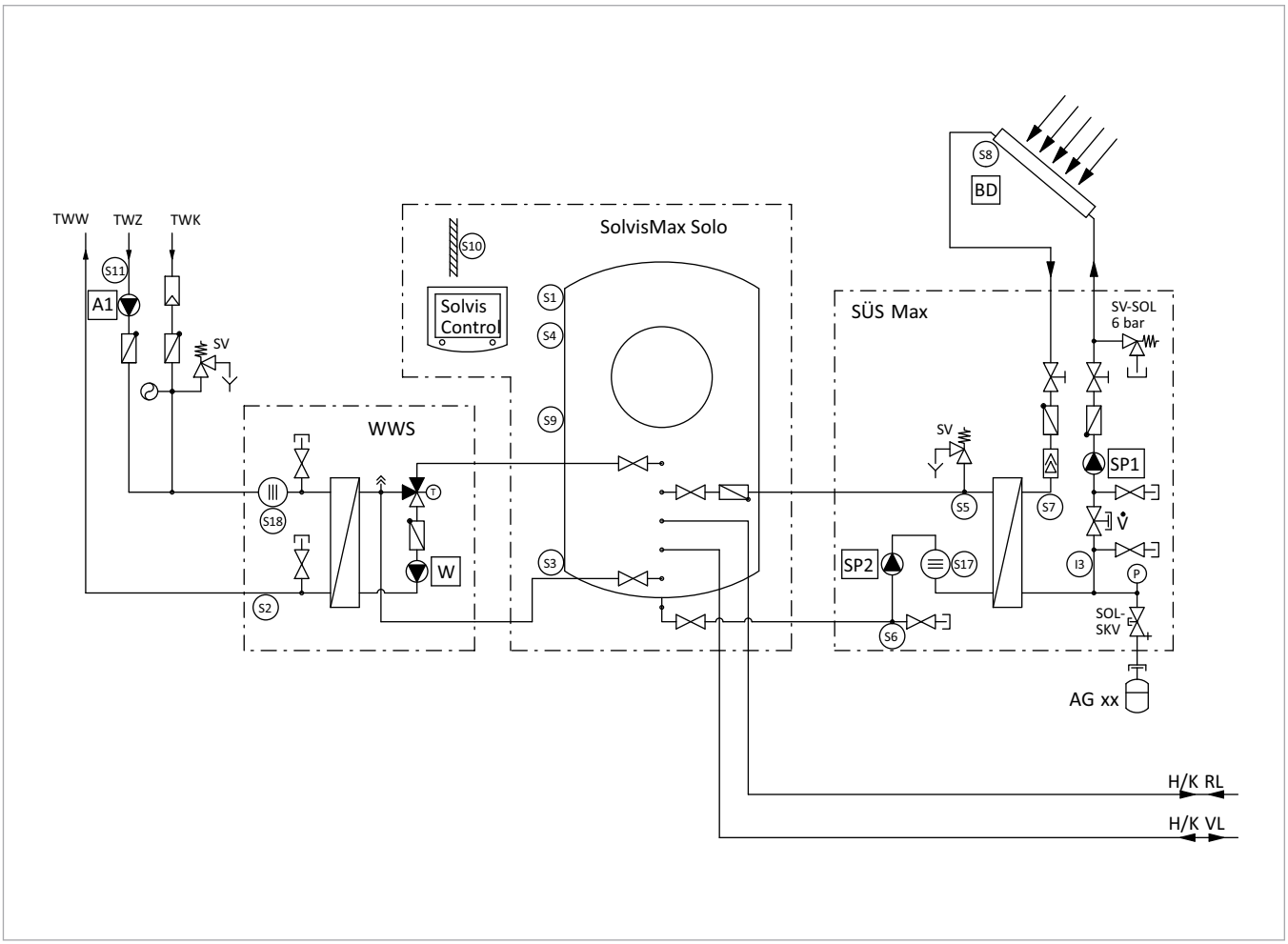


Fig. 21: SolvisMax Solo basic version with third-party boiler and three mixed heating circuits – Part 1

Equipment

- SolvisControl 2 system controller
- Drinking water heating
- Two mixed heating circuits
- Solar circuit with one collector (field)
- Adjacent customer-provided boiler (third-party boiler)
- An additional temperature-limited or mixed heating circuit

Modules:

BD	*Lightning protection box*
HKS-G	*Heating circuit station, mixed*
AG-xx	*Solar expansion vessel*
WWS	*Hot water station*
SG-H	*Heating circuit safety group*
SÜS-MAX	*Solar heat transferstation*
VTL-3	*Distributor bar, 3-way*

Abbreviations

LA	*Air separator*
AG	*Expansion vessel*
SAS	*Sludge separator*
SV	*Safety valve*
SOL-SKV	*Solar cap valve*
SV-SOL	*Solar safety valve*
TWK	*Drinking water network, cold connection*
TWW	*Drinking water network, hot connection*
TWZ	*Drinking water network, circulation connection*
$\dot{V}$	*Adjusting valve*
HK1-3	*Heating circuit 1 to 3*
H/K-VL	*Heating and boiler return*
H/K-VL	*Heating and boiler flow*
FA	*Automatic firing system*
FK	*Third-party boiler*
FSB	*Spring-loaded gravitational force brake*

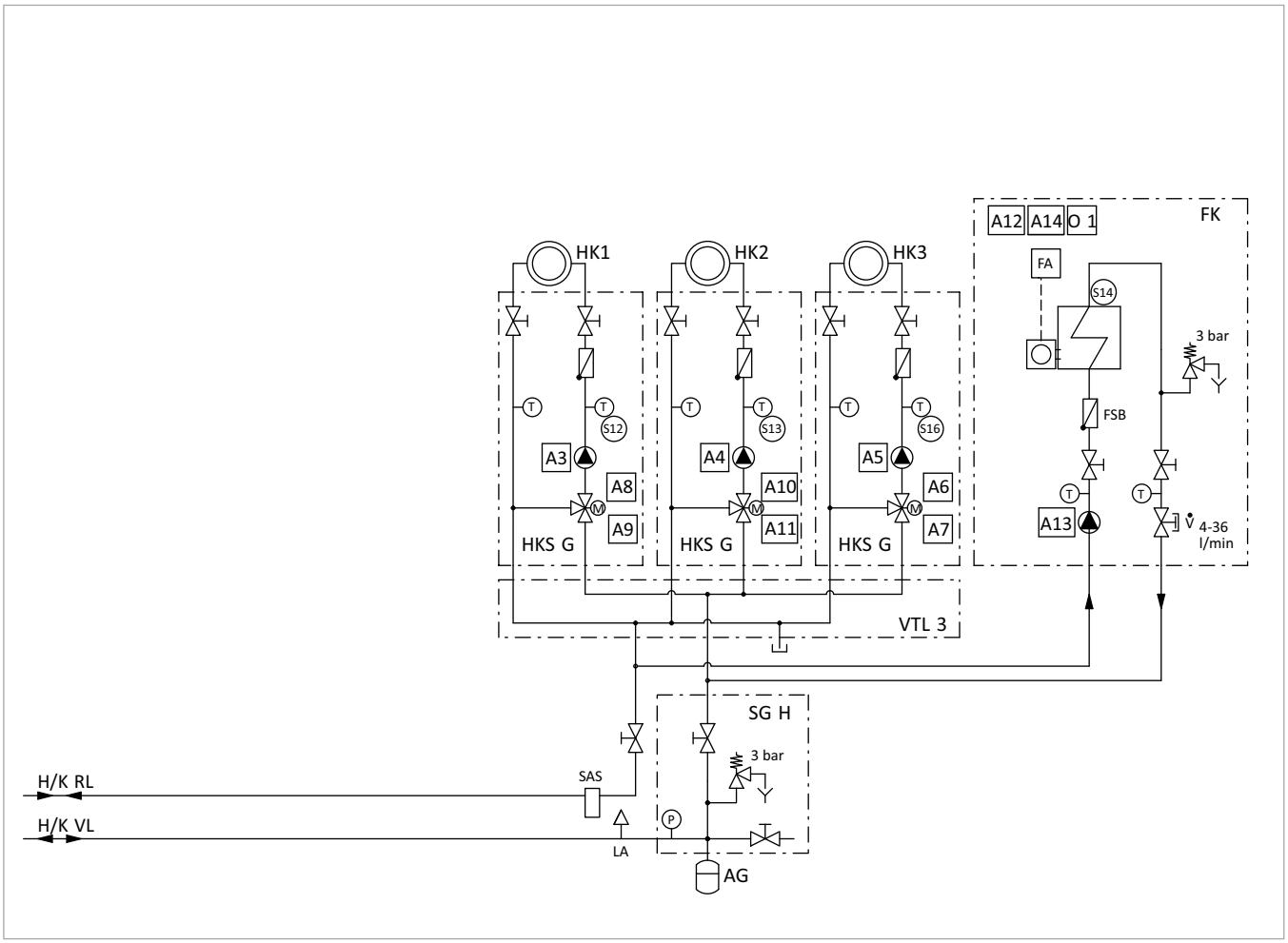


Fig. 22: SolvisMax Solo basic version with third-party boiler and three mixed heating circuits – Part 2

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.

2.4.2 East/west roof

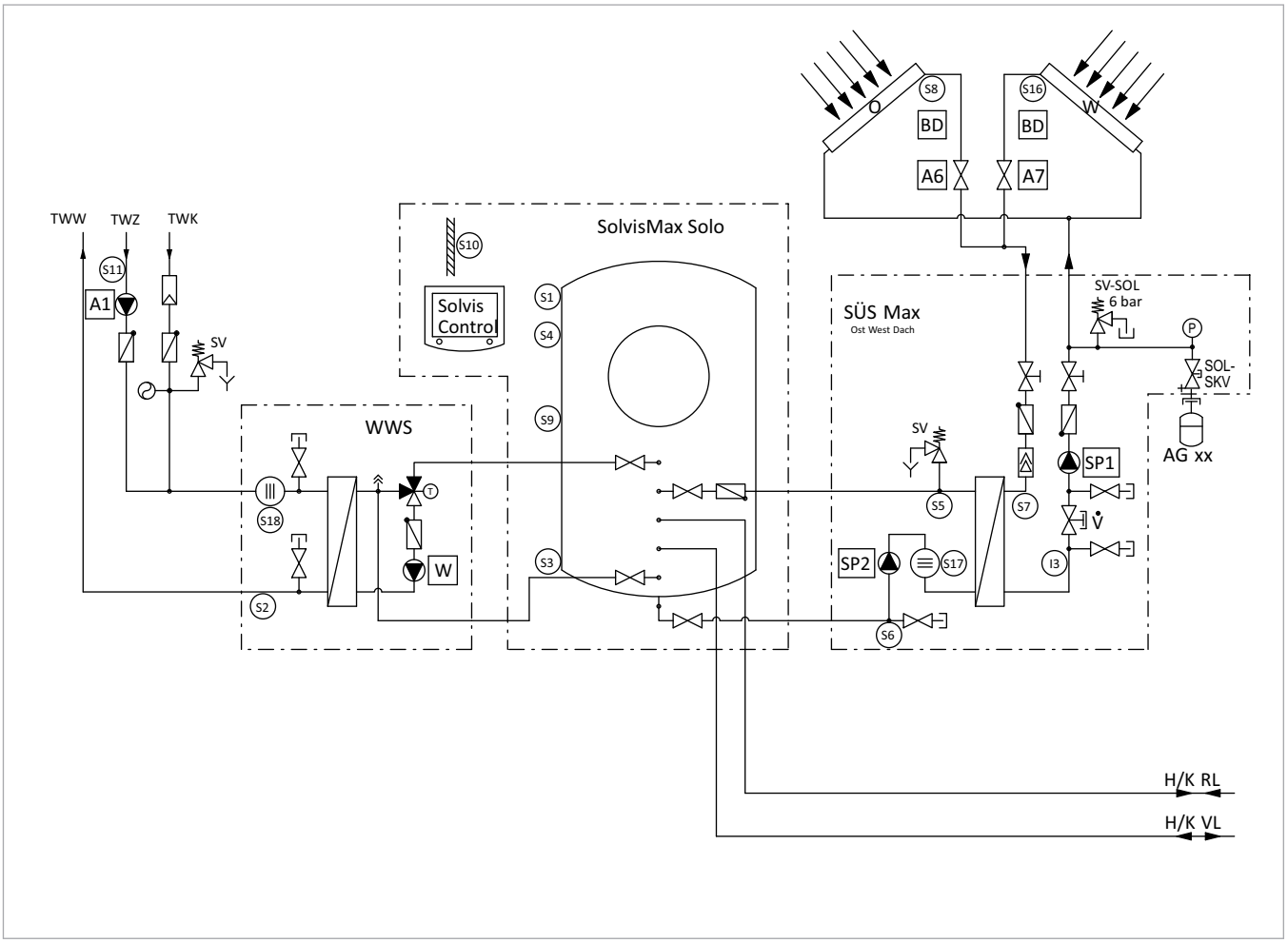


Fig. 23: SolvisMax Solo with third-party boiler, east-west roof, two mixed heating circuits – Part 1

Equipment

- SolvisControl 2 system controller
- Drinking water heating
- Two mixed heating circuits
- Solar circuit with one collector (field)
- Adjacent customer-provided boiler (third-party boiler)
- Additional collector(field) on the opposite half of the roof (east-west roof)

Modules:

BD	*Lightning protection box*
HKS-G	*Heating circuit station, mixed*
AG-xx	*Solar expansion vessel*
WWS	*Hot water station*
SG-H	*Heating circuit safety group*
SÜS-MAX	*Solar heat transferstation*
VTL-3	*Distributor bar, 3-way*

Abbreviations

LA	*Air separator*
AG	*Expansion vessel*
SAS	*Sludge separator*
SV	*Safety valve*
SOL-SKV	*Solar cap valve*
SV-SOL	*Solar safety valve*
TWK	*Drinking water network, cold connection*
TWW	*Drinking water network, hot connection*
TWZ	*Drinking water network, circulation connection*
V̇	*Adjusting valve*
HK1-3	*Heating circuit 1 to 3*
H/K-VL	*Heating and boiler return*
H/K-VL	*Heating and boiler flow*
FA	*Automatic firing system*
FK	*Third-party boiler*
FSB	*Spring-loaded gravitational force brake*
O	*Collector (field) on the east roof*
W	*Collector (field) on the west roof*

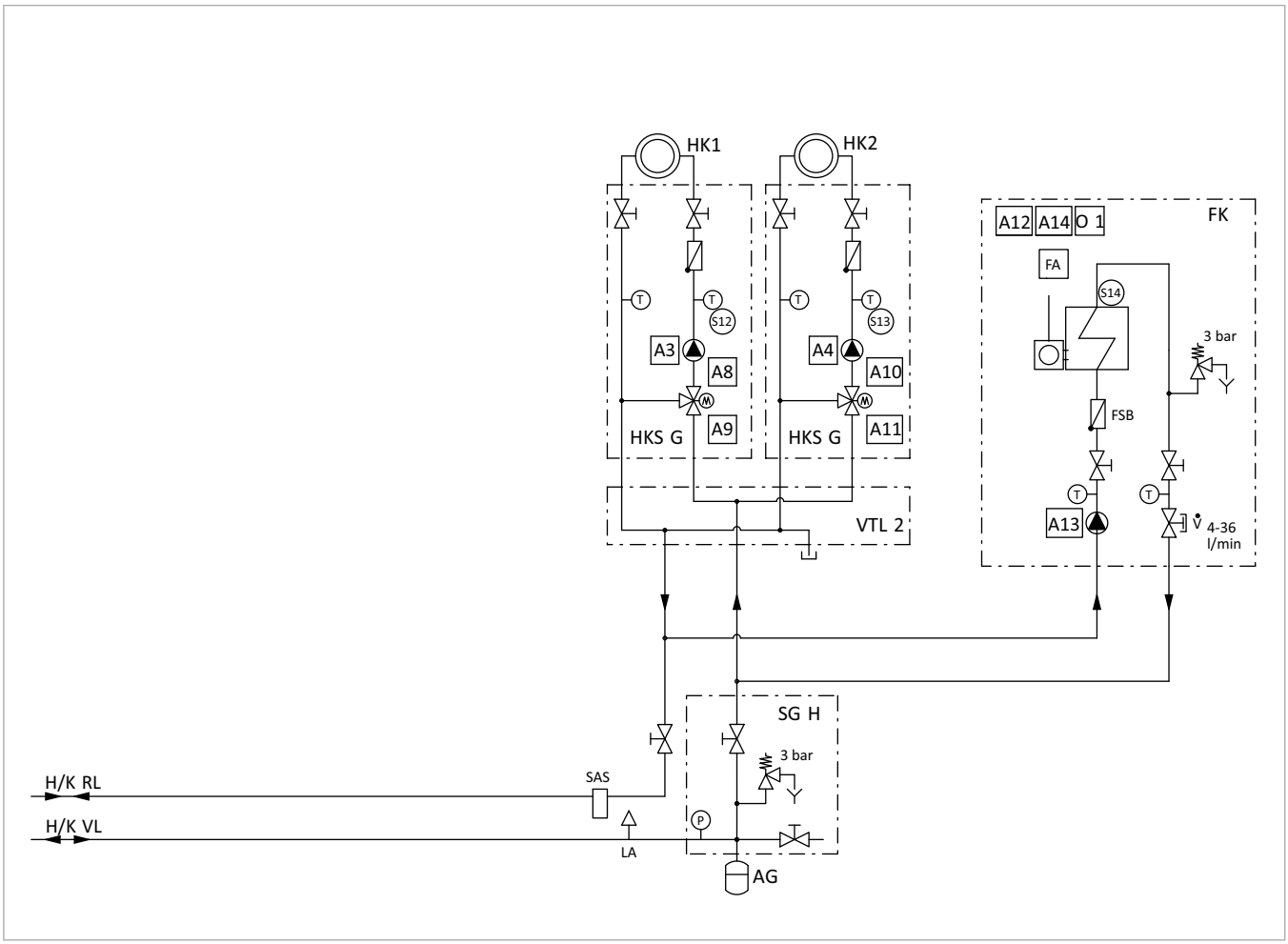


Fig. 24: SolvisMax Solo with third-party boiler, east-west roof, two mixed heating circuits – Part 2

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.

2.4.3 Solid fuel boiler

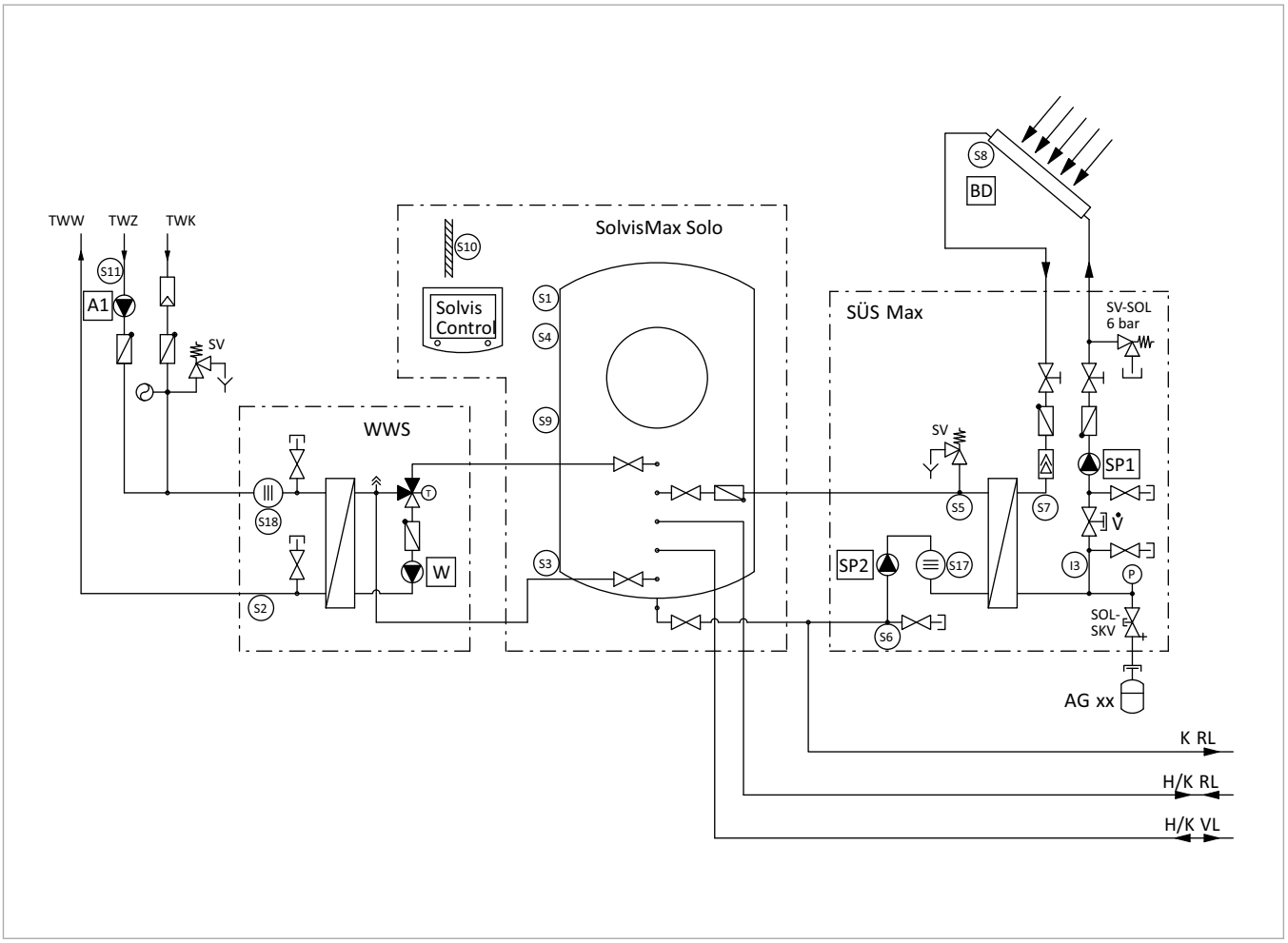


Fig. 25: SolvisMax Solo with third-party boiler, solid fuel boiler, two mixed heating circuits – Part 1

Equipment

- SolvisControl 2 system controller
- Drinking water heating
- Two mixed heating circuits
- Solar circuit with one collector (field)
- Adjacent customer-provided boiler (third-party boiler)
- additional solid fuel boiler

Modules:

BD	*Lightning protection box*
HKS-G	*Heating circuit station, mixed*
AG-xx	*Solar expansion vessel*
WWS	*Hot water station*
SG-H	*Heating circuit safety group*
SÜS-MAX	*Solar heat transferstation*
VTL-3	*Distributor bar, 3-way*
PLAS	*Buffer charging station*

Abbreviations

LA	*Air separator*
AG	*Expansion vessel*
SAS	*Sludge separator*
SV	*Safety valve*
SOL-SKV	*Solar cap valve*
SV-SOL	*Solar safety valve*
TWK	*Drinking water network, cold connection*
TWW	*Drinking water network, hot connection*
TWZ	*Drinking water network, circulation connection*
$\dot{V}$	*Adjusting valve*
HK1-3	*Heating circuit 1 to 3*
H/K-VL	*Heating and boiler return*
H/K-VL	*Heating and boiler flow*
K-RL	*Boiler return*
FA	*Automatic firing system*
FK	*Third-party boiler*
FSB	*Spring-loaded gravitational force brake*
FBK	*Solid fuel boiler*
TAS	*Thermal discharge safety device*

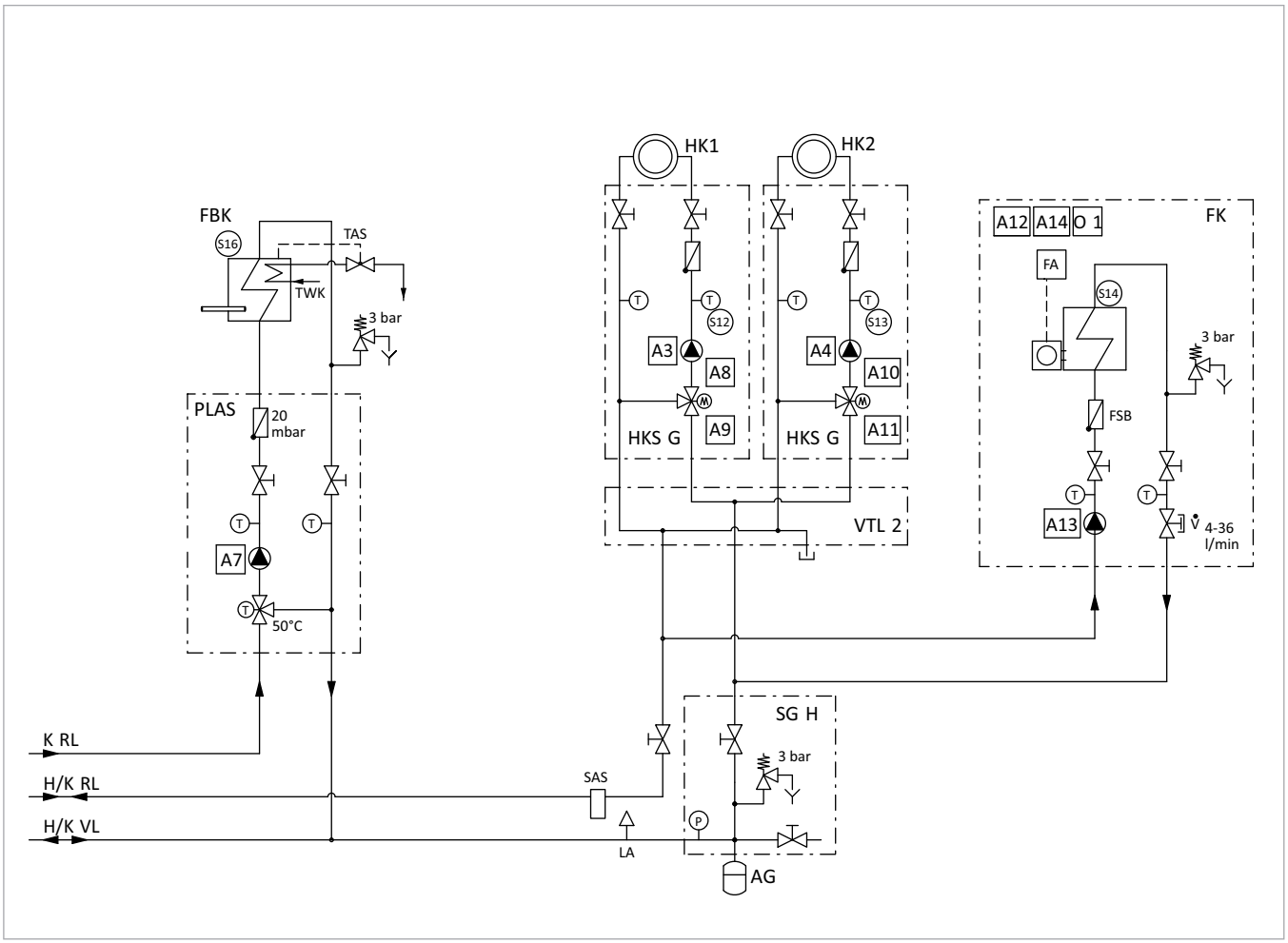


Fig. 26: SolvisMax Solo with third-party boiler, solid fuel boiler, two mixed heating circuits – Part 2

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.

2.5 Connection Diagram

2.5.1 Connection table (system status)

SolvisMax Gas, Öl, FW and Solo

Sensors (temperature sensors and volume flow encoders)			Actuators (pumps, signals and control valves)		
Inputs		Designation (sensor)	Outputs		Designation
no.	Option		no.	Option	
S1	All	Sto. tank, top	**A1**	All	Circulation pump
S2	All	Hot water	**A2**	All	(Unused)
S3	All	Sto. tank reference	**A3**	All	Pump for heating circuit 1
S4	All	Heating buffer, upper	**A4**	All	Pump for heating circuit 2
S5	All	Solar flow 2	**A5**	All	Pump for heating circuit 3
S6	All	Solar return 2	**A6**	East-west roof	Valve 1
				Solid fuel boiler (FBK)	(Unused)
				HC 3	Heating circuit 3 mixer open
S7	All	Solar flow 1	**A7**	East-west roof	Valve 2
				Solid fuel boiler (FBK)	Load pump
				HC 3	Heating circuit 3 mixer closed
S8	All	Collector	**A8**	All	Heating circuit 1 mixer (open)
S9	All	Heating buffer, lower	**A9**	All	Heating circuit 1 mixer (closed)
S10	All	Outdoor temperature	**A10**	All	Heating circuit 2 mixer (open)
S11	All	Circulation	**A11**	All	Heating circuit 2 mixer (closed)
S12	All	Flow for heating circuit 1	**A12**	All	District heating valve[3] / burner
S13	All	Flow for heating circuit 2	**A13**	All	LI-3/4 load pump or third-party boiler [1]/burner 2 [2] / ——
S14	All	LI-3/4[1] boiler/third-party boiler[1]/district heating return[3] / ——	**A14**	All	District heating valve[3] / burner [1] / interf. supp.
S15	All	Cold water (optional)	**O-1**	All	Modulation[4] (0 – 10 V) / ——[2]
S16	East-west roof	Collector 2	**SP1**	All	PWM solar pump 1
	Solid fuel boiler (FBK)	Wood boiler			
	Other	Flow for heating circuit 3			
S17	All	Solar volume flow encoder	**SP2**	All	PWM solar pump 2
S18	All	Water volume flow encoder	**W**	All	PWM hot water pump
I-1	All	External burner requirement	**LP**	All	PWM load pump LI-3/4 or third-party boiler
I-2	All	(Unused)			
I-3	All	Solar pressure			
R1	All	Room control element for heating circuit 1 (optional)			
R2	All	Room control element for heating circuit 2 (optional)			
R3	All	Room control element for heating circuit 3 (optional)			
ST1	All	Jumper / mechanical safety temperature limiter (mSTL)[2]			
ST2	All	Jumper			

[*] *"All" = applies to "Normal", "East-west roof", "Solid fuel boiler" and "HC 3".*
"Normal" = without option, "Solid fuel boiler" = additional solid fuel boiler or "HC 3" = additional mixed heating circuit
[1] *Only applies to SolvisMax Solo*
[2] *Only applies to SolvisMax Öl*
[3] *Only applies to SolvisMax Fernwärme (with district heating)*
[4] *Burner requirement and modulation for SolvisLino 3*

2.5.2 Mains module

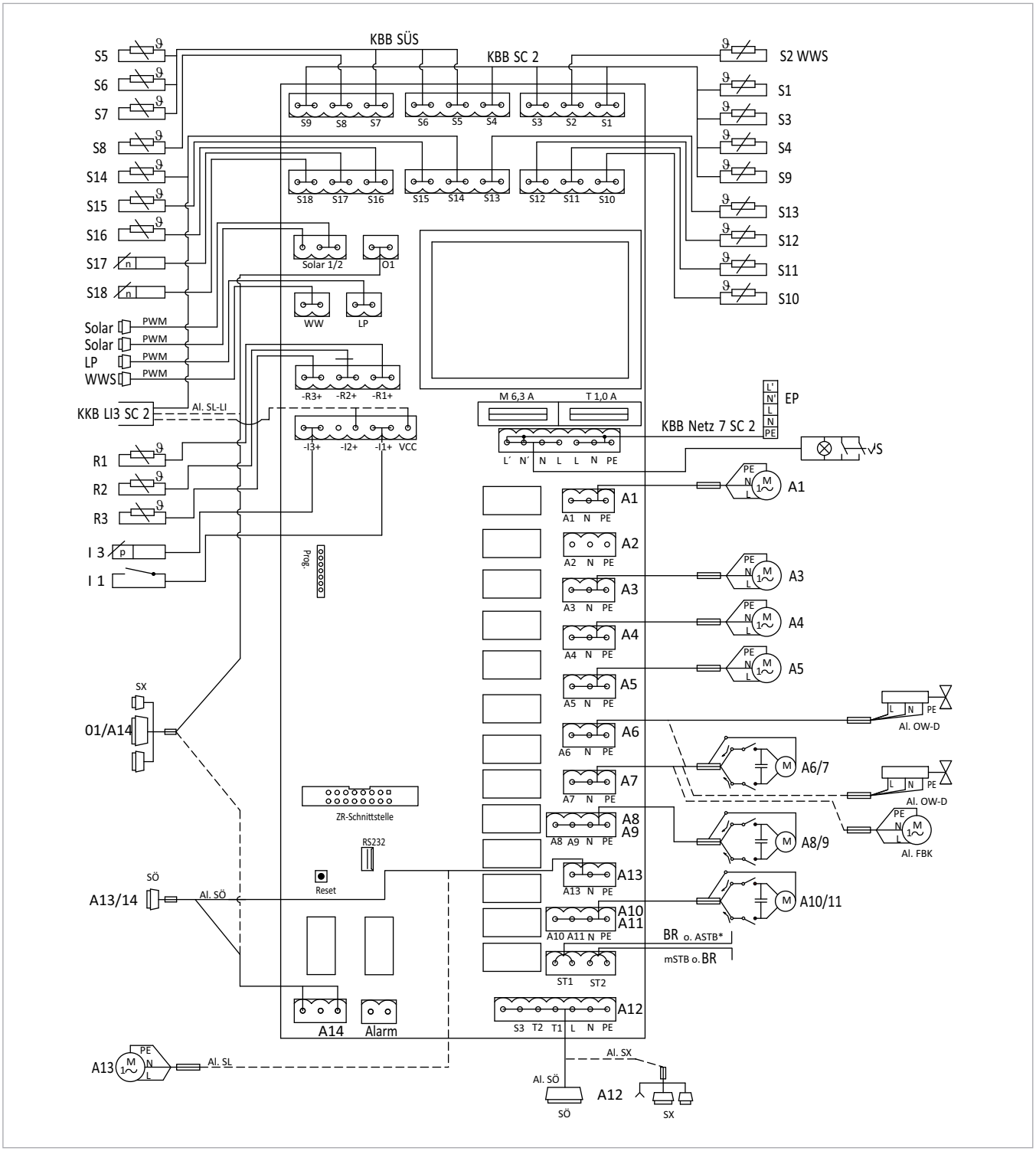


Fig. 27: SolvisControl 2 mains module for SolvisMax Gas, Öl, Fernwärme (with district heating) and Solo

* Exhaust safety temperature limiter (ESTL) only required in Switzerland

AL FBK	*Solid fuel boiler alternative*
AL OWD	*East-west roof alternative*
AL SL-LI	*Alternative: SolvisSolo with SolvisLino 3/4*
AL SÖ	*Alternative connection for SolvisMax Öl*
AL SX	*Alternative connection for SolvisMax Gas*
ESTL	*Exhaust safety temperature limiter*
BR	*Jumper*
EP	*Expansion board, see* ➔ Fig. 42, p. 44
KBB-LI3-SC2	*Burner cable for SolvisLino 3/4*
KBB SC-2	*SolvisControl 2 sensor cable harness*
KBB-SÜS	*Sensor cable harness for solar heat transfer station*
mSTL	*Mechanical safety temperature limiter*
WWS	*Hot water station*
ZR	*Central controller interface*

3 Heating Pumps

3.1 SolvisMax Teo (brine/water)

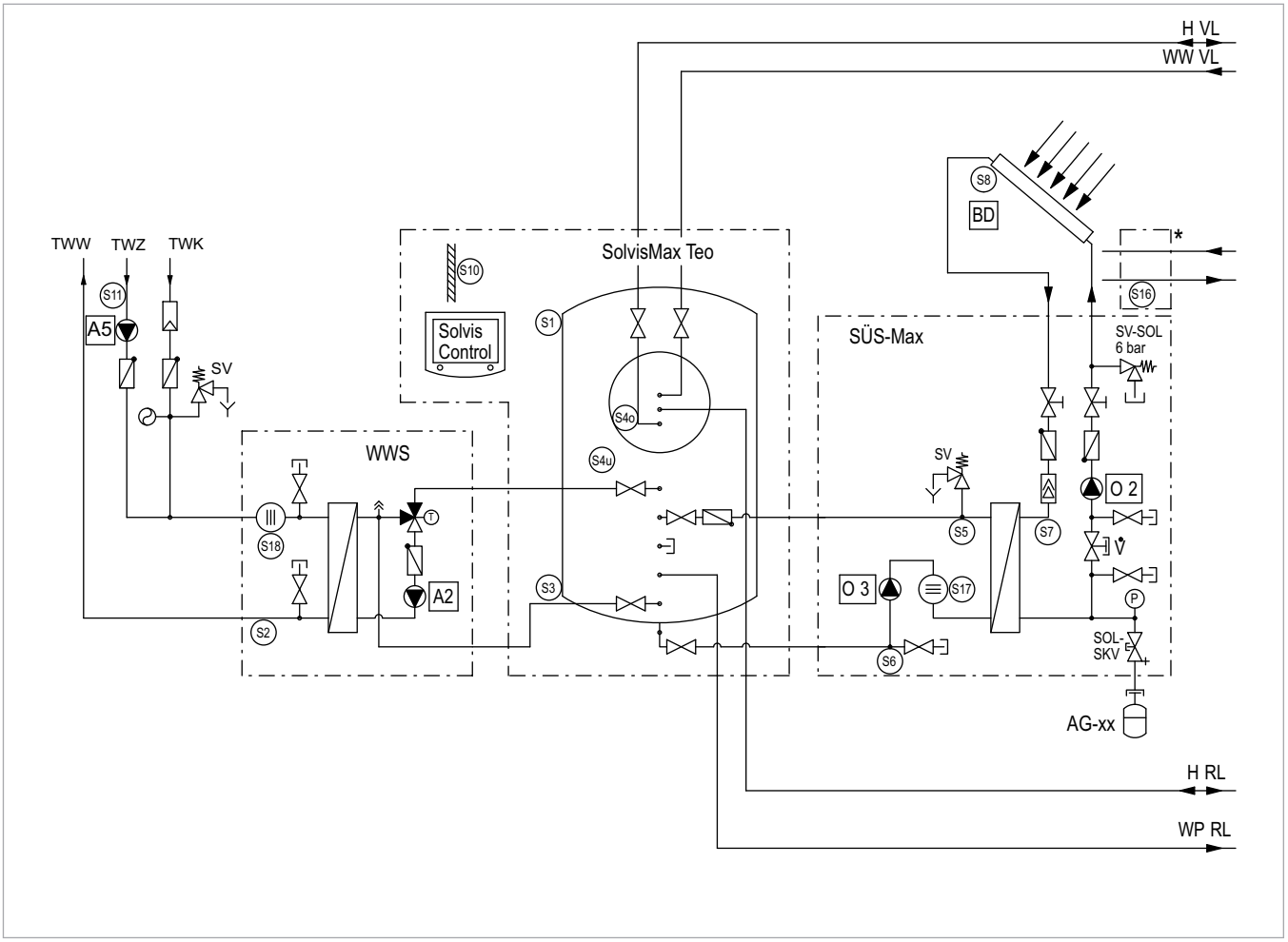


Fig. 28: SolvisMax Teo with SolvisTeo and two mixed heating circuits – Part 1

Equipment

- SolvisControl 2 system controller
- Drinking water heating
- Two mixed heating circuits
- Solar circuit with one collector (field)
- Adjacent SolvisTeo brine/water heating pump

Modules:

BD	*Lightning protection box*
HKS-G	*Heating circuit station, mixed*
AG-xx	*Solar expansion vessel*
WWS	*Hot water station*
SG-H	*Heating circuit safety group*
SÜS-MAX	*Solar heat transferstation*
VTL-2	*Distributor bar, 2-way*
SOS-SW	*Brine station*

Heat exchanger (brine support, option)

1	*From SolvisMax*
2	*To heating pump*
3	*From heat source*
4	*To collector*

Abbreviations

LA	*Air separator*
AG	*Expansion vessel*
SAS	*Sludge separator*
SV	*Safety valve*
SOL-SKV	*Solar cap valve*
SV-SOL	*Solar safety valve*
TWK	*Drinking water network, cold connection*
TWW	*Drinking water network, hot connection*
TWZ	*Drinking water network, circulation connection*
V̇	*Adjusting valve*
HK1-2	*Heating circuit 1 to 2*
S-RL	*Solar return*
DW	*Brine pressure controller*
H-RL	*Heating return*
H-VL	*Heating flow*
WP-RL	*Heating pump return*
WQ-RL	*Heat source return*
WQ-VL	*Heat source flow*
WW-VL	*Hot water flow*

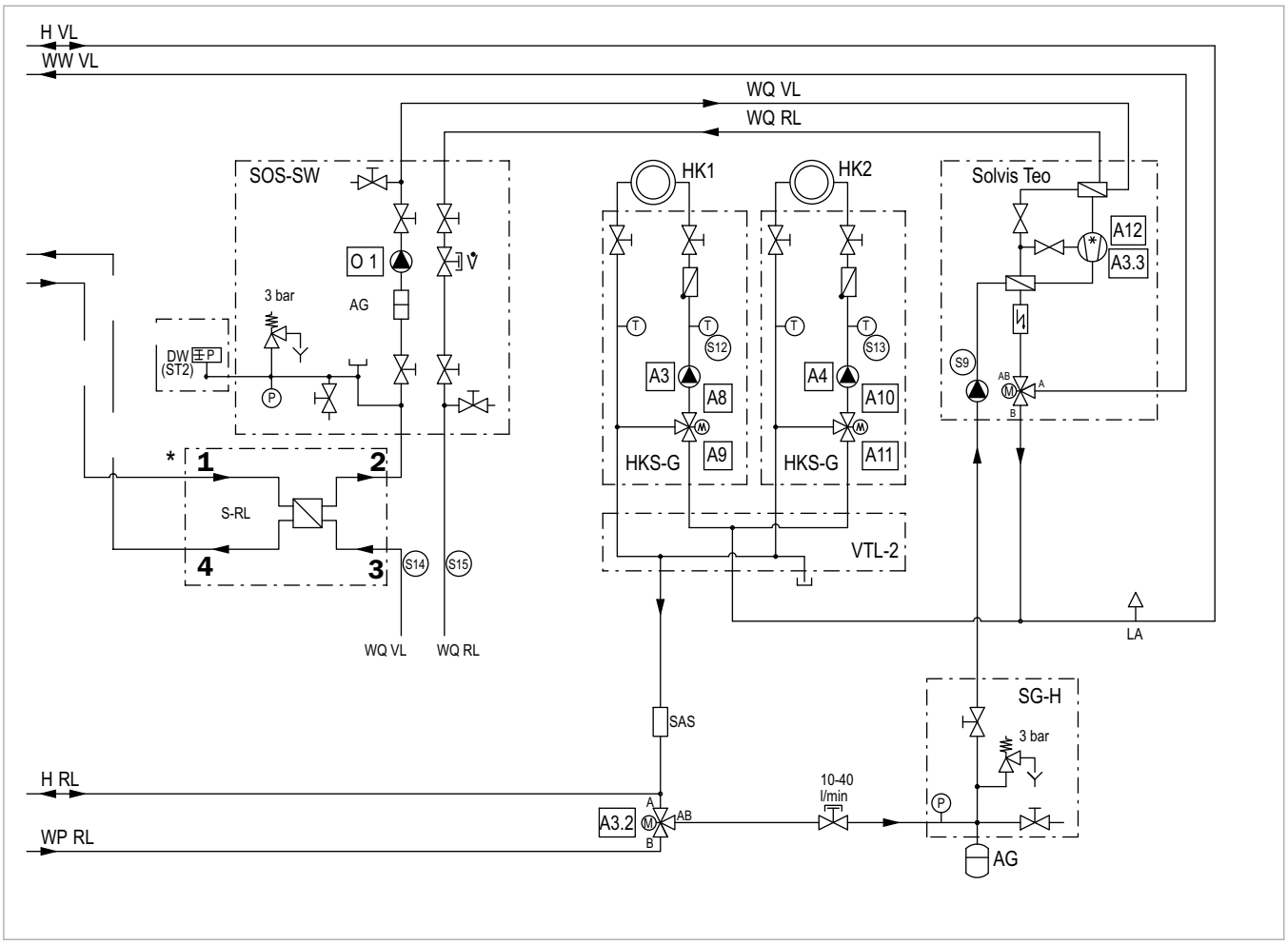


Fig. 29: SolvisMax Teo with SolvisTeo and two mixed heating circuits – Part 2

* Brine support optional

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 SolvisMax Vaero (air/water)

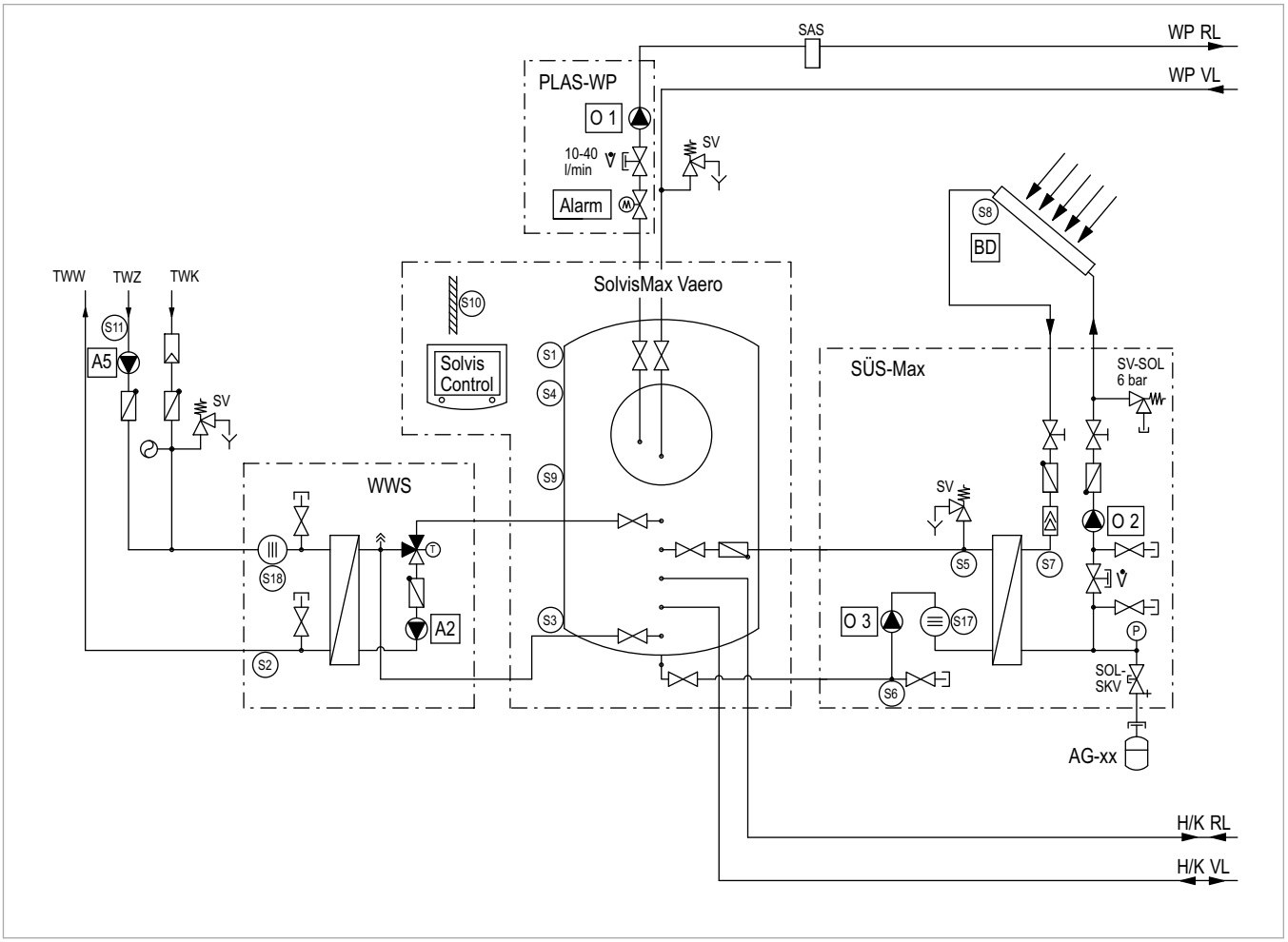


Fig. 30: SolvisMax Vaero with SolvisVaero, third-party boiler and two mixed heating circuits – Part 1

Equipment

- SolvisControl 2 system controller
- Drinking water heating
- Two mixed heating circuits
- Solar circuit with one collector (field)
- Adjacent SolvisVaero air/water heating pump
- Adjacent customer-provided boiler (third-party boiler)

Modules:

BD	*Lightning protection box*
HKS-G	*Heating circuit station, mixed*
AG-xx	*Solar expansion vessel*
WWS	*Hot water station*
SG-H	*Heating circuit safety group*
SÜS-MAX	*Solar heat transferstation*
VTL-2	*Distributor bar, 2-way*

Abbreviations

LA	*Air separator*
AG	*Expansion vessel*
SAS	*Sludge separator*
SV	*Safety valve*
SOL-SKV	*Solar cap valve*
SV-SOL	*Solar safety valve*
TWK	*Drinking water network, cold connection*
TWW	*Drinking water network, hot connection*
TWZ	*Drinking water network, circulation connection*
V̇	*Adjusting valve*
HK1-2	*Heating circuit 1 to 2*
H/K-VL	*Heating and boiler return*
H/K-VL	*Heating and boiler flow*
WP-RL	*Heating pump return*
WP-VL	*Heating pump flow*
HE	*House infeed*
FA	*Automatic firing system*
FK	*Third-party boiler*
FSB	*Spring-loaded gravitational force brake*

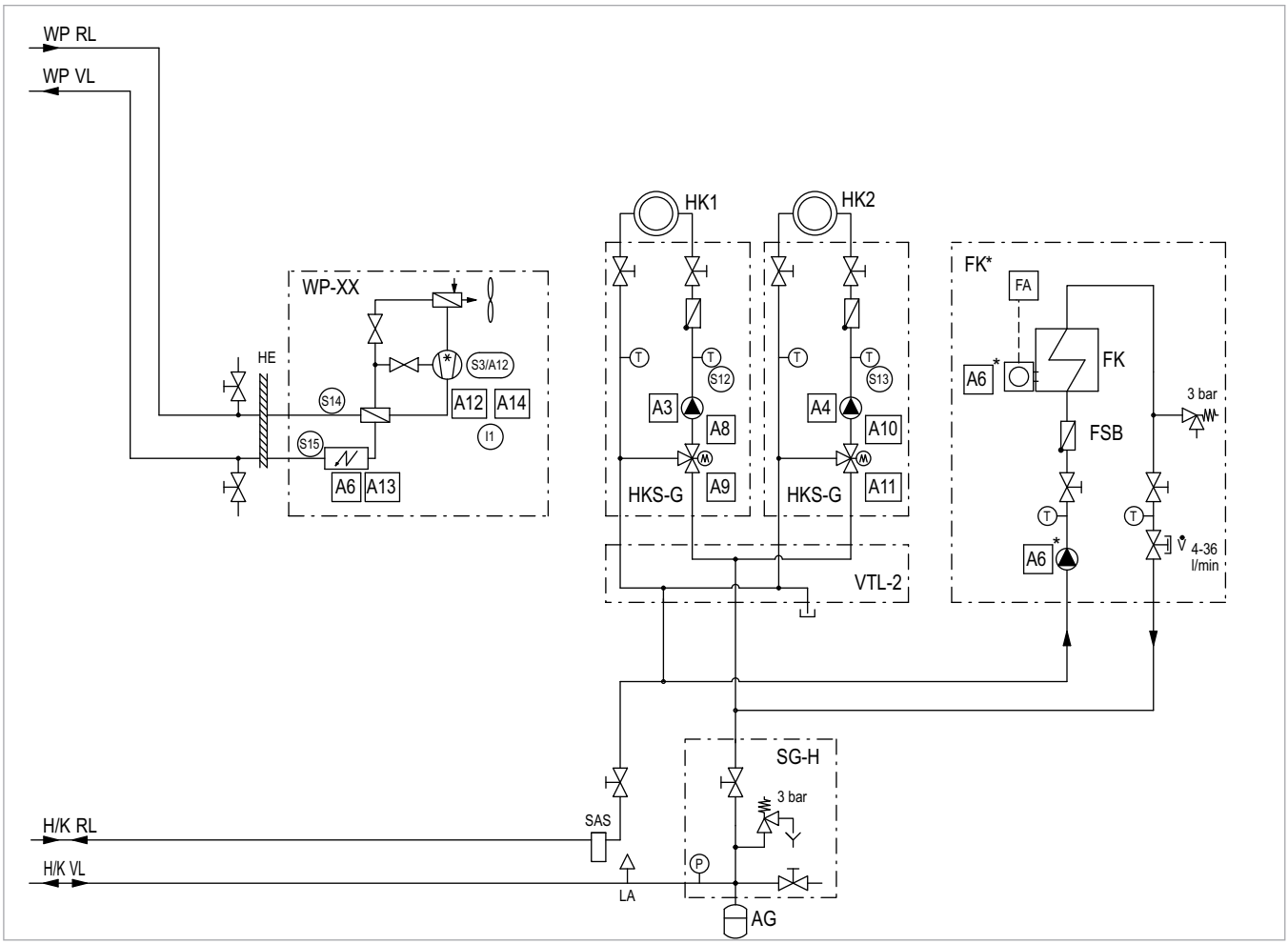


Fig. 31: SolvisMax Vaero with SolvisVaero, third-party boiler and two mixed heating circuits – Part 2

* Customer-provided boiler optional (third-party 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.

3.3 Connection Diagram

3.3.1 Connection table (system status)

SolvisMax Teo, SolvisMax Vaero

Sensors (temperature sensor and volume flow encoder)		Actuators (pumps, signals and control valves)	
Input no.	**Designation**	**Output no.**	**Designation**
S1	Sto. tank, top	**A1**	(Unused)
S2	Hot water	**A2**	PWM hot water pump
S3	Sto. tank reference	**A3**	Pump for heating circuit 1
S4	[Upper heating buffer (S4o) and lower heating buffer (S4u)]* / upper heating buffer**	**A4**	Pump for heating circuit 2
S5	Solar flow 2	**A5**	Circulation pump
S6	Solar return 2	**A6**	—* / Heating cartridge requirement**
S7	Solar flow 1	**A7**	(Unused)
S8	Collector	**A8**	Heating circuit 1 mixer (open)
S9	Heating pump return* / lower heating buffer**	**A9**	Heating circuit 1 mixer (closed)
S10	Outdoor temperature	**A10**	Heating circuit 2 mixer (open)
S11	Circulation	**A11**	Heating circuit 2 mixer (closed)
S12	Flow for heating circuit 1	**A12**	Compressor requirement
S13	Flow for heating circuit 2	**A13**	—* / Heating cartridge 2 requirement**
S14	Brine flow* / heating pump return**	**A14**	—* / Interf. supp.**
S15	Brine return* / heating pump flow**	**O-1**	Brine pump* / buffer charging station heating pump (PLAS-WP)**
S16	Solar return 1	**O-2**	PWM solar pump 1
S17	Solar volume flow encoder	**O-3**	PWM solar pump 2
S18	Water volume flow encoder		
S3/A12	Low/high press. add-on* / defrosting signal**		
I-1	Integrated heating pump controller (IWS) malfunction**		
I-2	Block time		
I-3	(Unused)		
R1	Room control element for heating circuit 1 (optional)		
R2	Room control element for heating circuit 2 (optional)		
ST1	Brine pressure controller* / jumper**		
ST2	Brine leak* / jumper**		

* *Only applies to SolvisMax Teo*
** *Only applies to SolvisMax Vaero*

3.3.2 Mains module

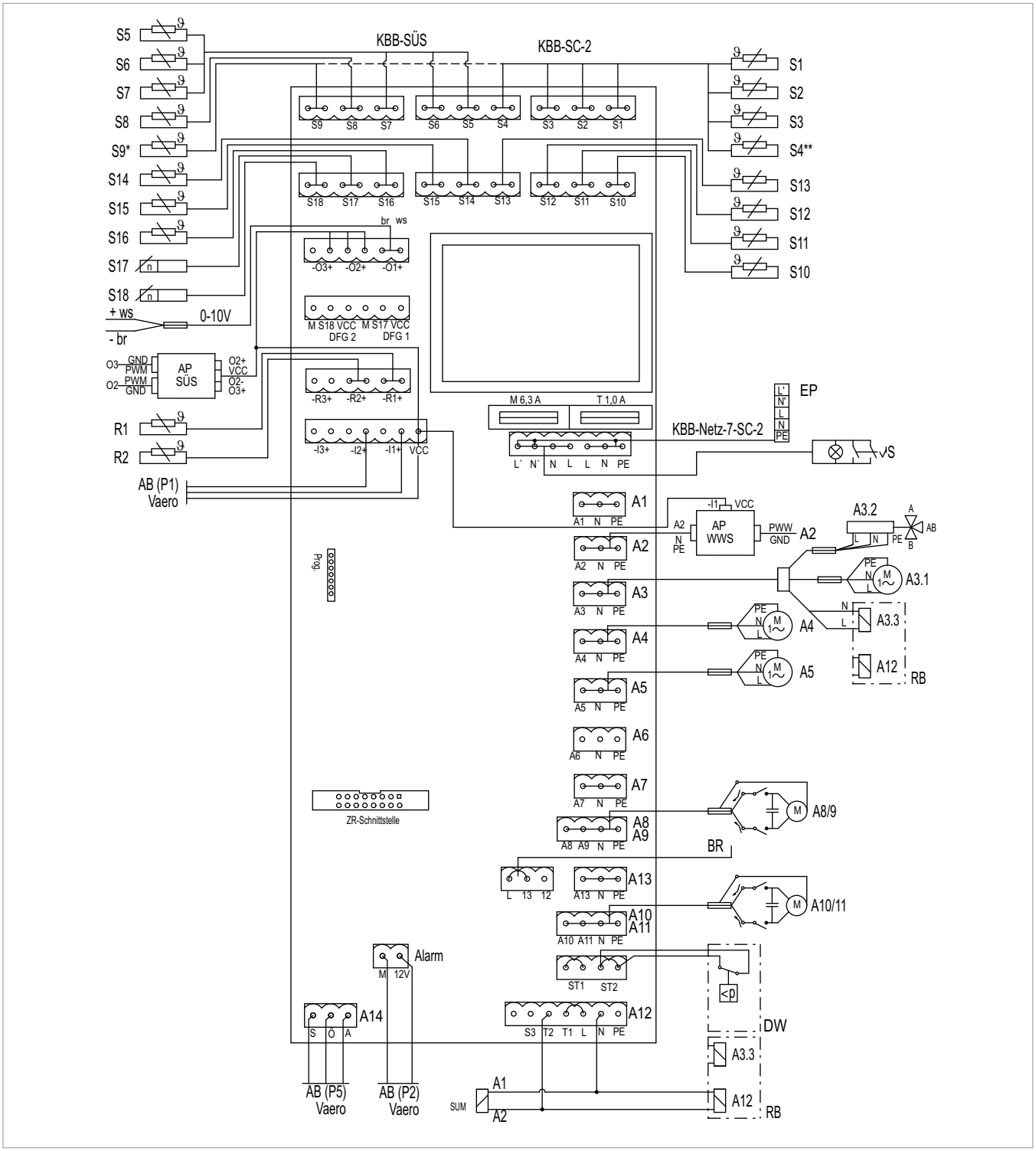


Fig. 32: SolvisControl 2 mains module for SolvisMax Vaero and SolvisMax Teo

1	*Connection, see*
2	*No power AB-B*
EP	*Expansion board, see* ➔ Fig. 42, p. 44
AP WWS	*Hot water station adapter plate*
AP SÜS	*Solar heat transfer station adapter plate*
AB(Px)	*Junction box outlet strip (SolvisVaero)*
BR	*Jumper via L and 13*
br	*Brown connection cable*
DW	*Pressure controller (optional, remove jumper at ST2)*
KBB SC-2	*SolvisControl 2 sensor cable harness*
KBB-SÜS	*Sensor cable harness for solar heat transfer station*
R1, R2	*Room control element for heating circuits 1 and 2*
RB	*Relay box, see*
R	*Main switch*
ST2	*BR or brine circuit pressure controller (SolvisTeo)*
SUM	*Sensor switching module, see*
ws	*White connection cable*
ZR	*Central controller interface*

3.3.3 SolvisTeo connection

Brine pump controls

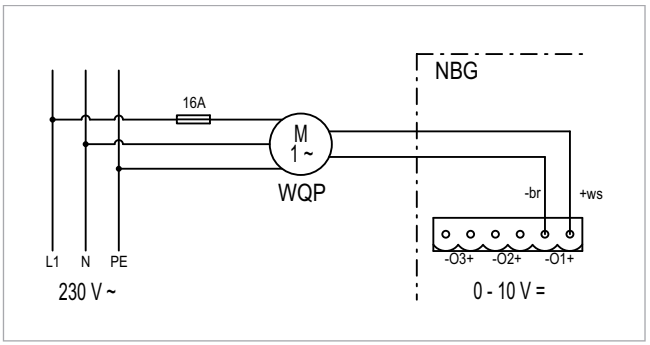


*Fig. 33: **Version 1**: Pump with connection for O-1 control line (analogue, 0 – 10 V, brine station)*

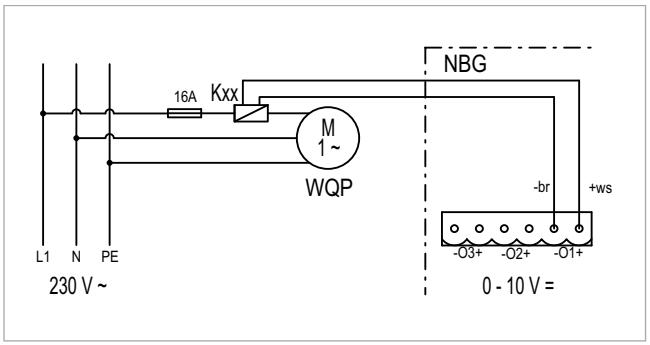


*Fig. 34: **Version 2**: Pump without connection for O-1 control line (analogue, 0 – 10 V)*

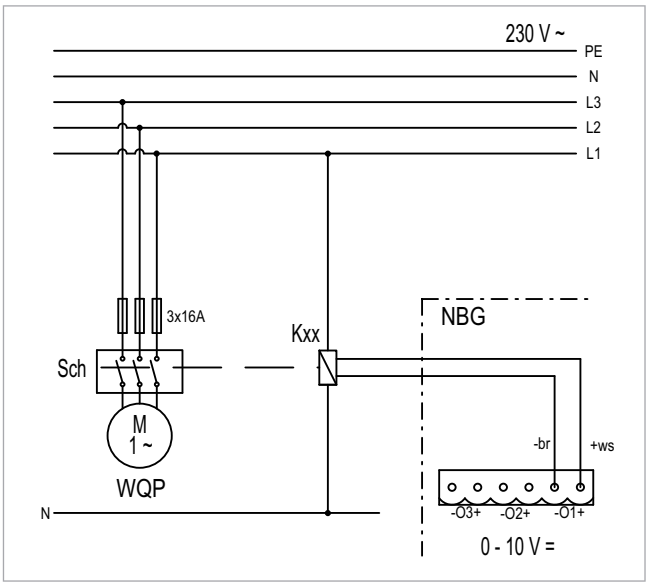


*Fig. 35: **Version 3**: Pump with AC motor*

br	*Brown connection cable*
Kxx	*Brine pump junction box*
L1	*Phase*
L2	*Phase*
L3	*Phase*
M	*Motor*
N	*Neutral conductor*
NBG	*Mains module*
PE	*Protective earth*
Sch	*Contactor*
WQP	*Heat source pump*
ws	*White connection cable*

Relay box connection

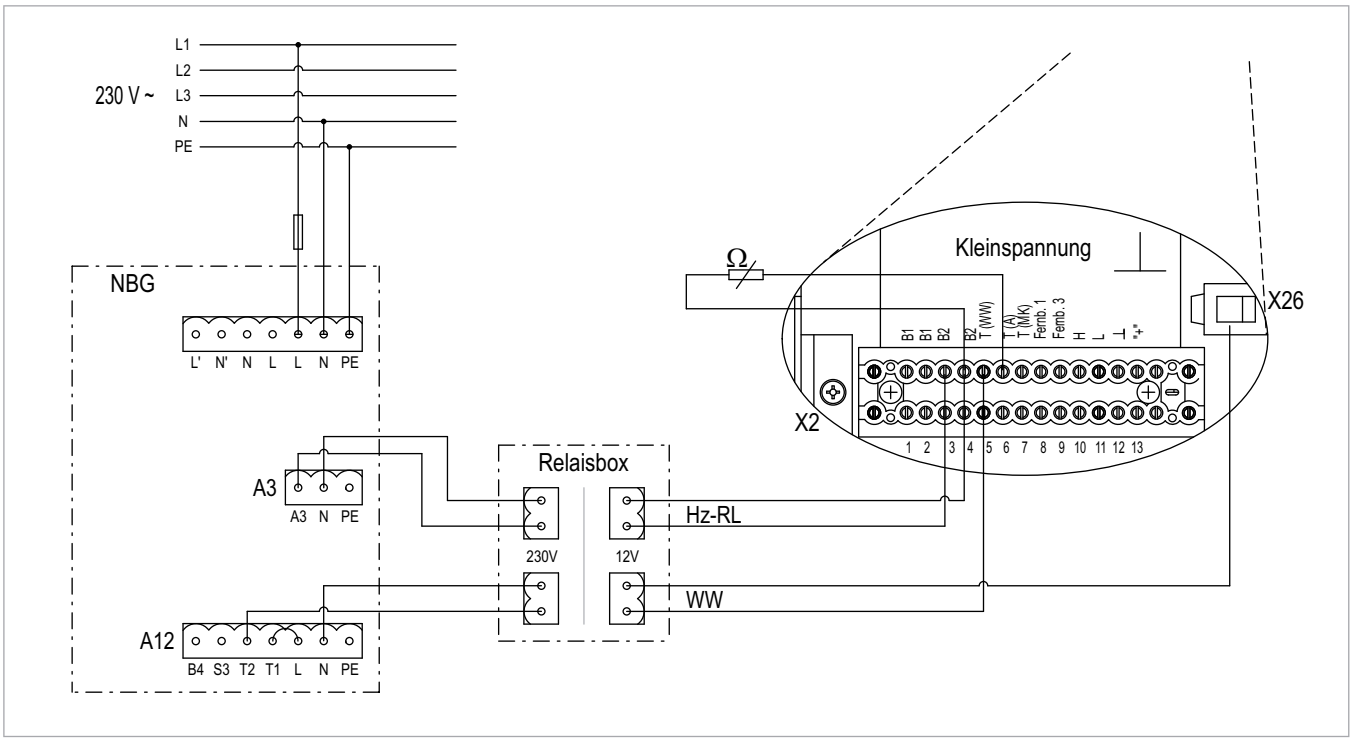


Fig. 36: Connection of relay box between SolvisControl 2 and SolvisTeo

L1	*Phase*
L2	*Phase*
L3	*Phase*
N	*Neutral conductor*
PE	*Protective earth*
NBG	*SolvisControl 2 mains module*
X2	*Low voltage terminal strip for SolvisTeo*
X26	*Earthing terminal for SolvisTeo*
Hz-RL	*Heating return sensor for SolvisControl 2*
HW	*Hot water sensor for SolvisControl 2*

Connection of sensor switching module

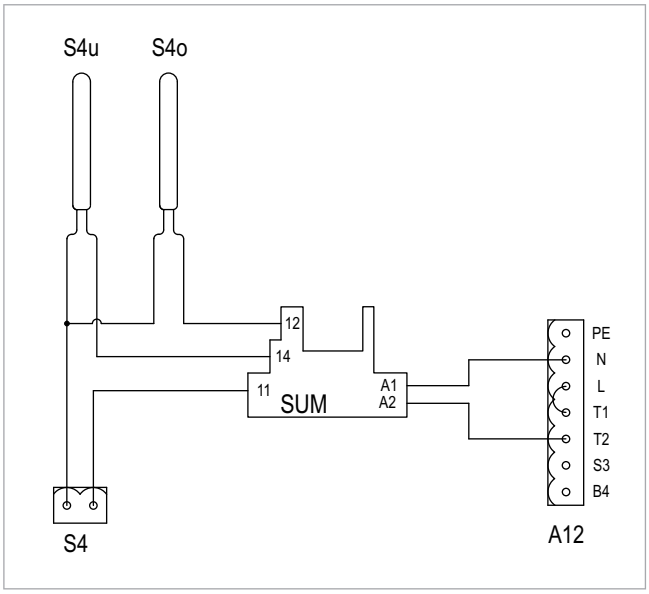


Fig. 37: Sensor switching module on SolvisControl 2 for SolvisMax Teo

3.3.4 Connection of SolvisVaero

Junction box

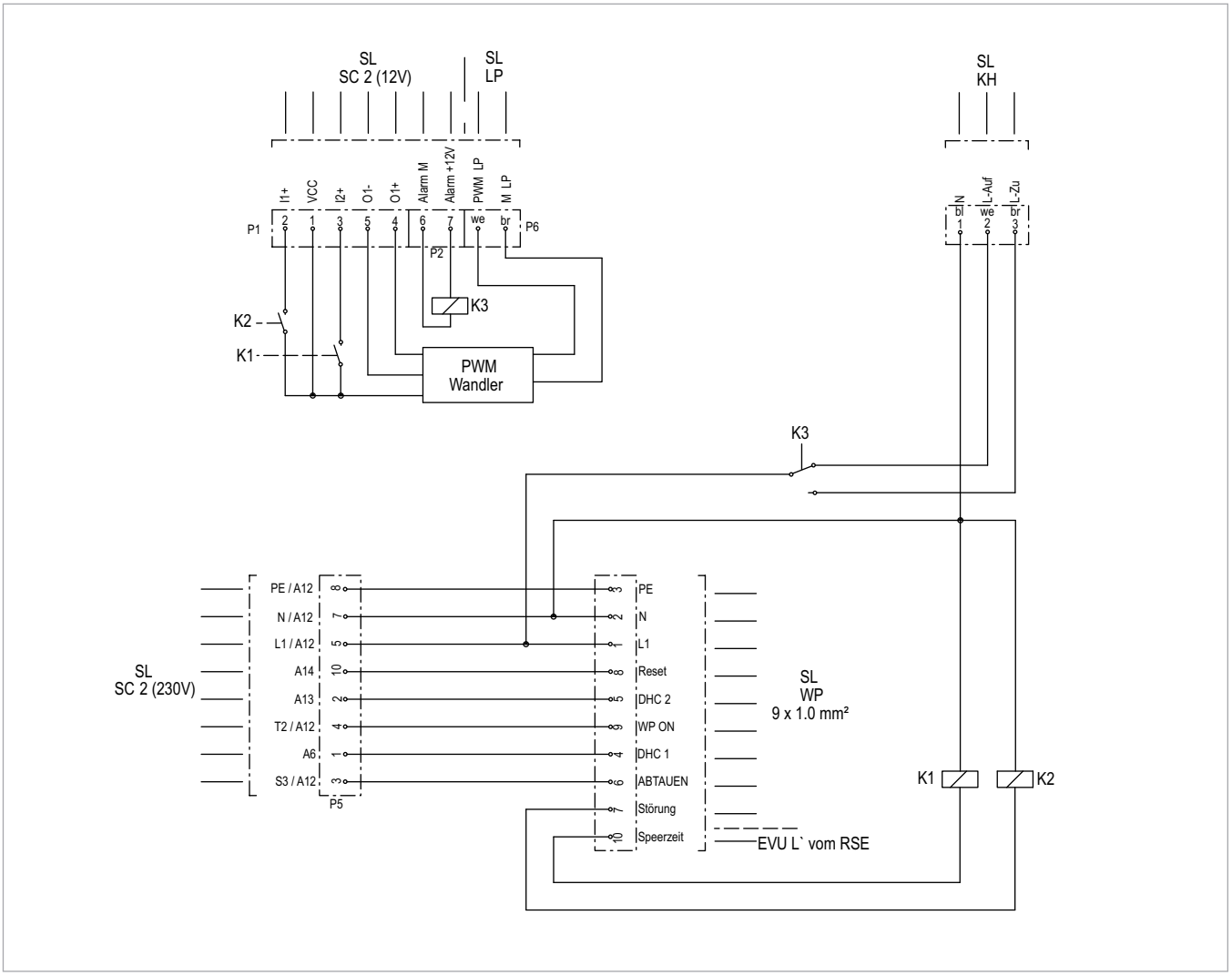


Fig. 38: Junction box

br	*Brown*
bl	*Blue*
we	*White*
L	*Phase*
L'	*Release phase from power supply company*
M LP	*Load pump earth*
N	*Neutral conductor*
LP	*Load pump*
SL	*Control line*
PE	*Protective earth*
WP ON	*Heating pump on*
Block time	*Power supply company's L' from RSE*
DHC	*Electrical auxiliary heater*
RSE	*Ripple control receiver*
PWM	*Pulse width modulation (speed control)*
KH	*Ball valve*
WP	*Heating pump*
SC-2	*SolvisControl 2*

Power connection

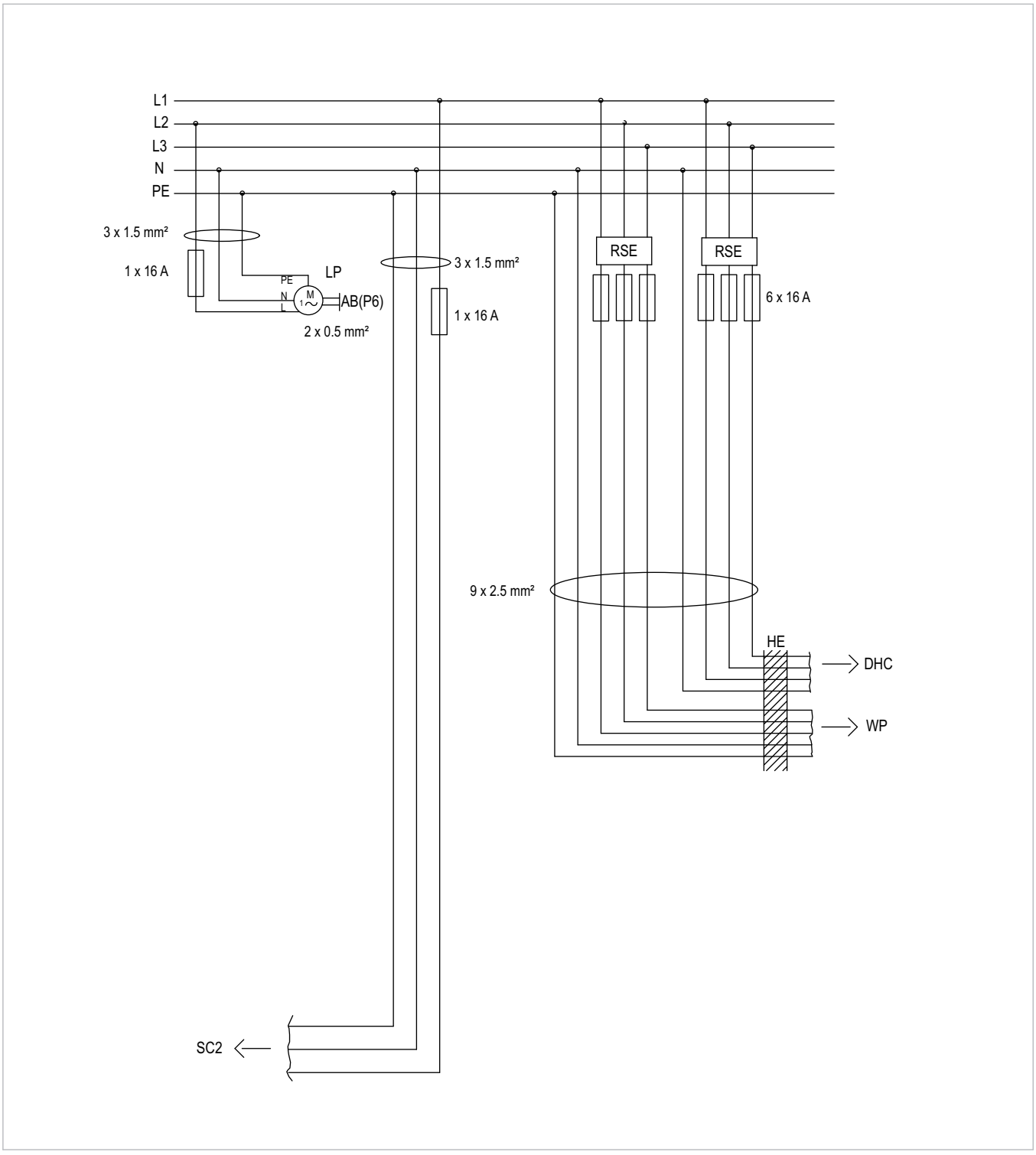


Fig. 39: Power connection

AB(Px)	*Junction box outlet strip*
DHC	*Tankless water heater*
IWS	*Integrated heating pump controller*
HE	*House infeed*
L	*Phase 1 to 3*
LP	*Load pump*
N	*Neutral conductor*
PE	*Protective earth*
RSE	*Ripple control receiver*
SC2	*SolvisControl 2*
WP	*Heating pump*
WM	*Maintenance manager*
X22	*Maintenance manager for mains connector*

Integrated heating pump controller (IWS)

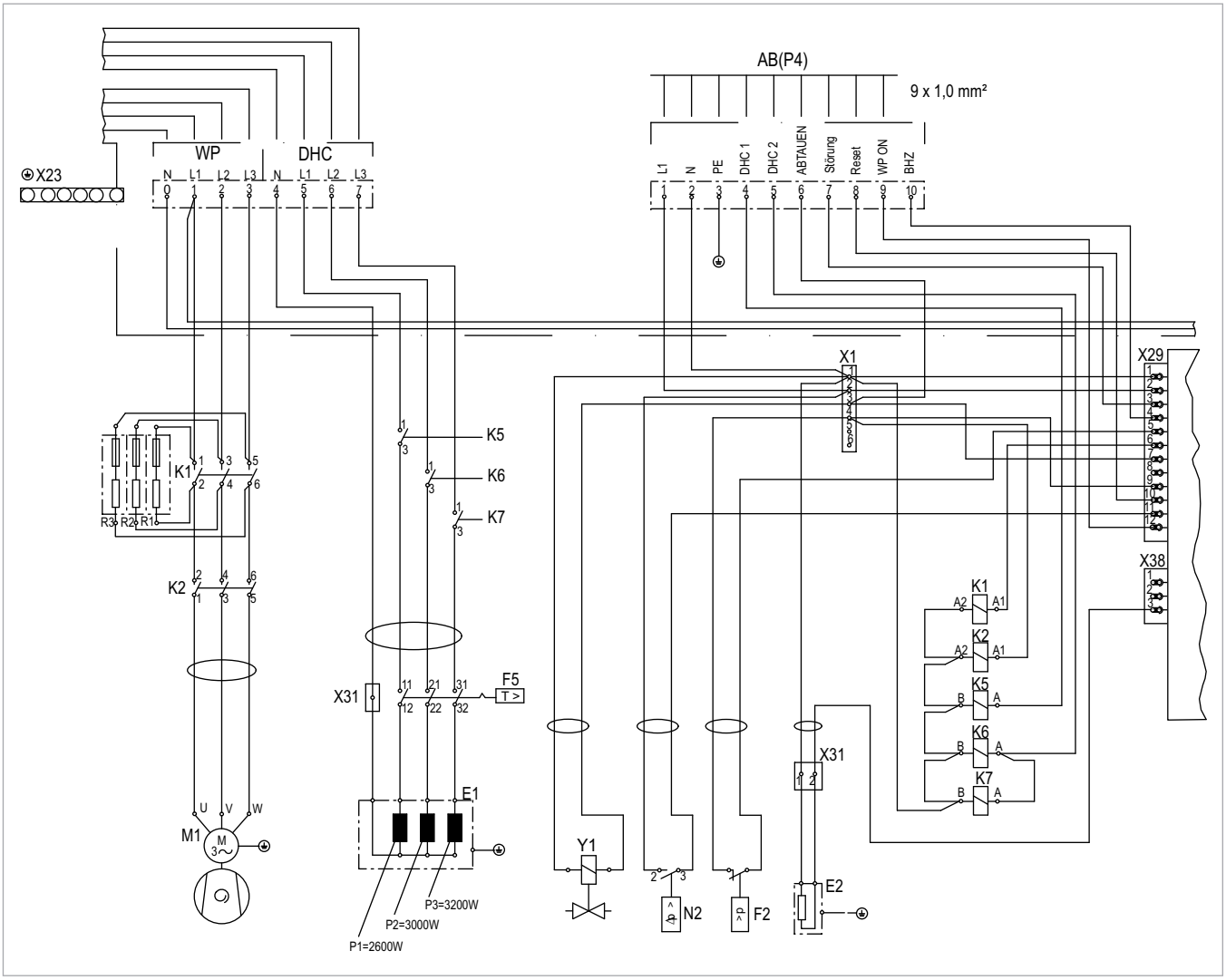


Fig. 40: Integrated heating pump controller (IWS), mains voltage side

AB(Px)	*Junction box outlet strip*
BHZ	*Drain-line heater*
DHC	*Tankless water heater*
E1	*Tankless water heater*
E2	*Oil sump heater*
F2	*High pressure controller*
F5	*DHC safety temperature limiter*
K1	*Contactor for resistor start-up*
K2	*Contactor for compressor start-up*
K5	*DHC relay level 1 (A6)*
K6	*DHC relay level 2 (A13)*
K7	*DHC relay level 2 (A13)*
L	*Phase 1 to 3*
M1	*Compressor motor*
N	*Neutral conductor*
N2	*Differential pressure switch for defrosting*
PE	*Protective earth*
WP	*Heating pump*
X1	*Connection terminals*
X4	*Controller connection terminal*
X23	*Earth connection block for mains connection*
X31	*Oil sump heater connection terminal*

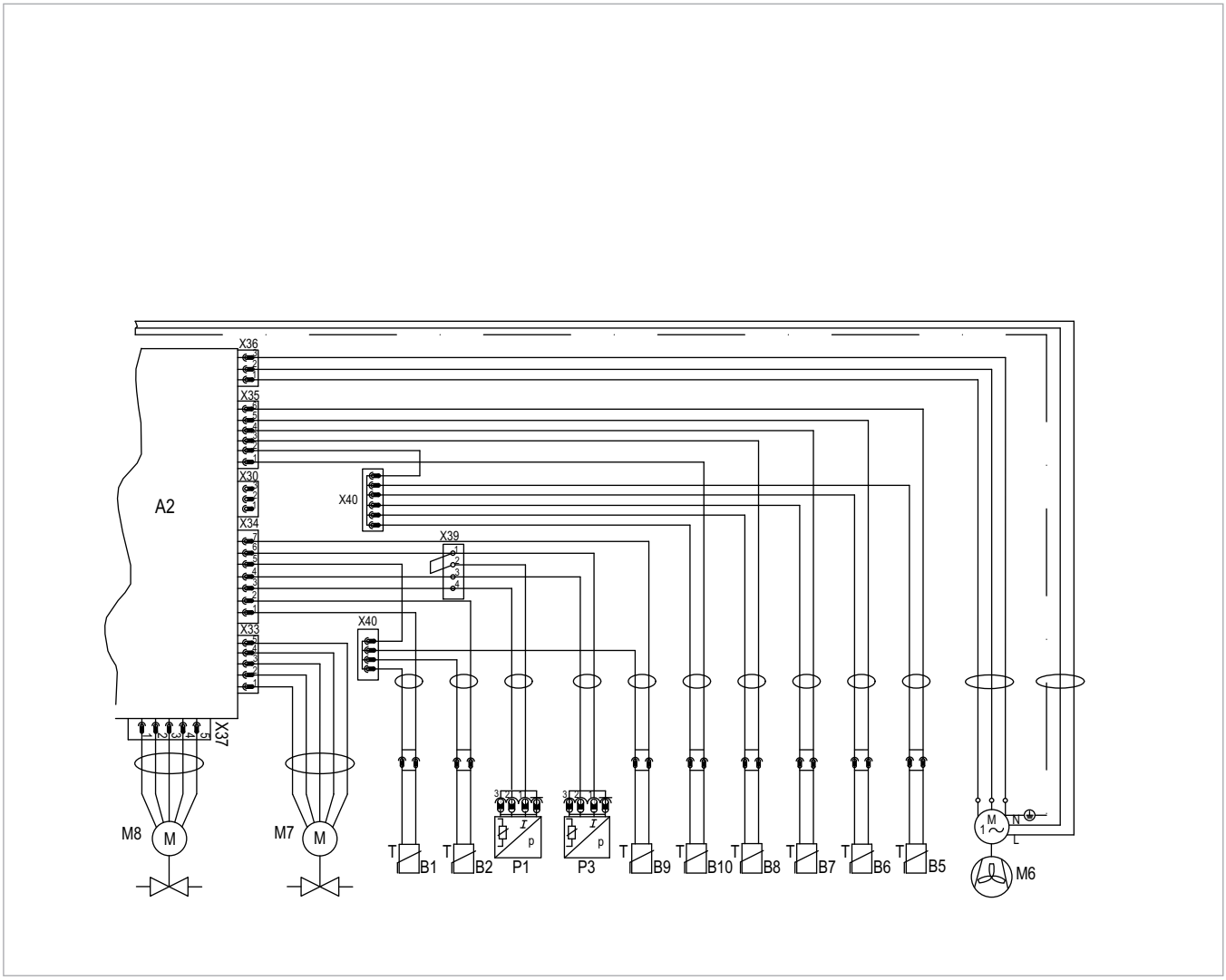


Fig. 41: Integrated heating pump controller (IWS), low voltage side

A2	*Integrated heating pump controller*
B1	*KTY heating pump (WP) flow sensor*
B2	*KTY heating pump (WP) flow sensor*
B5	*KTY hot gas sensor*
B6	*Pt1000 intake air sensor*
B7	*Pt1000 compressor inlet sensor*
B8	*Pt1000 compressor outlet sensor*
B9	*KTY antifreeze sensor*
B10	*Pt1000 injection sensor*
L	*Phase*
M6	*Fan motor*
M7	*Stepper motor for elec. expansion valve*
M8	*Stepper motor for elec. injection valve*
N	*Neutral conductor*
P1	*High pressure sensor*
P3	*Low pressure sensor*
WM	*Maintenance manager*
X2	*Low voltage terminal strip*
X29	*IWS plug, 12 pin – controller*
X30	*IWS plug, 3 pin – bus*
X33	*IWS plug, 5 pin – elec. expansion valve*
X34	*IWS plug, 7 pin – sensors*
X35	*IWS plug, 6 pin – temperature sensors*
X36	*IWS plug, 3 pin – fan*
X37	*IWS plug, 5 pin – elec. injection valve*
X38	*IWS plug, 3 pin – DHC*
X39	*Connection terminal for pressure sensors*
X40	*Earth connection terminal for temperature sensor*

4 Expansion Board

4.1 Connection table

SolvisMax

Actuators (pumps)	
Output no.	**Designation (230 V mains connection)**
1	Solar pump 1
2	Solar pump 2
3	Hot water pump

4.2 Connection Diagram

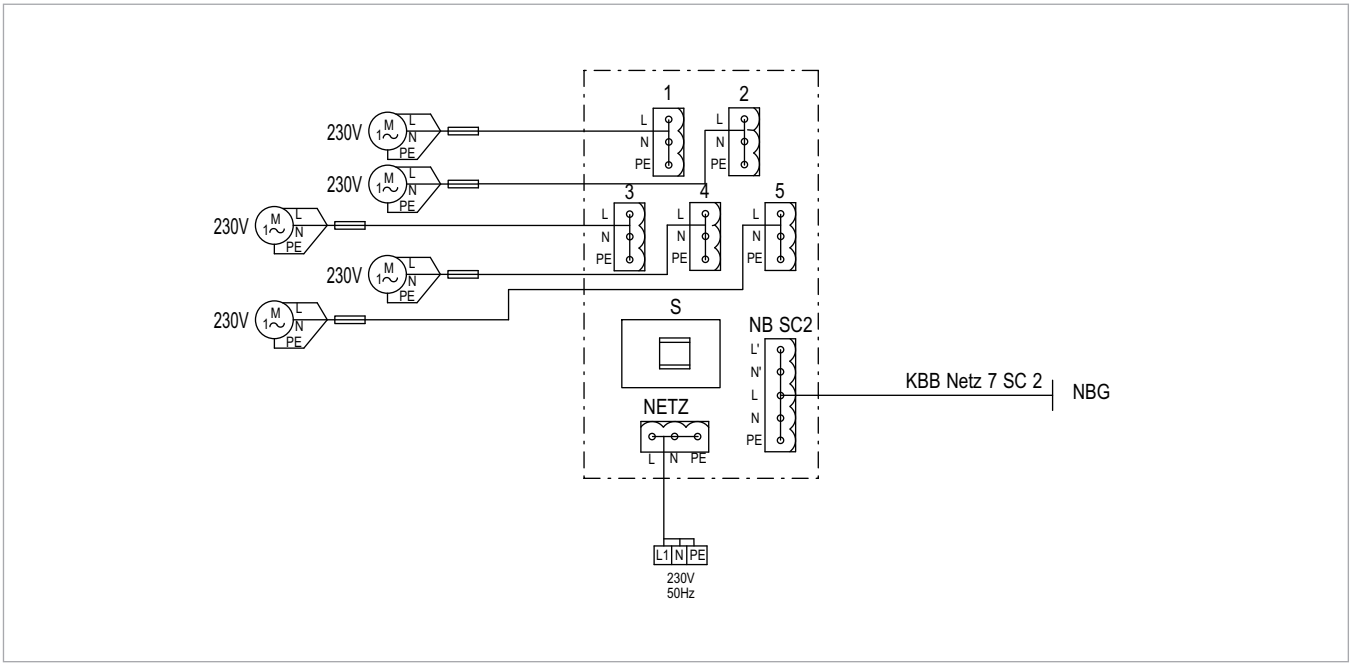


Fig. 42: Expansion board for SolvisControl 2 mains module

KBB	*Cable harness*	NB-SC2	*SolvisControl 2 mains module*
NBG	*SolvisControl 2 mains module*		

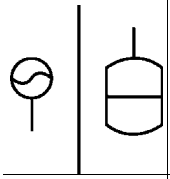
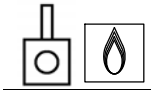
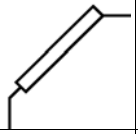
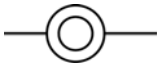
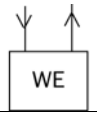
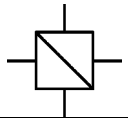
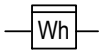
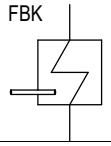
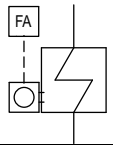
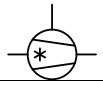
5 Explanation of Symbols

5.1 Hydraulic elements

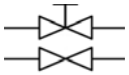
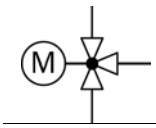
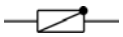
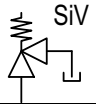
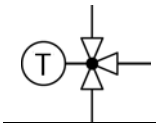
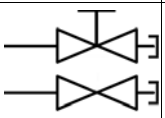
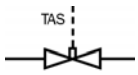
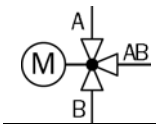
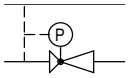
Valves

Symbol	Meaning
	Manometer
	Thermometer

Components

Symbol	Meaning
	Membrane expansion vessel
	Oil or gas burner
	Solar collector
	Consumers in the heating circuit
	General heat generator
	Heat exchanger
	Heat quantity counter
	Solid fuel boiler (FBK) or pellet boiler (Lino 3)
	Oil or gas boiler
	Compressor (heating pump aggregate)
	Electric heating cartridge

Valves

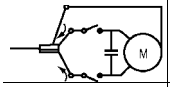
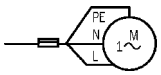
Symbol	Meaning
	Shut-off valve or valve
	Adjusting valve
	Bleeding tap
	Motor-driven mixing valve
	Gravity brake
	Safety valve
	Thermostatic mixing valve
	Solar cap valve
	Boiler filling and draining valve
	Thermal discharge safety device (TAS)
	Three-way switching valve
	Differential pressure control valve

Other hydraulic components

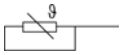
Symbol	Meaning
	Pressure controller, brine circuit
	Volume flow encoder
	Pump
	Sludge separator
	Drinking water filter

5.2 Electrical symbols

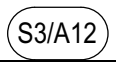
Actuators

Symbol	Meaning
	General actuator (pump / control valve / mixing valve / connection)
	Servomotor (e.g. on the three-way mixing valve)
	Motor (e.g. of a pump)

Sensors

Symbol	Meaning
	General sensor (temperature sensor, volume flow encoder, etc.)
	Volume flow encoder
	Temperature sensor

Other electrical components

Symbol	Meaning
	Jumper
	On/off switch (button with lock function)
	Automatic firing system
	Lightning protection box
	Room control element
	Terminal S3 at output A12

Notes

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