System Diagram
SolvisMax

Connection Diagrams and System Diagrams for the SolvisMax System

- Gas and oil
- District heating
- SolvisLino, third-party boiler
- SolvisTeo
- SolvisVaero

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.

Options for SolvisMax 7

SolvisMax - Options	Gas (SX)	Oil BW (BW)	District heating (FW)	Solo (SL)	Vaero (SVA)	Teo (Teo)
WWS-24 (LM-24)	✓	✓	✓	✓	✓	✓
WWS-36 (LM-36)	✓	✓	✓	✓	O	O
Flat-plate collectors	✓	✓	✓	✓	✓	✓
Tube collectors	✓	✓	✓	✓	✓	✓
First mixed heating circuit	✓	✓	✓	✓	✓	✓
Second mixed heating circuit [1]	✓	✓	✓	✓	✓	✓
Third unmixed heating circuit	✓	✓	✓	✓	–	–
Third mixed heating circuit [1]	✓*	✓*	✓*	✓*	–	–
East-west roof	✓*	✓*	✓*	✓*	–	–
Solid fuel boiler / flue	✓*	✓*	✓*	✓*	O**	O**
Room operating unit	✓	✓	✓	✓	✓	✓
SolvisRemote	✓	✓	✓	✓	✓	✓

[1] In place of the second and third mixed heating circuits, a swimming pool may be heated instead.
*✓ = recommended, *= special functions not combinable! (Third mixed heating circuit or east-west roof or solid fuel boiler)*
*O = possible, ** = only possible with additional regulator SolvisDeltaControl,*
– = not possible.

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

2.1 SolvisMax Gas and Öl

2.1.1 Basic equipment

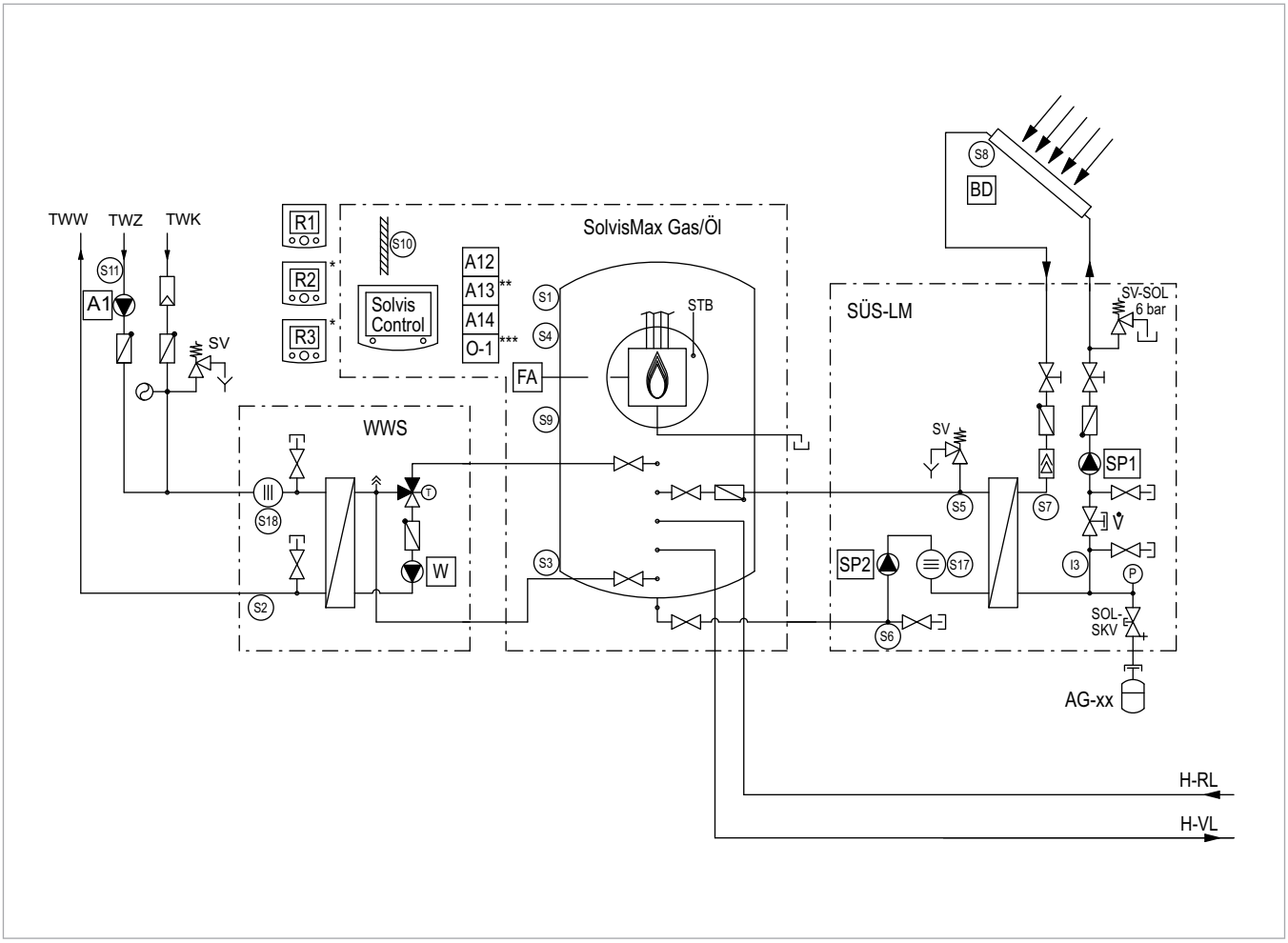


Fig. 1: SolvisMax Gas / SolvisMax Oil basic version with three mixed heating circuits – Part 1

* optional, ** applies only for SO, *** applies only for 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:

LPB	*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-LM	*Solar heat transfer station*
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*

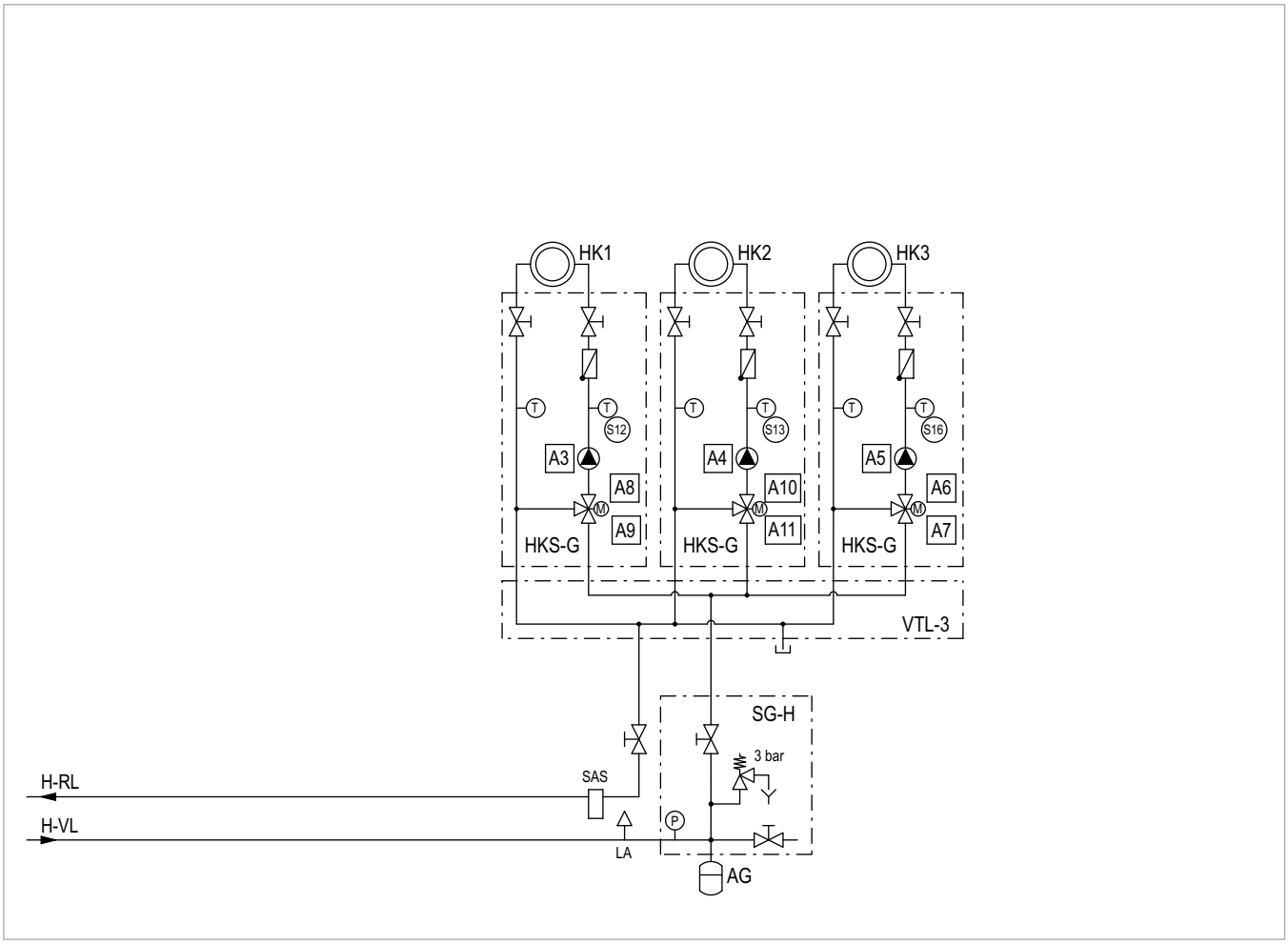


Fig. 2: SolvisMax Gas / SolvisMax Öl basic version with three mixed heating circuits – Part 2

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 – always consult the manufacturer of the boiler.	*We reserve all copyright and protection rights for this drawing. This drawing may only be duplicated or made accessible to third parties with our express written permission.* *SOLVIS GmbH*

Correct circulation pump

Before connecting a circulation pump, consult the operating instructions of the manufacturer to check whether your model is suitable for operation on a switching relay output.

Some pumps are equipped with their own control electronics to adapt to user behaviour (e.g. Grundfos UPS 15-14 BA PM). Such adaptive pumps may not be switched using the SolvisControl. They must be permanently connected to the mains voltage. To do this, use a free connection on the 230V supply board directly beside the mains module or set output A1 to Hand/ON in the installer under Output A1.

Pumps without their own electronics that are intended for frequent switching on and off may be connected as usual to output A1 in pulse, time or combined operation mode. If it is uncertain whether the relay output of the SolvisControl will function with the circulation pump to be used without causing problems, use a cut-off relay. This should be installed between output A1 and the mains supply of the circulation pump. This will reliably prevent any damage to the control.

2.1.2 East/west roof

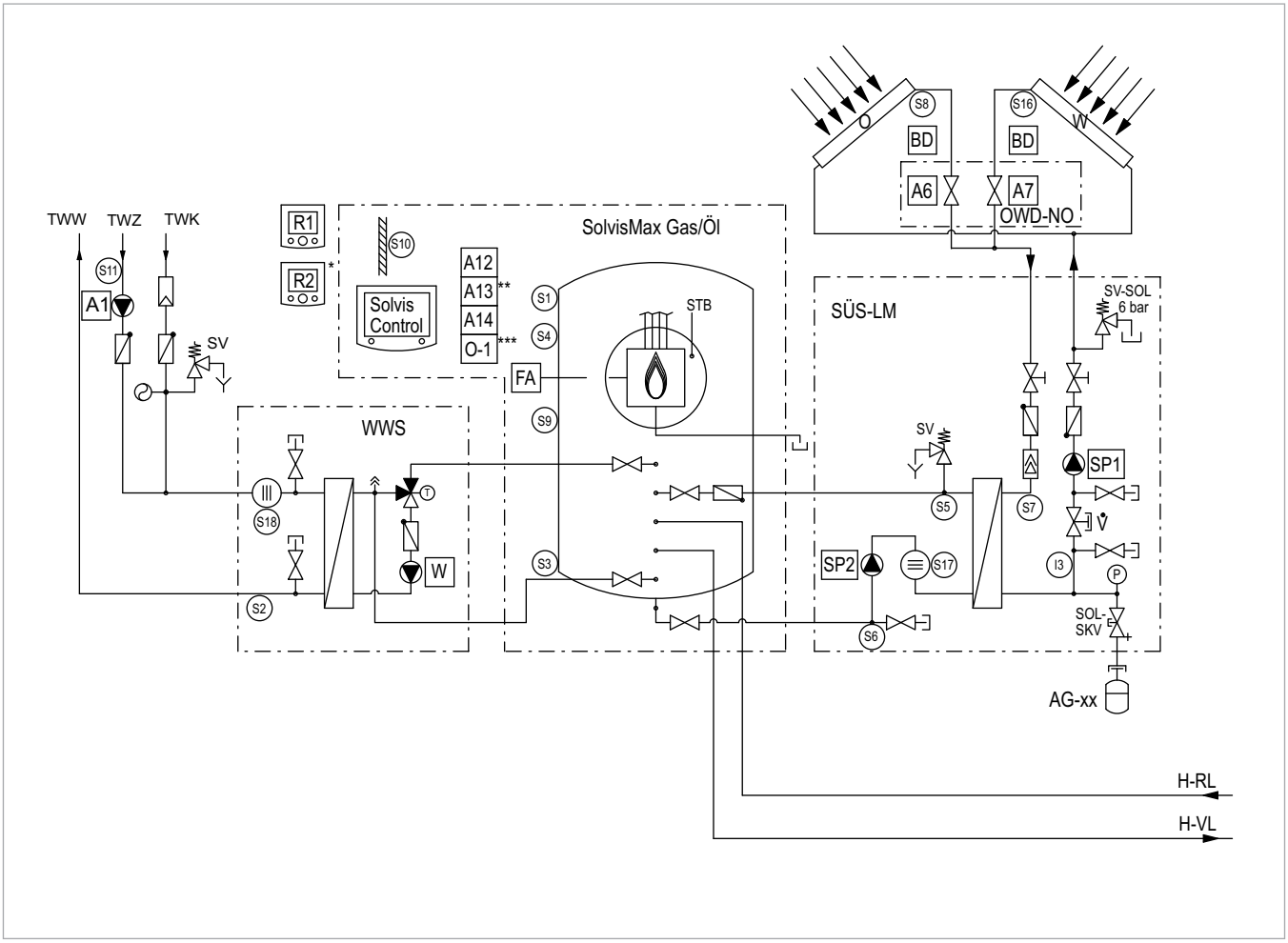


Fig. 3: SolvisMax Gas / SolvisMax Öl with an east-west roof and two mixed heating circuits – Part 1

* optional, ** applies only for SO, *** applies only for 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:

LPB	*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-LM	*Solar heat transfer station*
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*
O	*Collector (field) on east roof*
W	*Collector (field) on west roof*
OWD-NO	*East-west roof set (OWD-S-NO)*

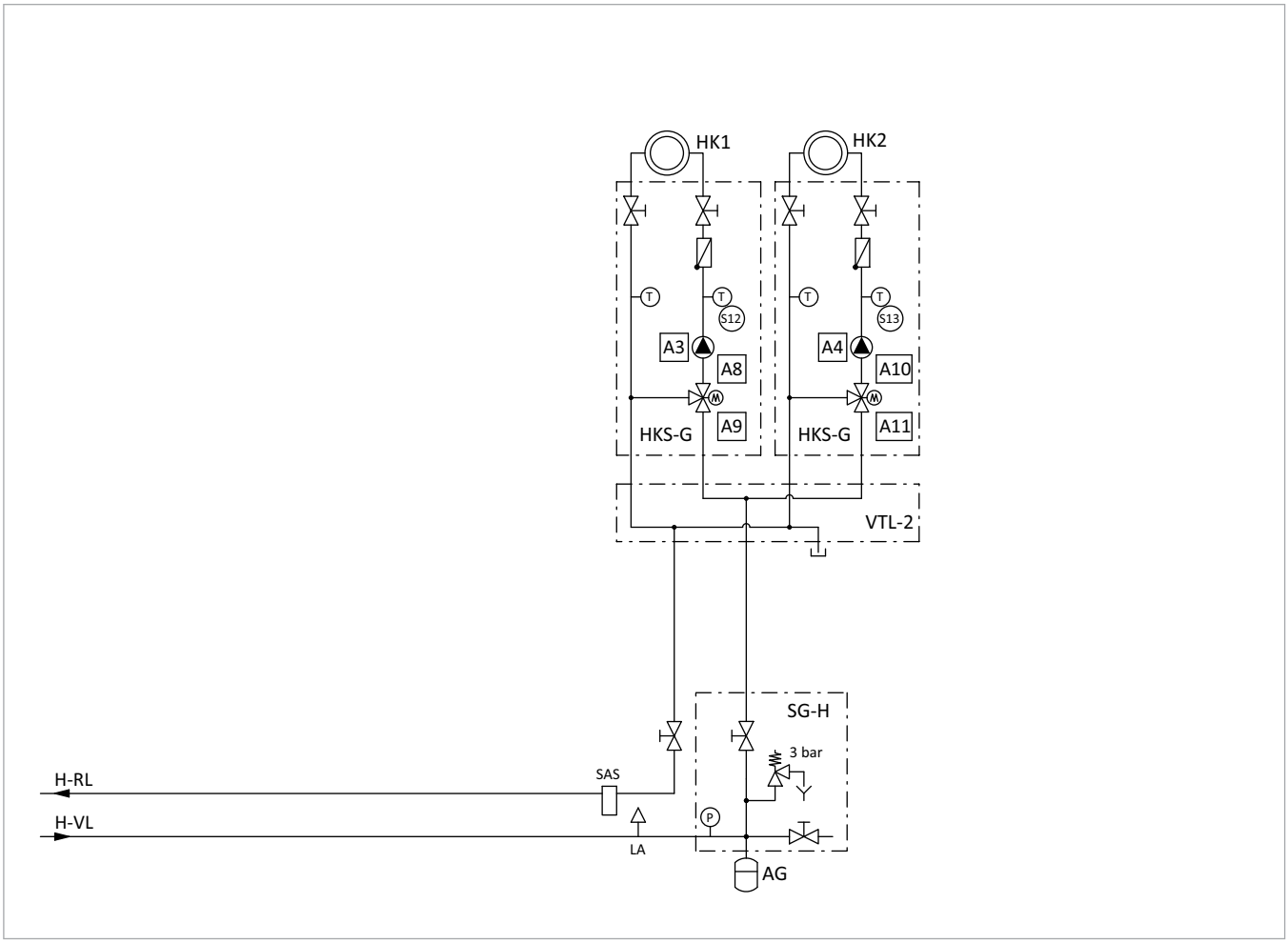


Fig. 4: SolvisMax Gas / SolvisMax Öl with an east-west roof, two mixed heating circuits – Part 2

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 – always consult the manufacturer of the boiler.	*We reserve all copyright and protection rights for this drawing. This drawing may only be duplicated or made accessible to third parties with our express written permission.* *SOLVIS GmbH*

Correct circulation pump

Before connecting a circulation pump, consult the operating instructions of the manufacturer to check whether your model is suitable for operation on a switching relay output.

Some pumps are equipped with their own control electronics to adapt to user behaviour (e.g. Grundfos UPS 15-14 BA PM). Such adaptive pumps may not be switched using the SolvisControl. They must be permanently connected to the mains voltage. To do this, use a free connection on the 230V supply board directly beside the mains module or set output A1 to Hand/ON in the installer under Output A1.

Pumps without their own electronics that are intended for frequent switching on and off may be connected as usual to output A1 in pulse, time or combined operation mode. If it is uncertain whether the relay output of the SolvisControl will function with the circulation pump to be used without causing problems, use a cut-off relay. This should be installed between output A1 and the mains supply of the circulation pump. This will reliably prevent any damage to the control.

2.1.3 Solid fuel boiler

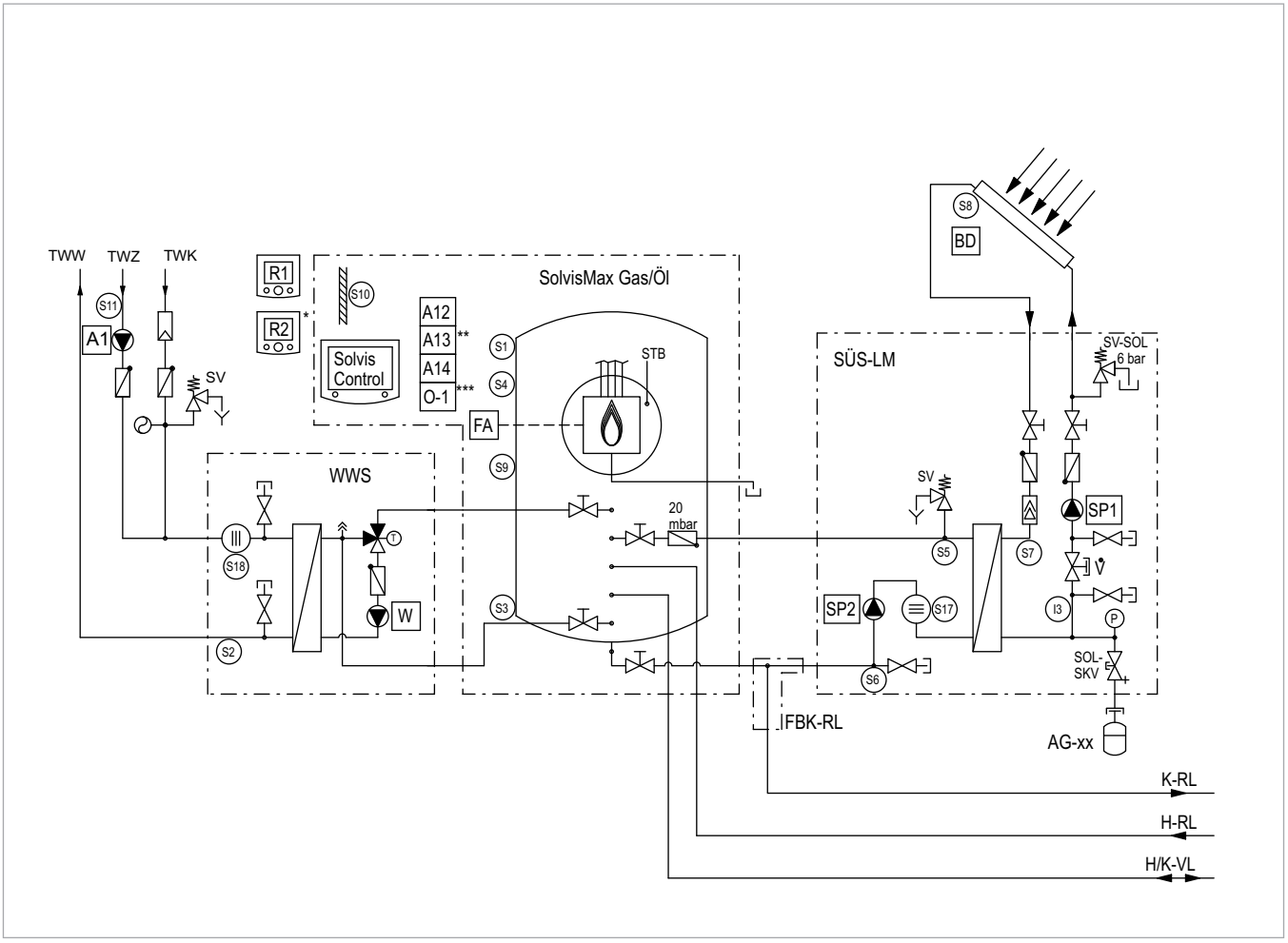


Fig. 5: SolvisMax Gas / SolvisMax Oil with solid fuel boiler and two mixed heating circuits – Part 1

* optional, ** applies only for SO, *** applies only for 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:

LPB	*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-LM	*Solar heat transfer station*
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*
FBK-RL	*Connection pipe FBK return (RO-FBK-RL)*

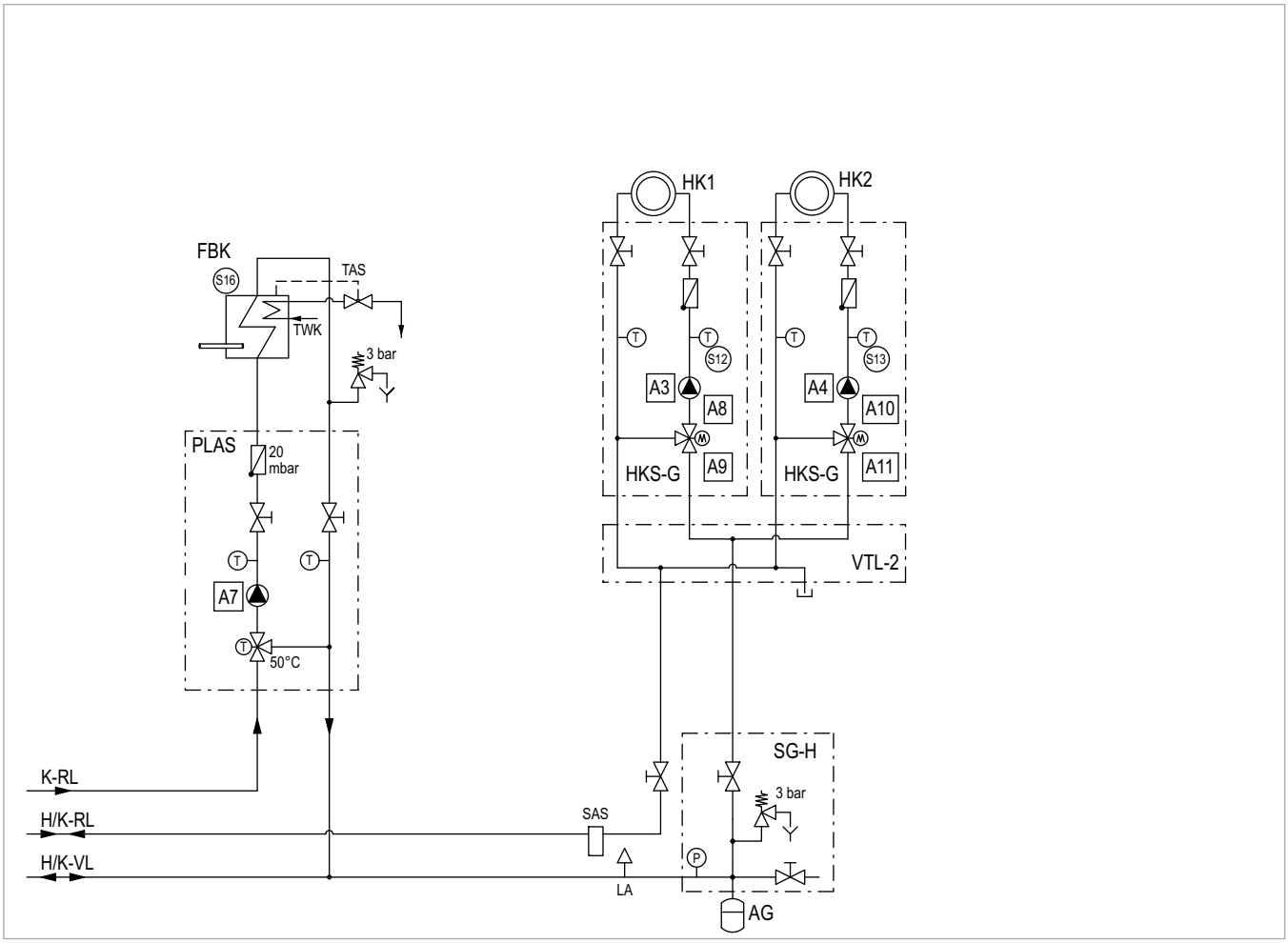


Fig. 6: SolvisMax Gas / SolvisMax Oil with solid fuel boiler and two mixed heating circuits – Part 2

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 – always consult the manufacturer of the boiler.	*We reserve all copyright and protection rights for this drawing. This drawing may only be duplicated or made accessible to third parties with our express written permission.* *SOLVIS GmbH*

Correct circulation pump

Before connecting a circulation pump, consult the operating instructions of the manufacturer to check whether your model is suitable for operation on a switching relay output.

Some pumps are equipped with their own control electronics to adapt to user behaviour (e.g. Grundfos UPS 15-14 BA PM). Such adaptive pumps may not be switched using the SolvisControl. They must be permanently connected to the mains voltage. To do this, use a free connection on the 230V supply board directly beside the mains module or set output A1 to Hand/ON in the installer under Output A1.

Pumps without their own electronics that are intended for frequent switching on and off may be connected as usual to output A1 in pulse, time or combined operation mode. If it is uncertain whether the relay output of the SolvisControl will function with the circulation pump to be used without causing problems, use a cut-off relay. This should be installed between output A1 and the mains supply of the circulation pump. This will reliably prevent any damage to the control.

2.1.4 Swimming pool

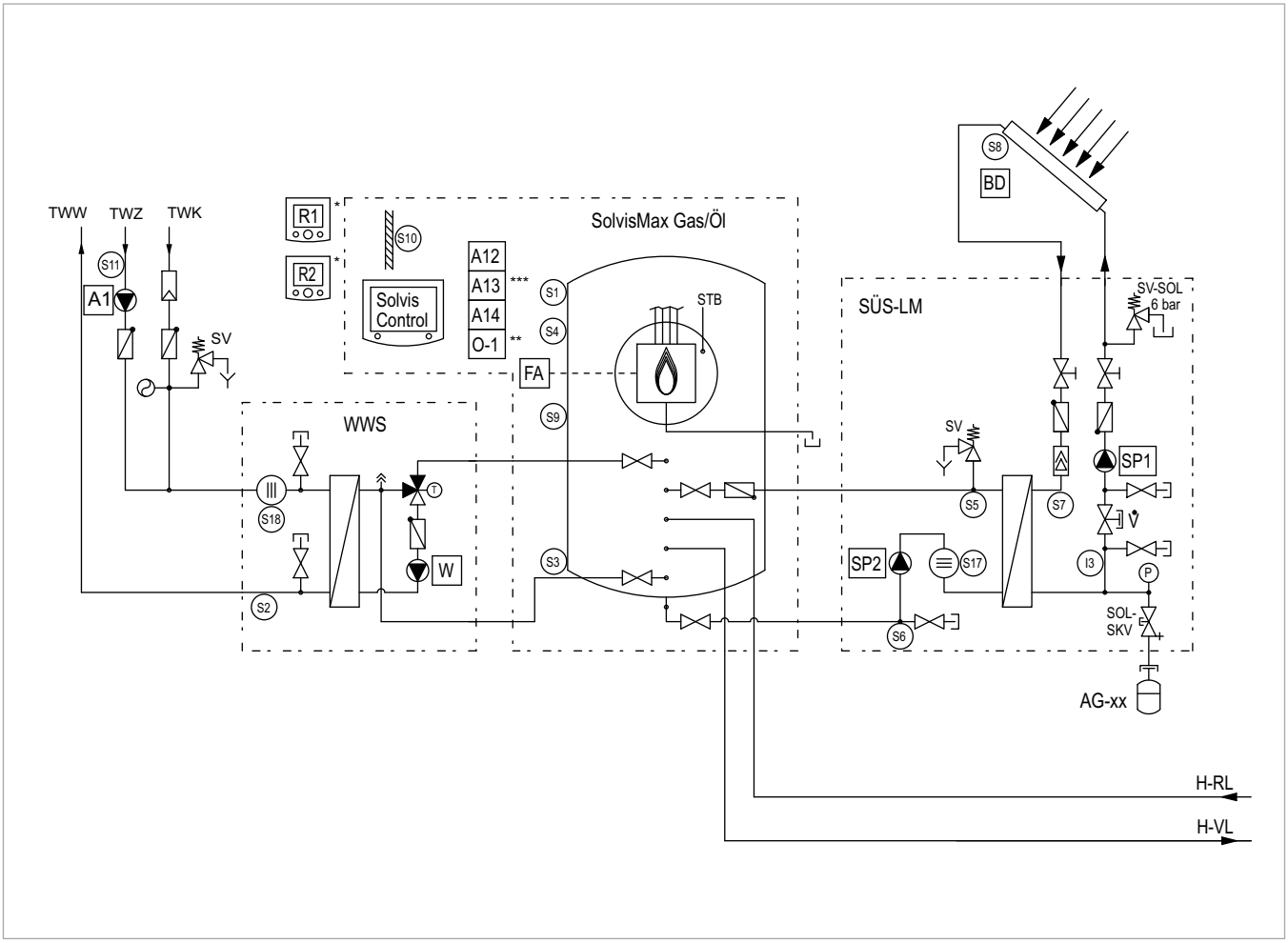


Fig. 7: SolvisMax Gas / SolvisMax Oil with swimming pool heating and two mixed heating circuits – Part 1

* optional, ** applies only for SO, *** applies only for 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:

LPB	*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-LM	*Solar heat transfer station*
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*

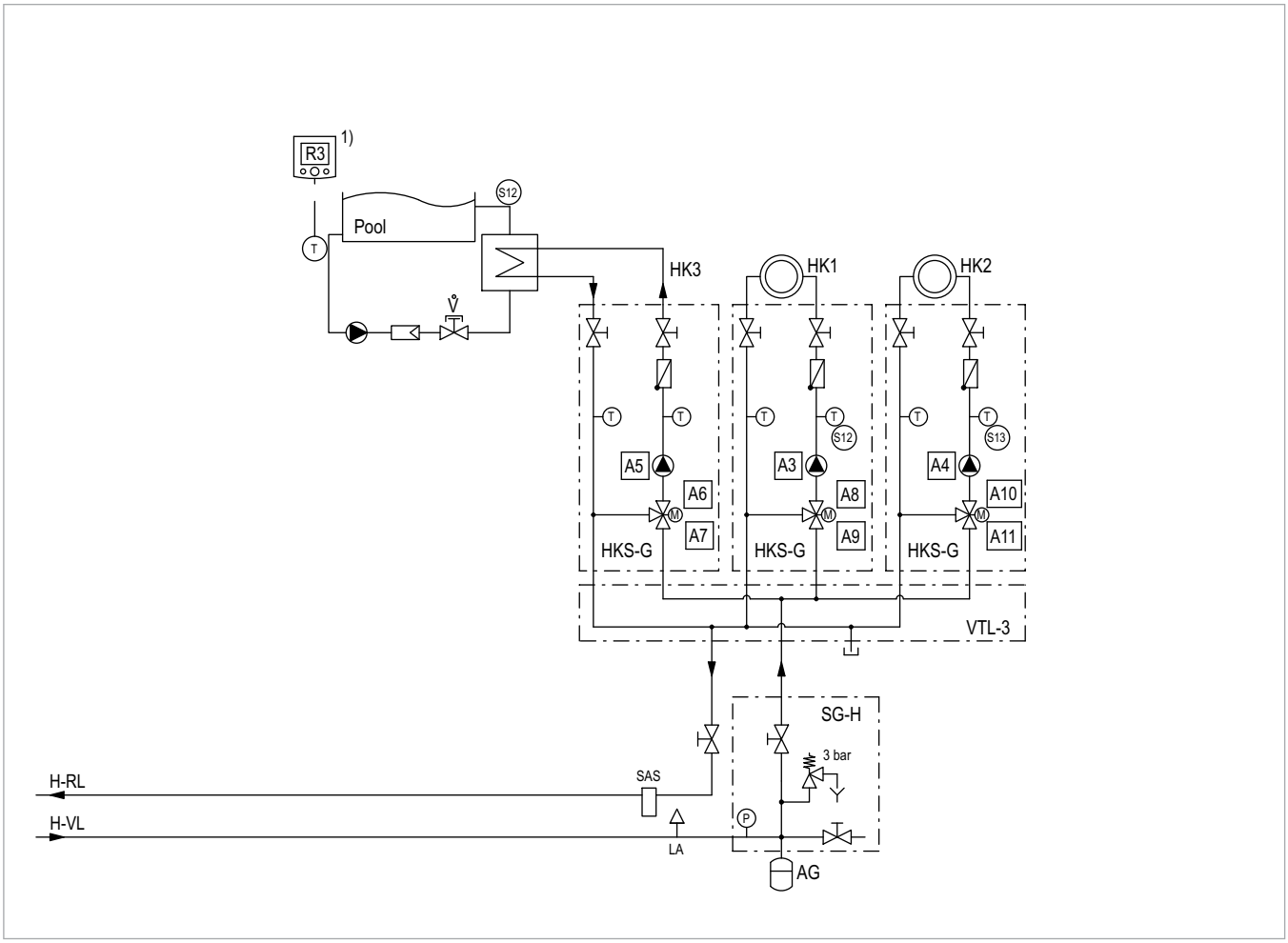


Fig. 8: SolvisMax Gas / SolvisMax Oil with swimming pool heating and two mixed heating circuits – Part 2

[1] As pool sensor use only "RF without sensor“ plus contact sensor PTC Pt1000

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 – always consult the manufacturer of the boiler.	*We reserve all copyright and protection rights for this drawing. This drawing may only be duplicated or made accessible to third parties with our express written permission.* *SOLVIS GmbH*

Correct circulation pump

Before connecting a circulation pump, consult the operating instructions of the manufacturer to check whether your model is suitable for operation on a switching relay output.

Some pumps are equipped with their own control electronics to adapt to user behaviour (e.g. Grundfos UPS 15-14 BA PM). Such adaptive pumps may not be switched using the SolvisControl. They must be permanently connected to the mains voltage. To do this, use a free connection on the 230V supply board directly beside the mains module or set output A1 to Hand/ON in the installer under Output A1.

Pumps without their own electronics that are intended for frequent switching on and off may be connected as usual to output A1 in pulse, time or combined operation mode. If it is uncertain whether the relay output of the SolvisControl will function with the circulation pump to be used without causing problems, use a cut-off relay. This should be installed between output A1 and the mains supply of the circulation pump. This will reliably prevent any damage to the control.

2.1.5 Additional storage tank

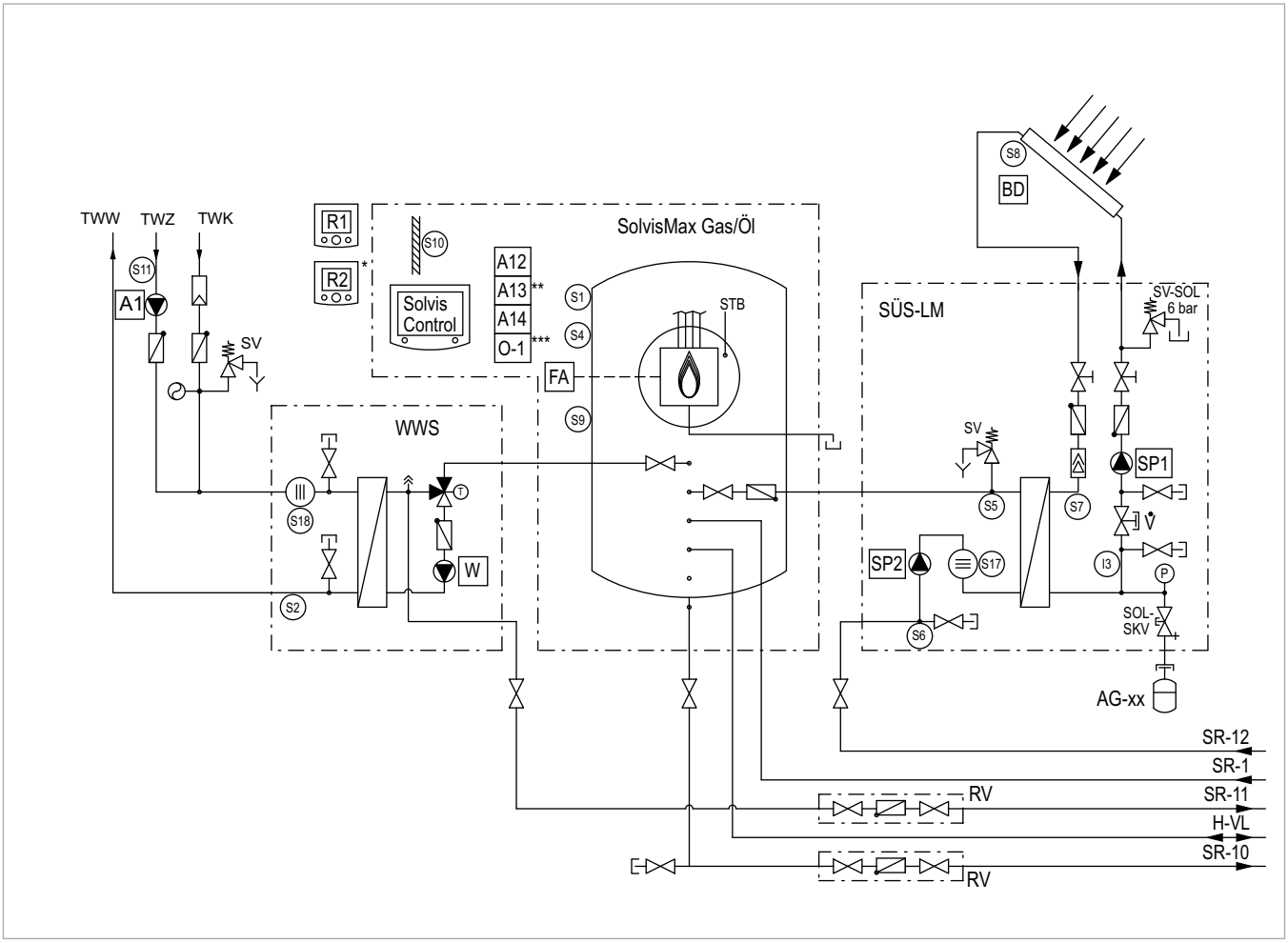


Fig. 9: SolvisMax Gas / Oil, 2 reservoirs with solid fuel boiler and two mixed heating circuits – Part 1

* optional, ** applies only for SO, *** applies only for 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:

LPB	*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-LM	*Solar heat transfer station*
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*

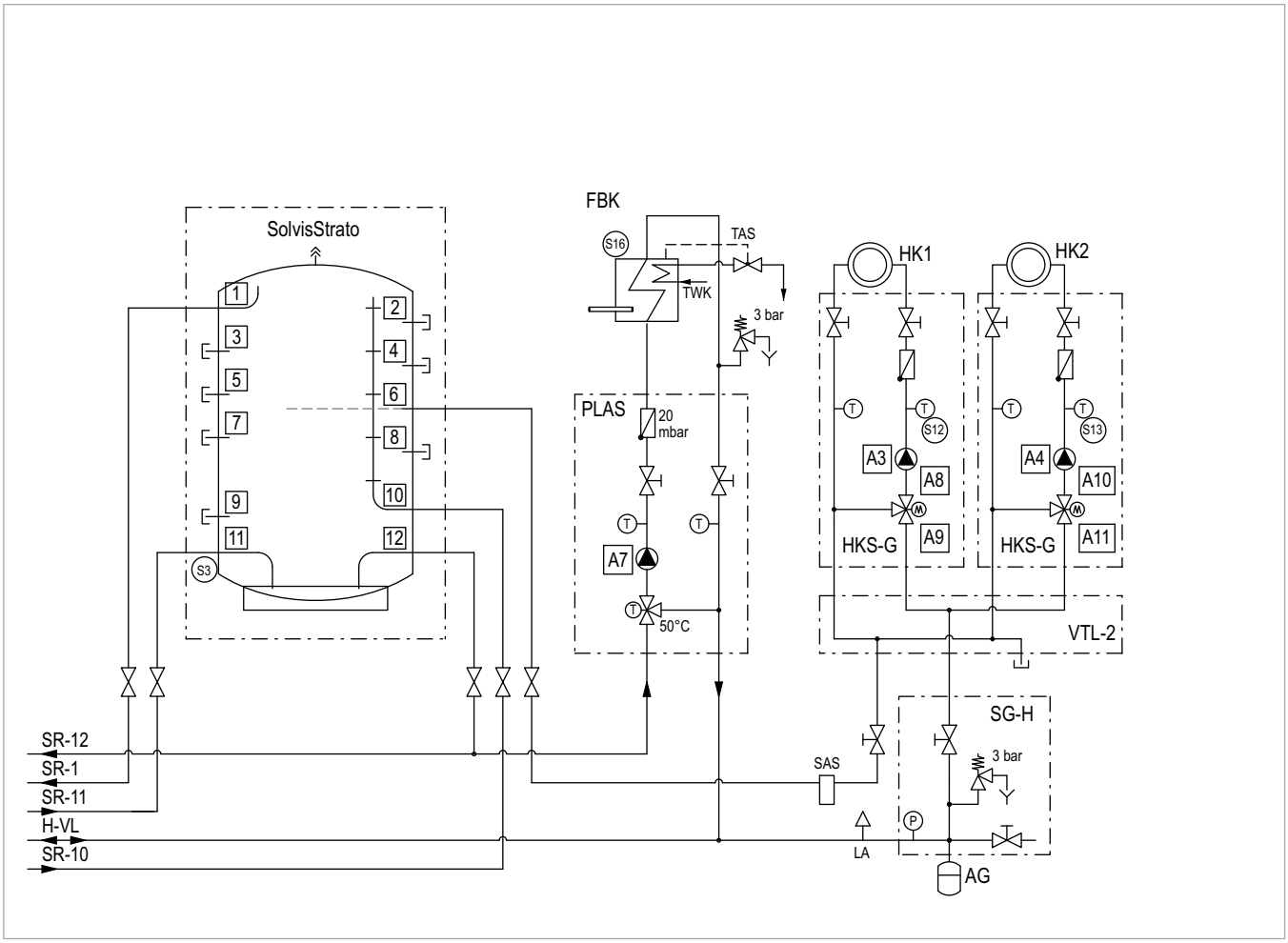


Fig. 10: SolvisMax Gas / Oil, 2 reservoirs with solid fuel boiler and two mixed heating circuits – Part 2

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 – always consult the manufacturer of the boiler.	*We reserve all copyright and protection rights for this drawing. This drawing may only be duplicated or made accessible to third parties with our express written permission.* *SOLVIS GmbH*

Correct circulation pump

Before connecting a circulation pump, consult the operating instructions of the manufacturer to check whether your model is suitable for operation on a switching relay output.

Some pumps are equipped with their own control electronics to adapt to user behaviour (e.g. Grundfos UPS 15-14 BA PM). Such adaptive pumps may not be switched using the SolvisControl. They must be permanently connected to the mains voltage. To do this, use a free connection on the 230V supply board directly beside the mains module or set output A1 to Hand/ON in the installer under Output A1.

Pumps without their own electronics that are intended for frequent switching on and off may be connected as usual to output A1 in pulse, time or combined operation mode. If it is uncertain whether the relay output of the SolvisControl will function with the circulation pump to be used without causing problems, use a cut-off relay. This should be installed between output A1 and the mains supply of the circulation pump. This will reliably prevent any damage to the control.

2.2 SolvisMax Fernwärme (with district heating)

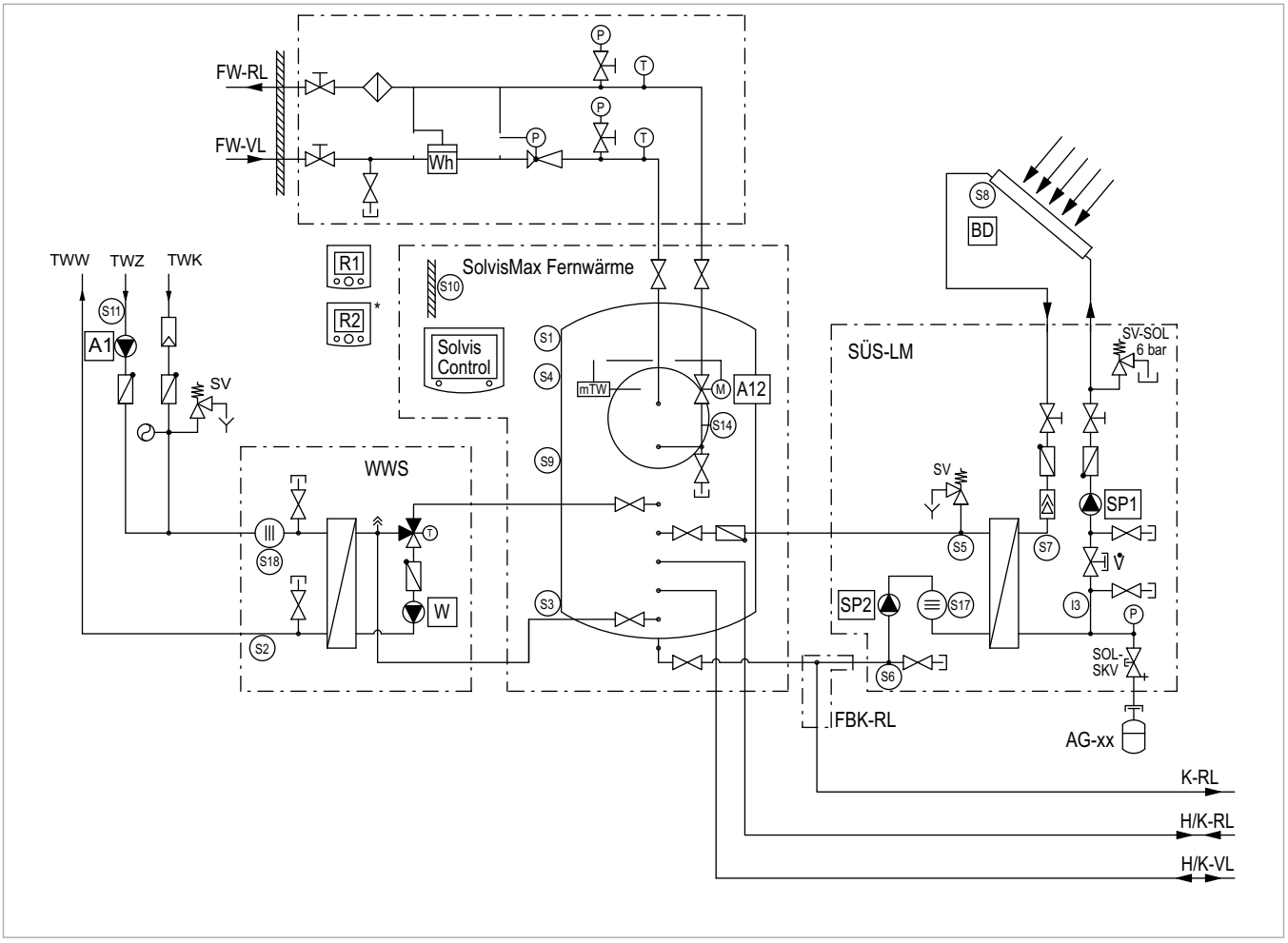


Fig. 11: SolvisMax District Heating with a solid fuel boiler and two mixed heating circuits – Part 1

* optional

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:

LPB	*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-LM	*Solar heat transfer station*
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*
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*
FBK-RL	*Connection pipe FBK return (RO-FBK-RL)*

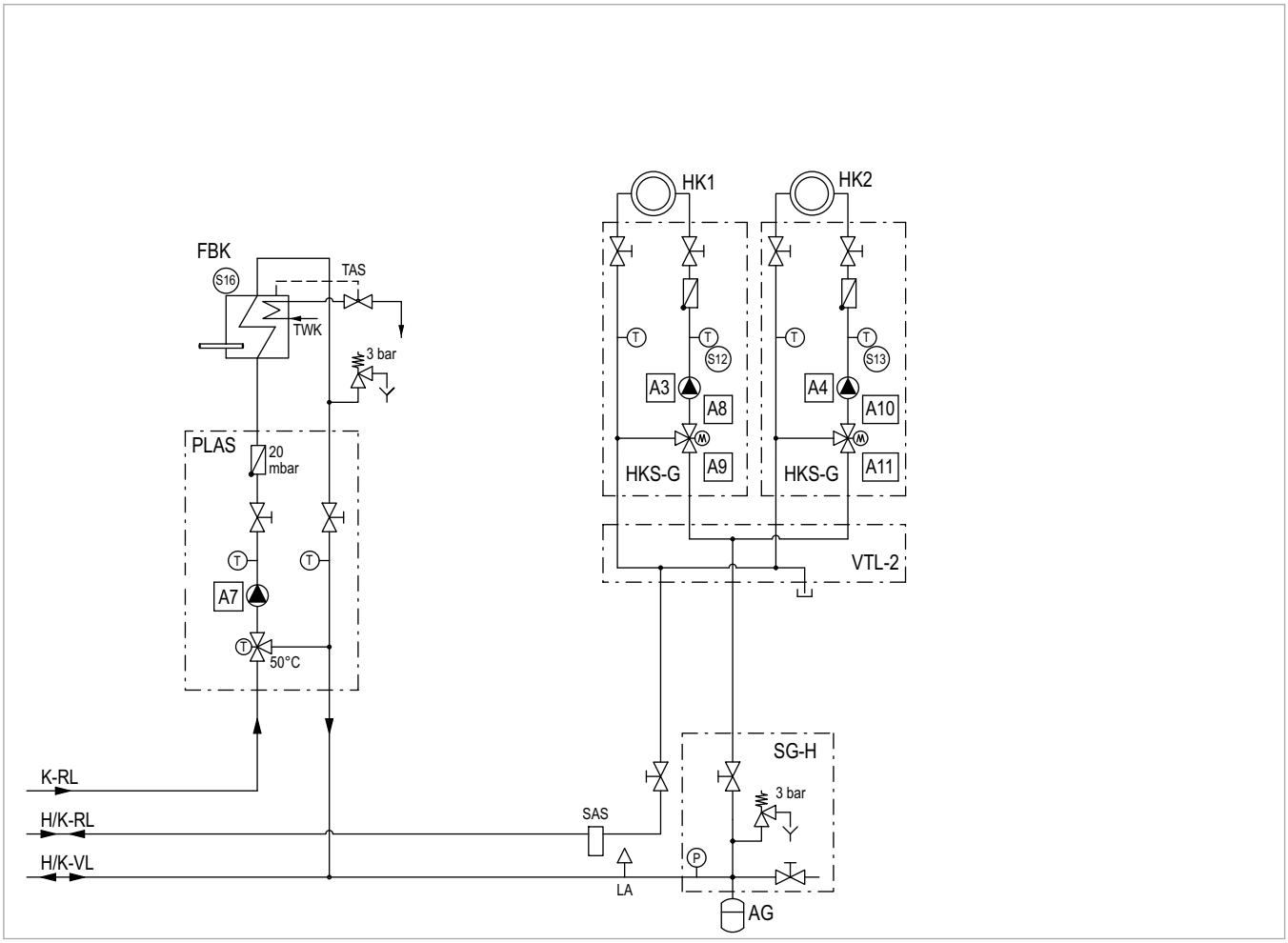


Fig. 12: SolvisMax District Heating with a solid fuel boiler and two mixed heating circuits – Part 2

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 – always consult the manufacturer of the boiler.	*We reserve all copyright and protection rights for this drawing. This drawing may only be duplicated or made accessible to third parties with our express written permission.* *SOLVIS GmbH*

Correct circulation pump

Before connecting a circulation pump, consult the operating instructions of the manufacturer to check whether your model is suitable for operation on a switching relay output.

Some pumps are equipped with their own control electronics to adapt to user behaviour (e.g. Grundfos UPS 15-14 BA PM). Such adaptive pumps may not be switched using the SolvisControl. They must be permanently connected to the mains voltage. To do this, use a free connection on the 230V supply board directly beside the mains module or set output A1 to Hand/ON in the installer under Output A1.

Pumps without their own electronics that are intended for frequent switching on and off may be connected as usual to output A1 in pulse, time or combined operation mode. If it is uncertain whether the relay output of the SolvisControl will function with the circulation pump to be used without causing problems, use a cut-off relay. This should be installed between output A1 and the mains supply of the circulation pump. This will reliably prevent any damage to the control.

2.3 SolvisMax Solo with SolvisLino 4

2.3.1 Basic equipment

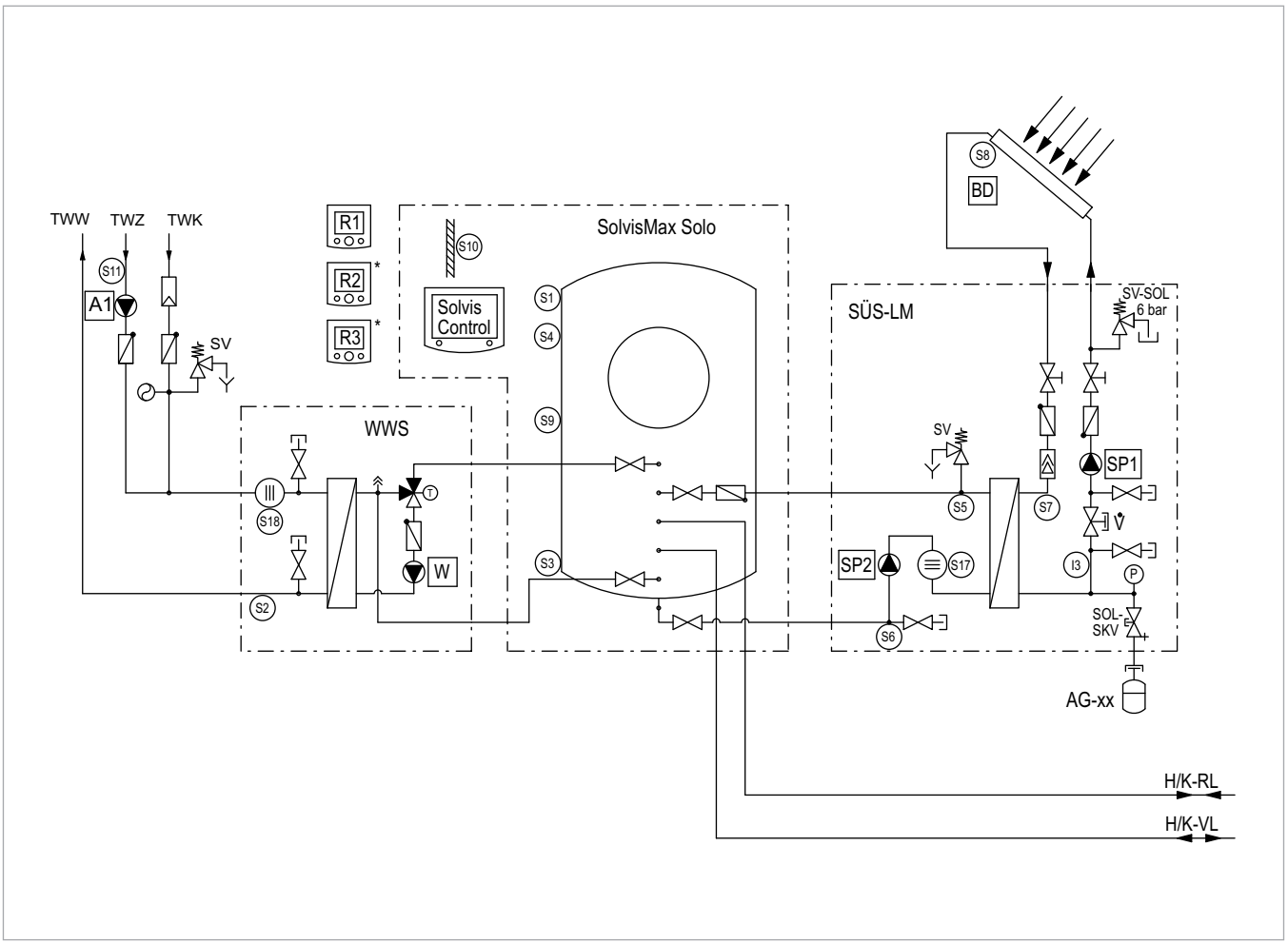


Fig. 13: SolvisMax Solo basic version with SolvisLino 4 and three mixed heating circuits – Part 1

* optional

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:

LPB	*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-LM	*Solar heat transfer station*
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*

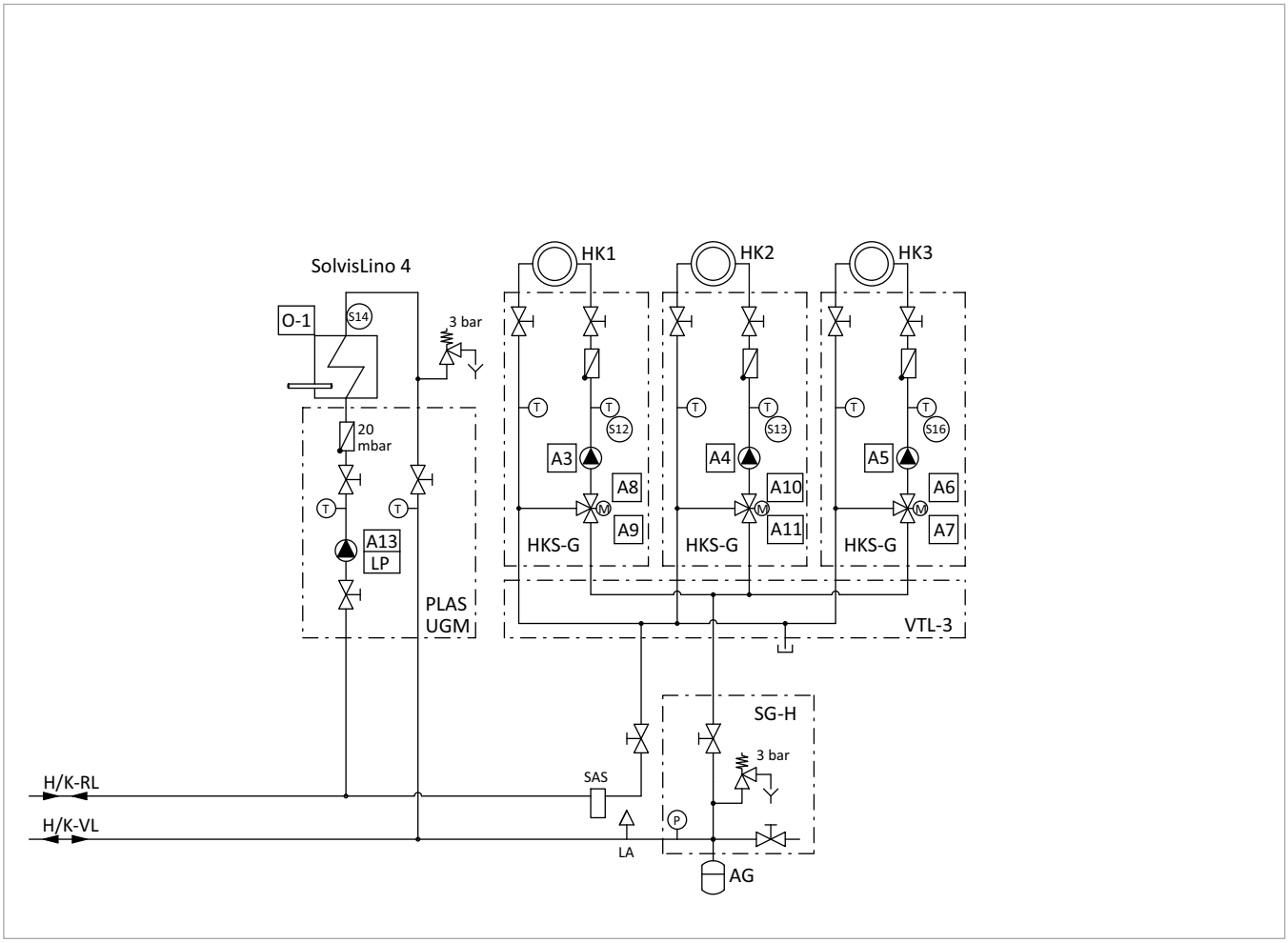


Fig. 14: SolvisMax Solo basic version with SolvisLino 4 and three mixed heating circuits – Part 2

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 – always consult the manufacturer of the boiler.	*We reserve all copyright and protection rights for this drawing. This drawing may only be duplicated or made accessible to third parties with our express written permission.* *SOLVIS GmbH*

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.

Correct circulation pump

Before connecting a circulation pump, consult the operating instructions of the manufacturer to check whether your model is suitable for operation on a switching relay output.

Some pumps are equipped with their own control electronics to adapt to user behaviour (e.g. Grundfos UPS 15-14 BA PM). Such adaptive pumps may not be switched using the SolvisControl. They must be permanently connected to the mains voltage. To do this, use a free connection on the 230V supply board directly beside the mains module or set output A1 to Hand/ON in the installer under Output A1.

Pumps without their own electronics that are intended for frequent switching on and off may be connected as usual to output A1 in pulse, time or combined operation mode. If it is uncertain whether the relay output of the SolvisControl will function with the circulation pump to be used without causing problems, use a cut-off relay. This should be installed between output A1 and the mains supply of the circulation pump. This will reliably prevent any damage to the control.

2.3.2 East/west roof

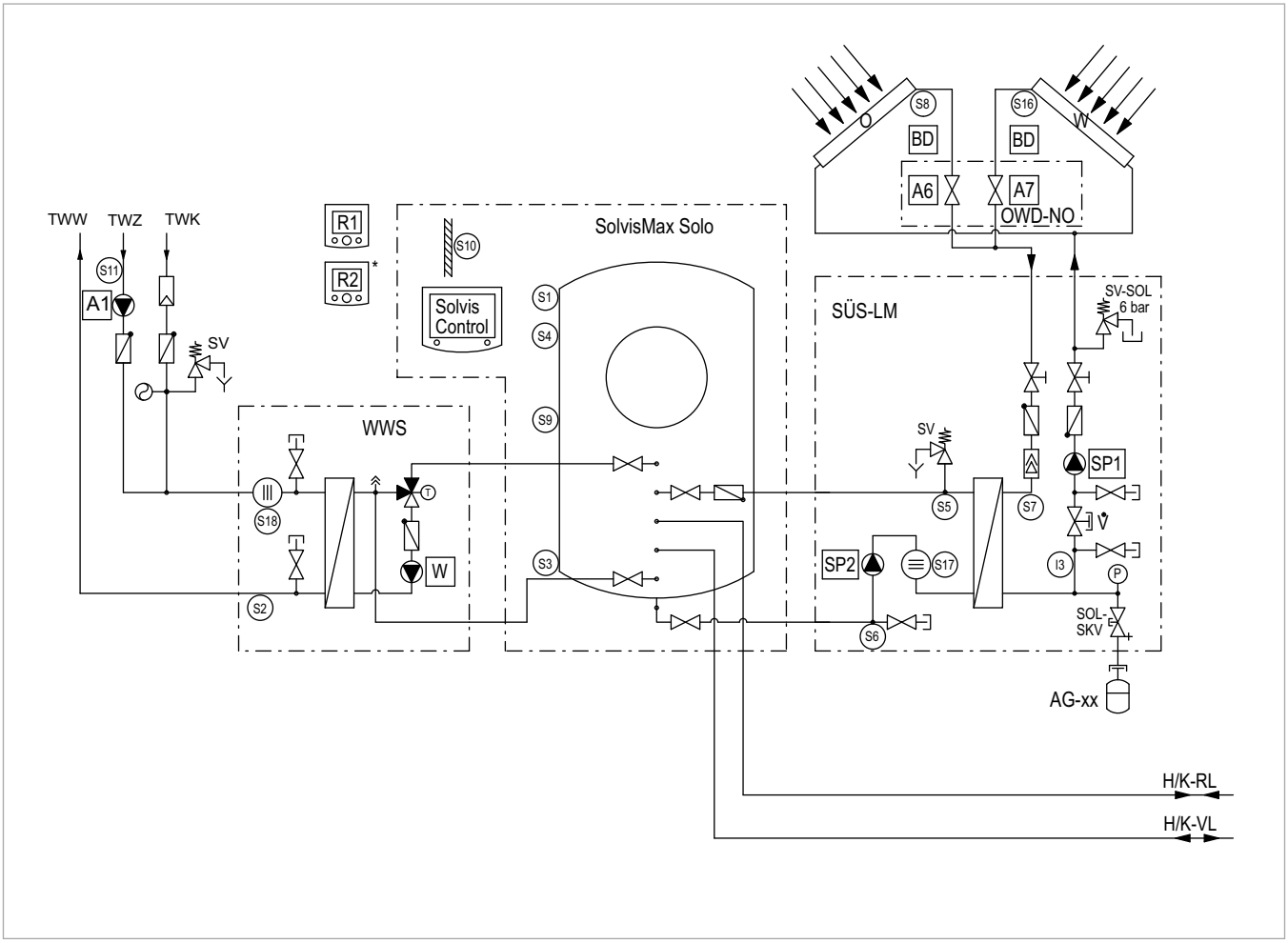


Fig. 15: SolvisMax Solo with an east-west roof, SolvisLino 4 and two mixed heating circuits – Part 1

* optional

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:

LPB	*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-LM	*Solar heat transfer station*
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*
HK1-2	*Heating circuit 1 to 2*
H/K-VL	*Heating and boiler return*
H/K-VL	*Heating and boiler flow*
O	*Collector (field) on east roof*
W	*Collector (field) on west roof*
OWD-NO	*East-west roof set (OWD-S-NO)*

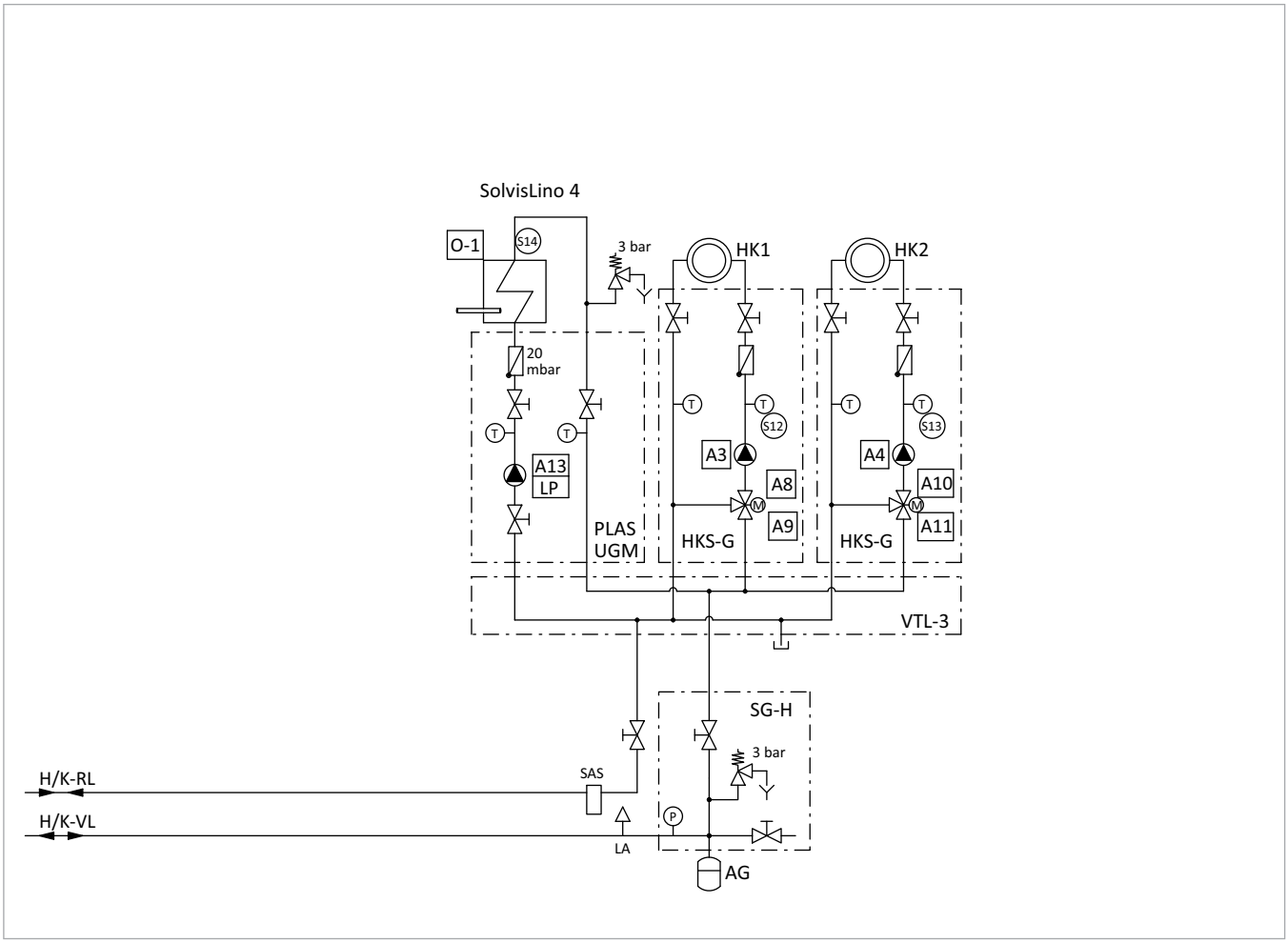


Fig. 16: SolvisMax Solo with an east-west roof, SolvisLino 4 and two mixed heating circuits – Part 2

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 – always consult the manufacturer of the boiler.	*We reserve all copyright and protection rights for this drawing. This drawing may only be duplicated or made accessible to third parties with our express written permission.* *SOLVIS GmbH*

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.

Correct circulation pump

Before connecting a circulation pump, consult the operating instructions of the manufacturer to check whether your model is suitable for operation on a switching relay output.

Some pumps are equipped with their own control electronics to adapt to user behaviour (e.g. Grundfos UPS 15-14 BA PM). Such adaptive pumps may not be switched using the SolvisControl. They must be permanently connected to the mains voltage. To do this, use a free connection on the 230V supply board directly beside the mains module or set output A1 to Hand/ON in the installer under Output A1.

Pumps without their own electronics that are intended for frequent switching on and off may be connected as usual to output A1 in pulse, time or combined operation mode. If it is uncertain whether the relay output of the SolvisControl will function with the circulation pump to be used without causing problems, use a cut-off relay. This should be installed between output A1 and the mains supply of the circulation pump. This will reliably prevent any damage to the control.

2.3.3 Solid fuel boiler

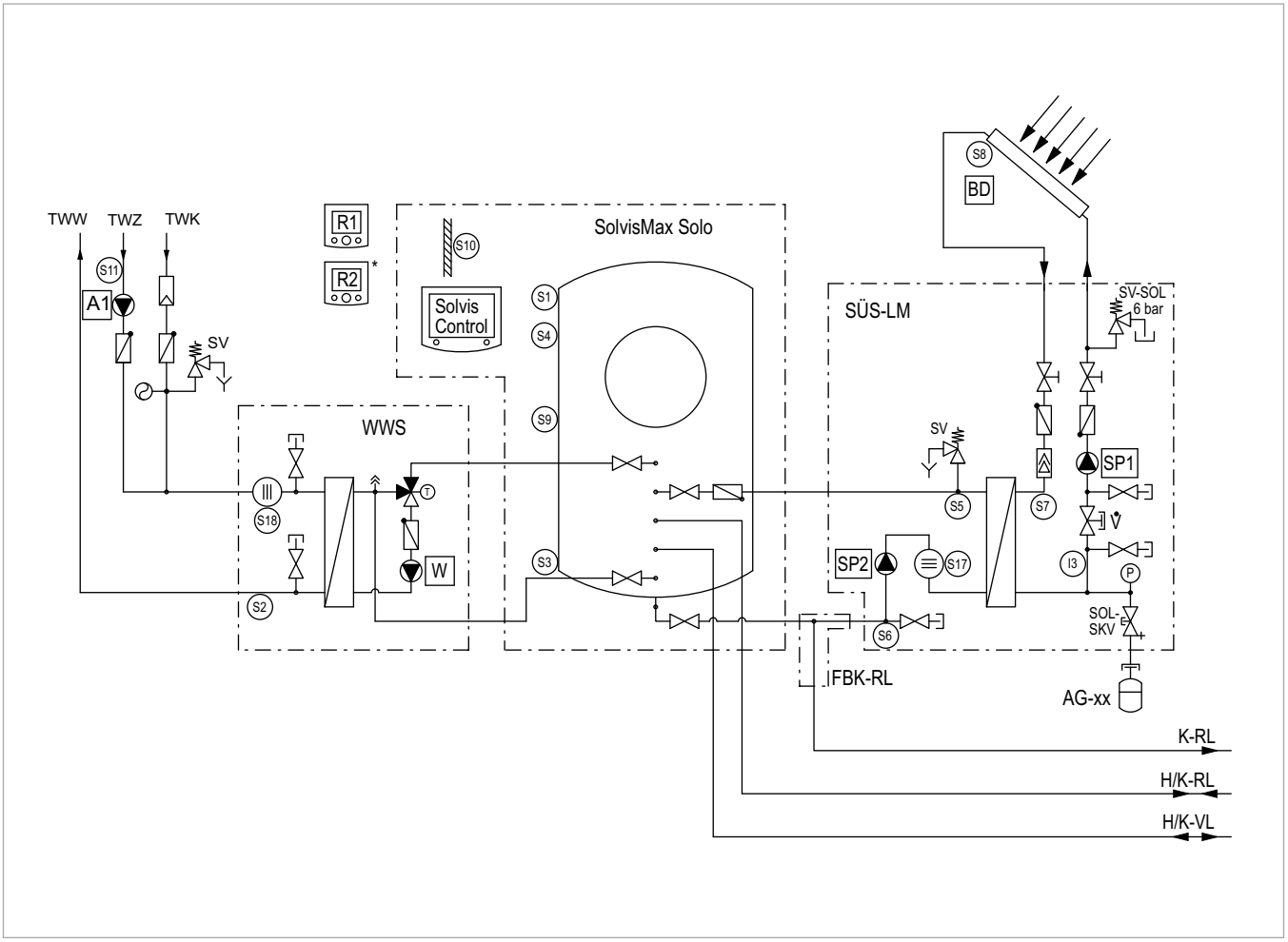


Fig. 17: SolvisMax Solo with SolvisLino 4, a solid fuel boiler and two mixed heating circuits – Part 1

* optional

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:

LPB	*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-LM	*Solar heat transfer station*
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*
FBK-RL	*Connection pipe FBK return (RO-FBK-RL)*

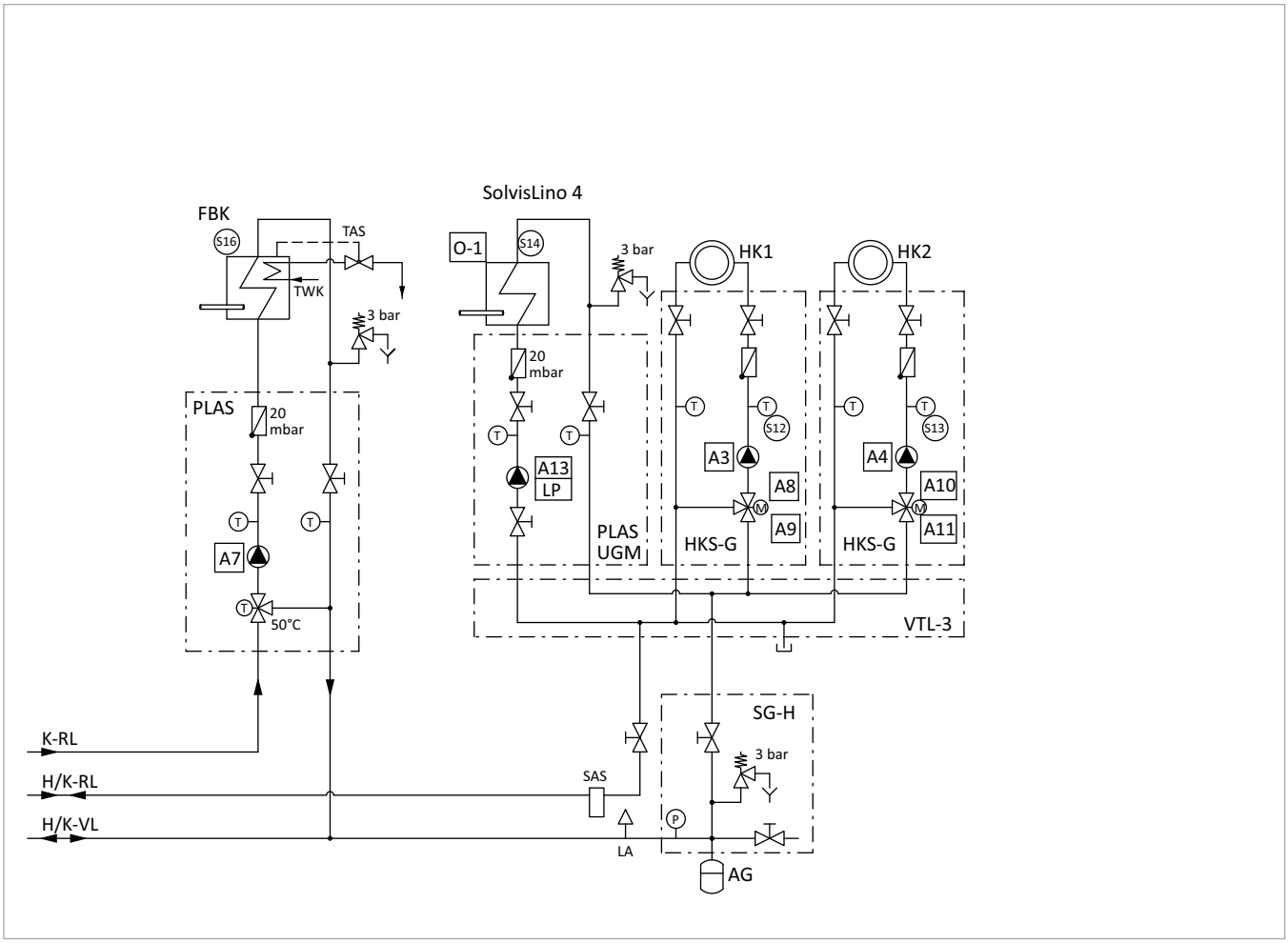


Fig. 18: SolvisMax Solo with SolvisLino 4, a solid fuel boiler and two mixed heating circuits – Part 2

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 – always consult the manufacturer of the boiler.	*We reserve all copyright and protection rights for this drawing. This drawing may only be duplicated or made accessible to third parties with our express written permission.* *SOLVIS GmbH*

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.

Correct circulation pump

Before connecting a circulation pump, consult the operating instructions of the manufacturer to check whether your model is suitable for operation on a switching relay output.

Some pumps are equipped with their own control electronics to adapt to user behaviour (e.g. Grundfos UPS 15-14 BA PM). Such adaptive pumps may not be switched using the SolvisControl. They must be permanently connected to the mains voltage. To do this, use a free connection on the 230V supply board directly beside the mains module or set output A1 to Hand/ON in the installer under Output A1.

Pumps without their own electronics that are intended for frequent switching on and off may be connected as usual to output A1 in pulse, time or combined operation mode. If it is uncertain whether the relay output of the SolvisControl will function with the circulation pump to be used without causing problems, use a cut-off relay. This should be installed between output A1 and the mains supply of the circulation pump. This will reliably prevent any damage to the control.

2.3.4 Additional storage tank

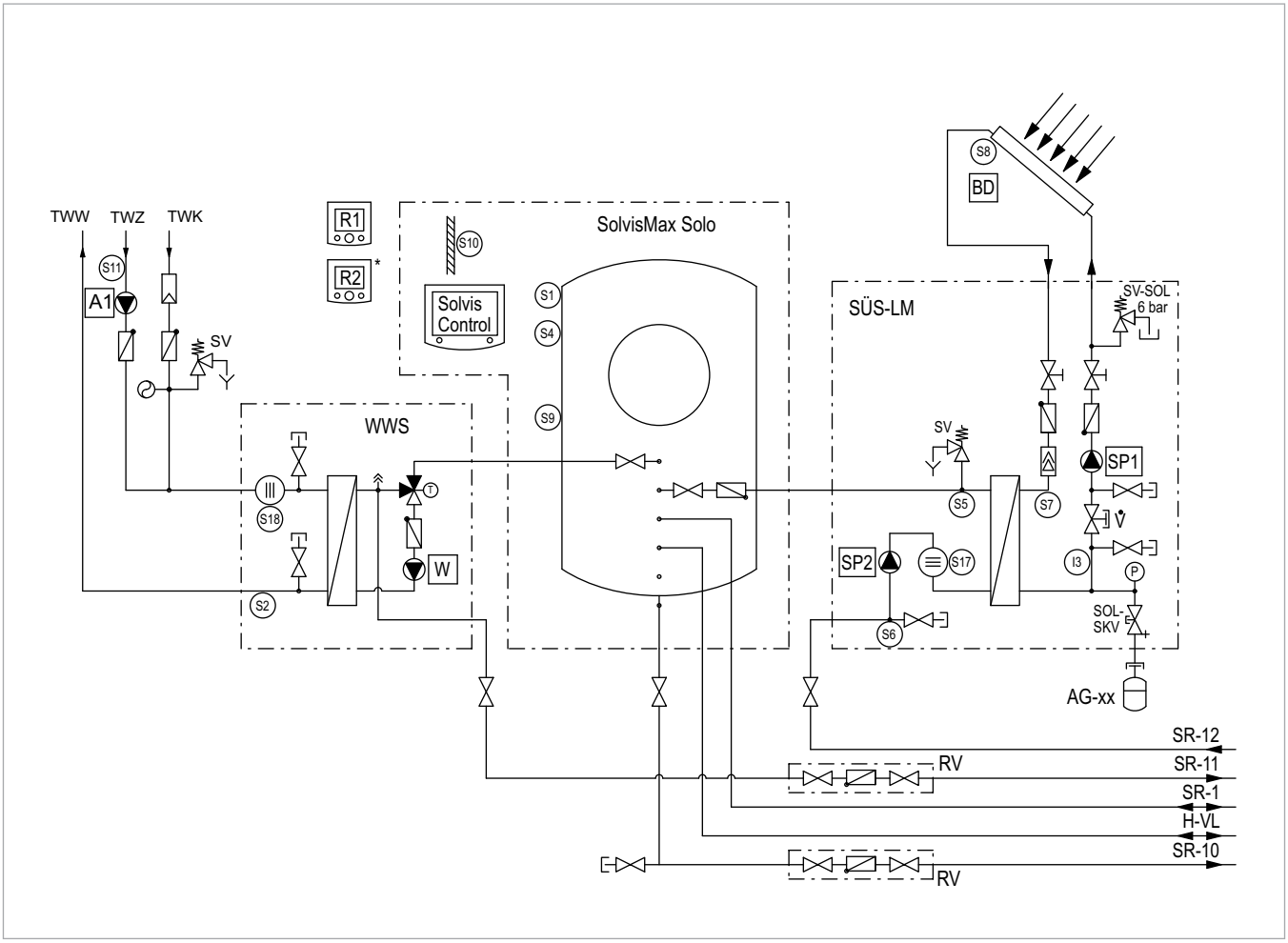


Fig. 19: SolvisMax Solo with SolvisLino 4, second reservoir, solid fuel boiler, two mixed heating circuits – Part 1

* optional

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:

LPB	*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-LM	*Solar heat transfer station*
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*
H-VL	*Heating flow*
SR xx	*Connection to SolvisStrato*
FBK	*Solid fuel boiler*
TAS	*Thermal discharge safety device*

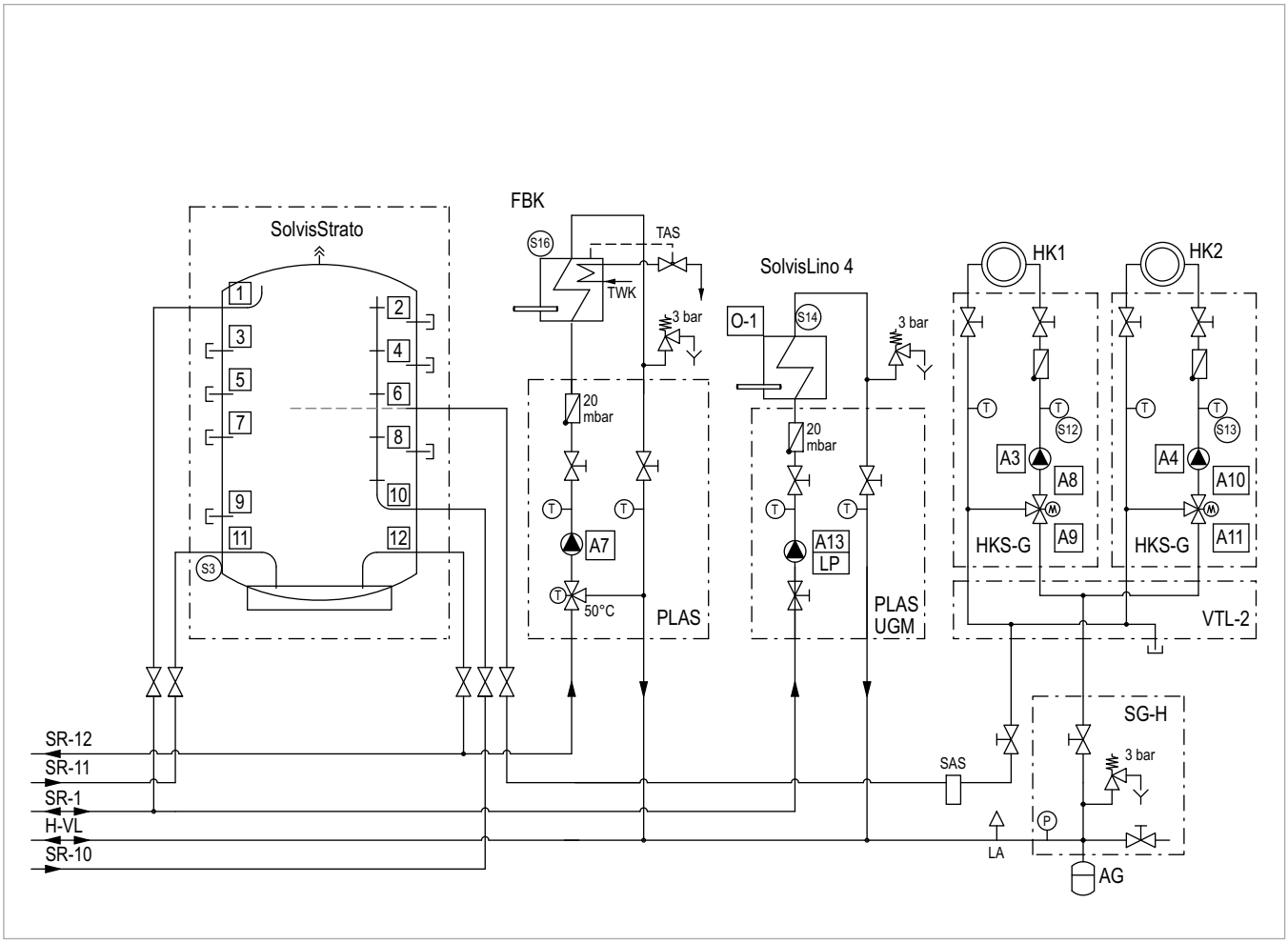


Fig. 20: SolvisMax Solo with SolvisLino 4, second reservoir, solid fuel boiler, two mixed heating circuits – Part 2

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 – always consult the manufacturer of the boiler.	*We reserve all copyright and protection rights for this drawing. This drawing may only be duplicated or made accessible to third parties with our express written permission.* *SOLVIS GmbH*

Correct circulation pump

Before connecting a circulation pump, consult the operating instructions of the manufacturer to check whether your model is suitable for operation on a switching relay output.

Some pumps are equipped with their own control electronics to adapt to user behaviour (e.g. Grundfos UPS 15-14 BA PM). Such adaptive pumps may not be switched using the SolvisControl. They must be permanently connected to the mains voltage. To do this, use a free connection on the 230V supply board directly beside the mains module or set output A1 to Hand/ON in the installer under Output A1.

Pumps without their own electronics that are intended for frequent switching on and off may be connected as usual to output A1 in pulse, time or combined operation mode. If it is uncertain whether the relay output of the SolvisControl will function with the circulation pump to be used without causing problems, use a cut-off relay. This should be installed between output A1 and the mains supply of the circulation pump. This will reliably prevent any damage to the control.

2.4 SolvisMax Solo with third-party boiler

2.4.1 Basic equipment

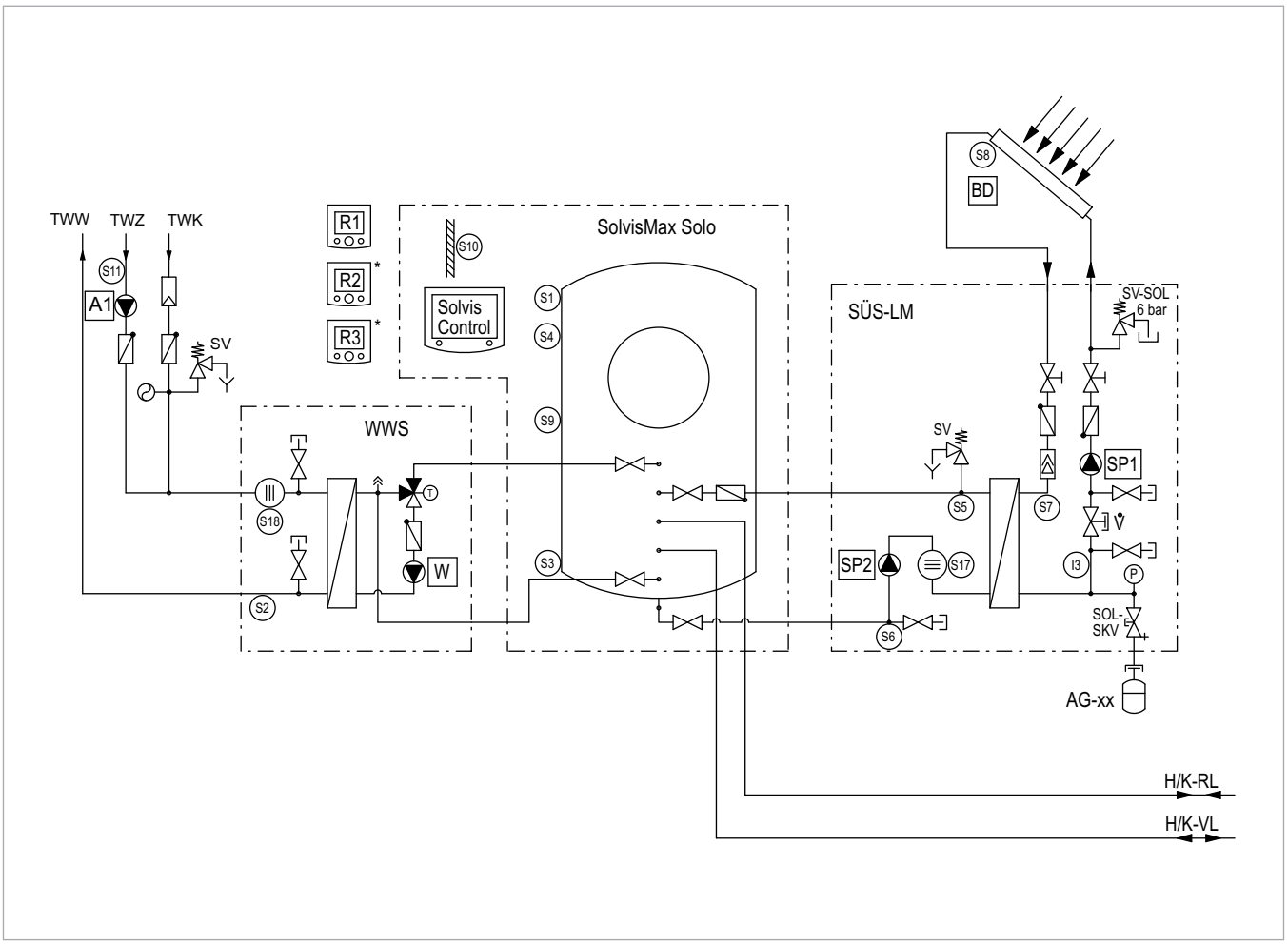


Fig. 21: SolvisMax Solo basic version with third-party boiler and three mixed heating circuits – Part 1

* optional

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:

LPB	*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-LM	*Solar heat transfer station*
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*

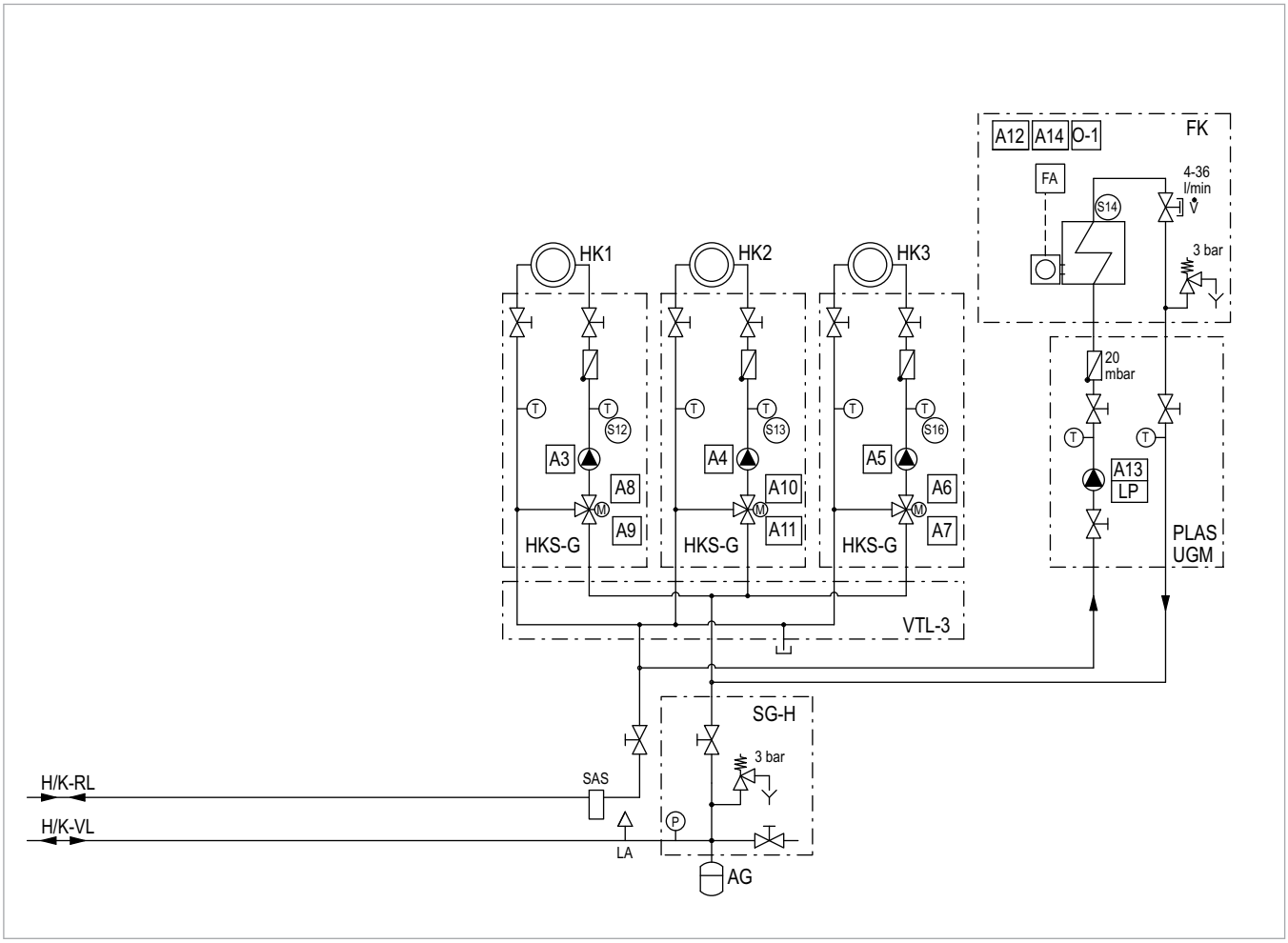


Fig. 22: SolvisMax Solo basic version with third-party boiler and three mixed heating circuits – Part 2

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 – always consult the manufacturer of the boiler.	*We reserve all copyright and protection rights for this drawing. This drawing may only be duplicated or made accessible to third parties with our express written permission.* *SOLVIS GmbH*

Correct circulation pump

Before connecting a circulation pump, consult the operating instructions of the manufacturer to check whether your model is suitable for operation on a switching relay output.

Some pumps are equipped with their own control electronics to adapt to user behaviour (e.g. Grundfos UPS 15-14 BA PM). Such adaptive pumps may not be switched using the SolvisControl. They must be permanently connected to the mains voltage. To do this, use a free connection on the 230V supply board directly beside the mains module or set output A1 to Hand/ON in the installer under Output A1.

Pumps without their own electronics that are intended for frequent switching on and off may be connected as usual to output A1 in pulse, time or combined operation mode. If it is uncertain whether the relay output of the SolvisControl will function with the circulation pump to be used without causing problems, use a cut-off relay. This should be installed between output A1 and the mains supply of the circulation pump. This will reliably prevent any damage to the control.

2.4.2 East/west roof

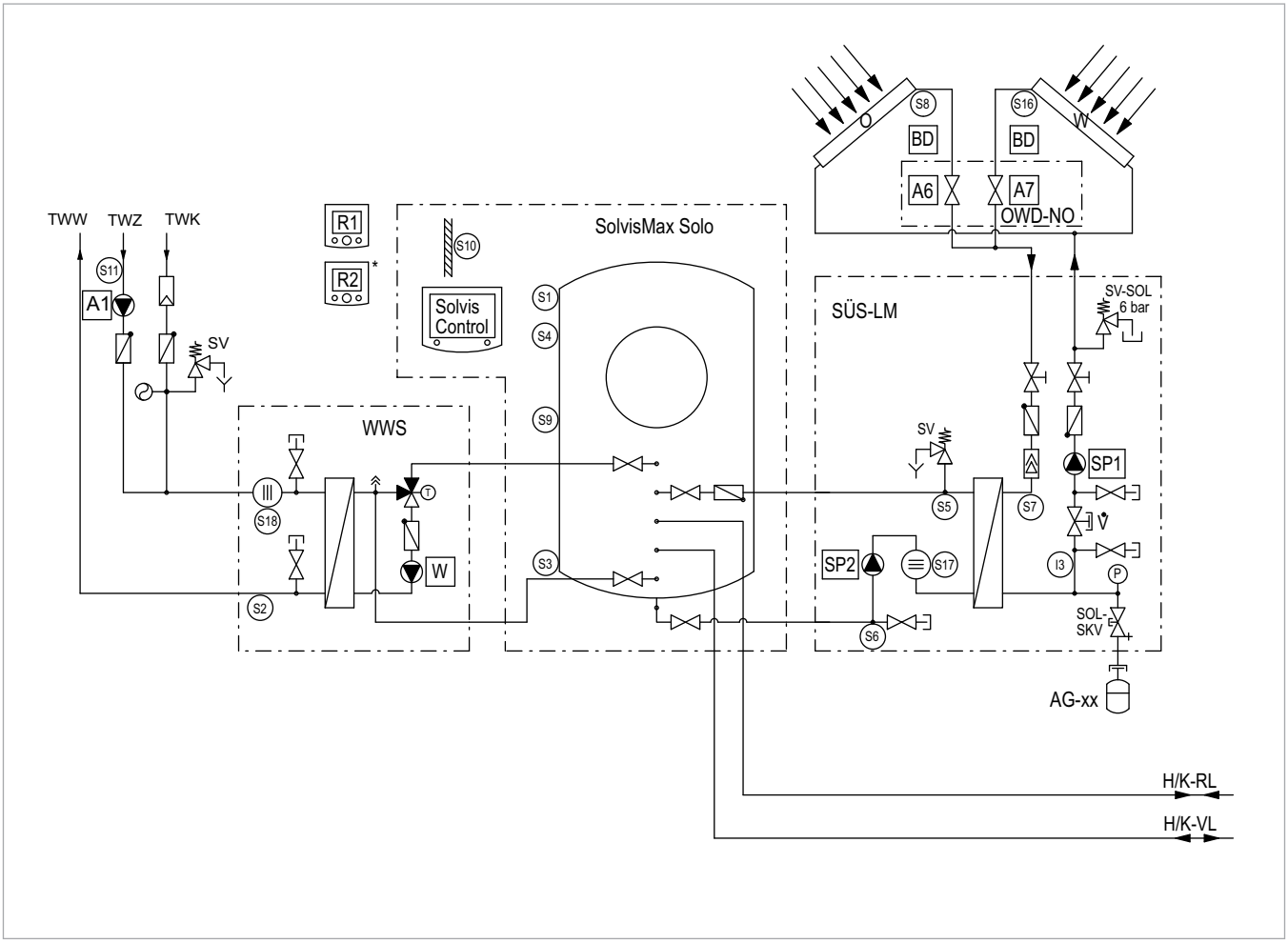


Fig. 23: SolvisMax Solo with third-party boiler, east-west roof and two mixed heating circuits – Part 1

* optional

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:

LPB	*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-LM	*Solar heat transfer station*
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*
O	*Collector (field) on east roof*
W	*Collector (field) on west roof*
OWD-NO	*East-west roof set (OWD-S-NO)*

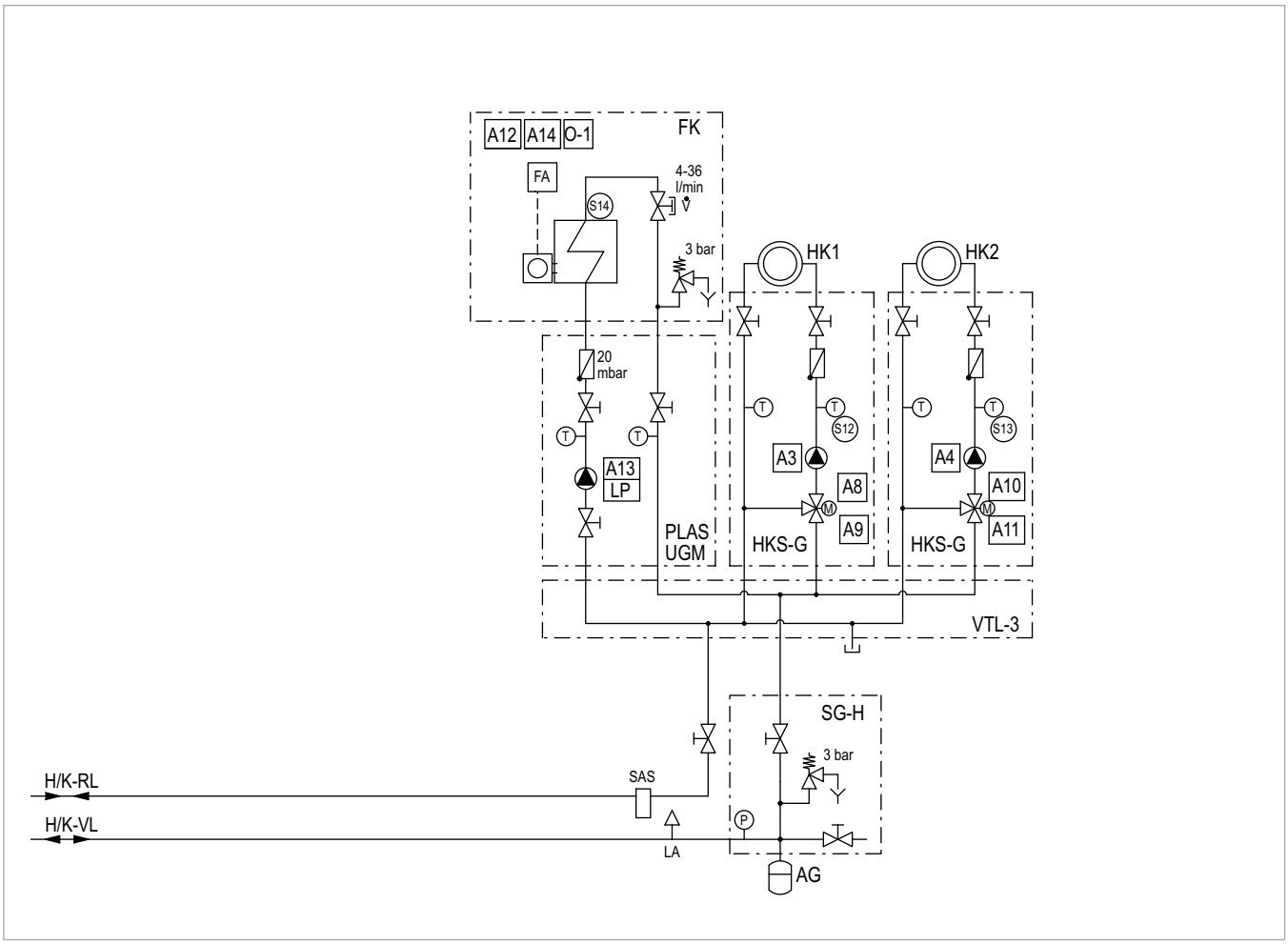


Fig. 24: SolvisMax Solo with third-party boiler, east-west roof and two mixed heating circuits – Part 2

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 – always consult the manufacturer of the boiler.	*We reserve all copyright and protection rights for this drawing. This drawing may only be duplicated or made accessible to third parties with our express written permission.* *SOLVIS GmbH*

Correct circulation pump

Before connecting a circulation pump, consult the operating instructions of the manufacturer to check whether your model is suitable for operation on a switching relay output.

Some pumps are equipped with their own control electronics to adapt to user behaviour (e.g. Grundfos UPS 15-14 BA PM). Such adaptive pumps may not be switched using the SolvisControl. They must be permanently connected to the mains voltage. To do this, use a free connection on the 230V supply board directly beside the mains module or set output A1 to Hand/ON in the installer under Output A1.

Pumps without their own electronics that are intended for frequent switching on and off may be connected as usual to output A1 in pulse, time or combined operation mode. If it is uncertain whether the relay output of the SolvisControl will function with the circulation pump to be used without causing problems, use a cut-off relay. This should be installed between output A1 and the mains supply of the circulation pump. This will reliably prevent any damage to the control.

2.4.3 Solid fuel boiler

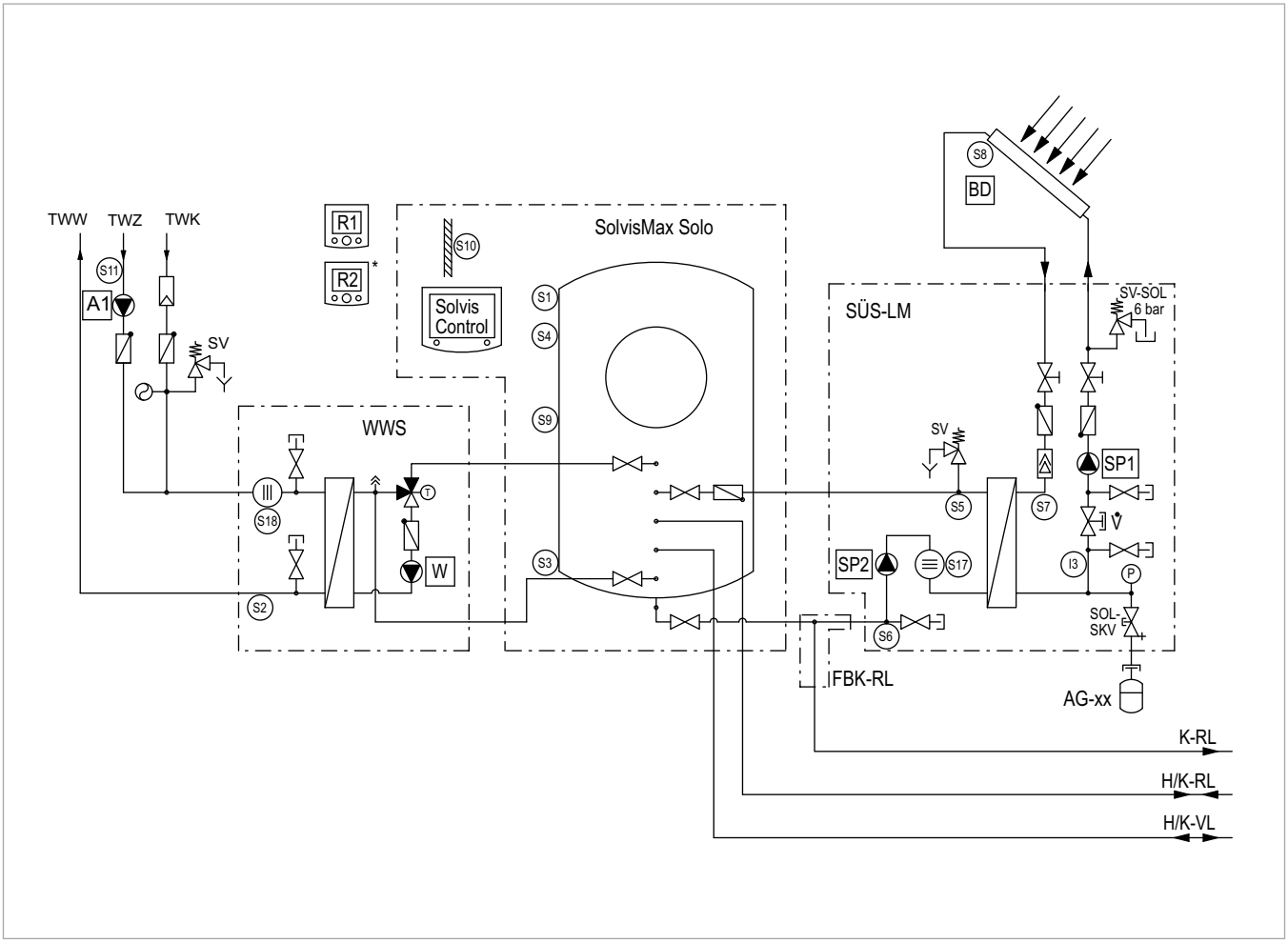


Fig. 25: SolvisMax Solo with third-party boiler, solid fuel boiler and two mixed heating circuits – Part 1

* optional

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:

LPB	*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-LM	*Solar heat transfer station*
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*
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*
FBK-RL	*Connection pipe FBK return (RO-FBK-RL)*

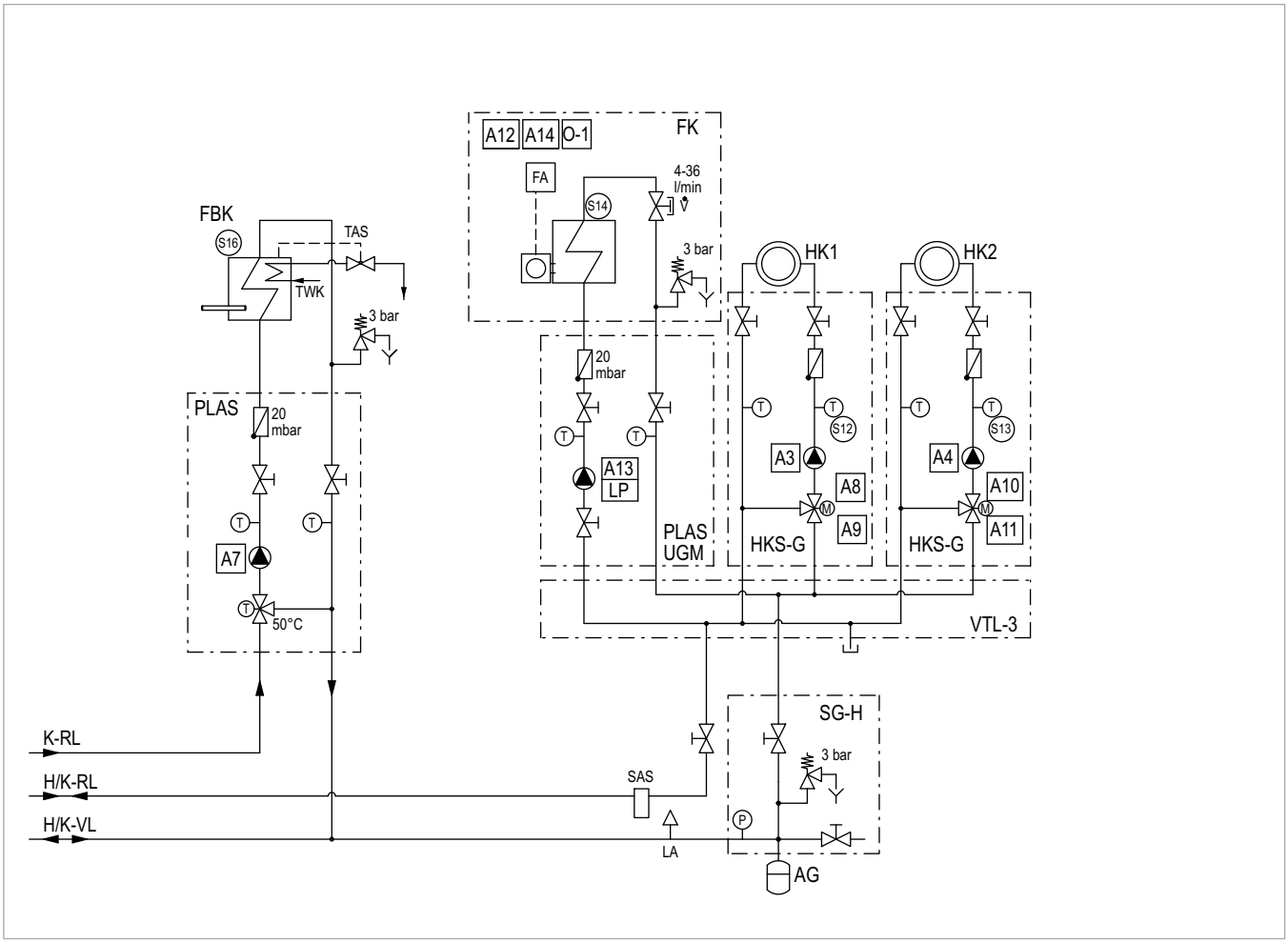


Fig. 26: SolvisMax Solo with third-party boiler, solid fuel boiler and two mixed heating circuits – Part 2

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 – always consult the manufacturer of the boiler.	*We reserve all copyright and protection rights for this drawing. This drawing may only be duplicated or made accessible to third parties with our express written permission.* *SOLVIS GmbH*

Correct circulation pump

Before connecting a circulation pump, consult the operating instructions of the manufacturer to check whether your model is suitable for operation on a switching relay output.

Some pumps are equipped with their own control electronics to adapt to user behaviour (e.g. Grundfos UPS 15-14 BA PM). Such adaptive pumps may not be switched using the SolvisControl. They must be permanently connected to the mains voltage. To do this, use a free connection on the 230V supply board directly beside the mains module or set output A1 to Hand/ON in the installer under Output A1.

Pumps without their own electronics that are intended for frequent switching on and off may be connected as usual to output A1 in pulse, time or combined operation mode. If it is uncertain whether the relay output of the SolvisControl will function with the circulation pump to be used without causing problems, use a cut-off relay. This should be installed between output A1 and the mains supply of the circulation pump. This will reliably prevent any damage to the control.

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

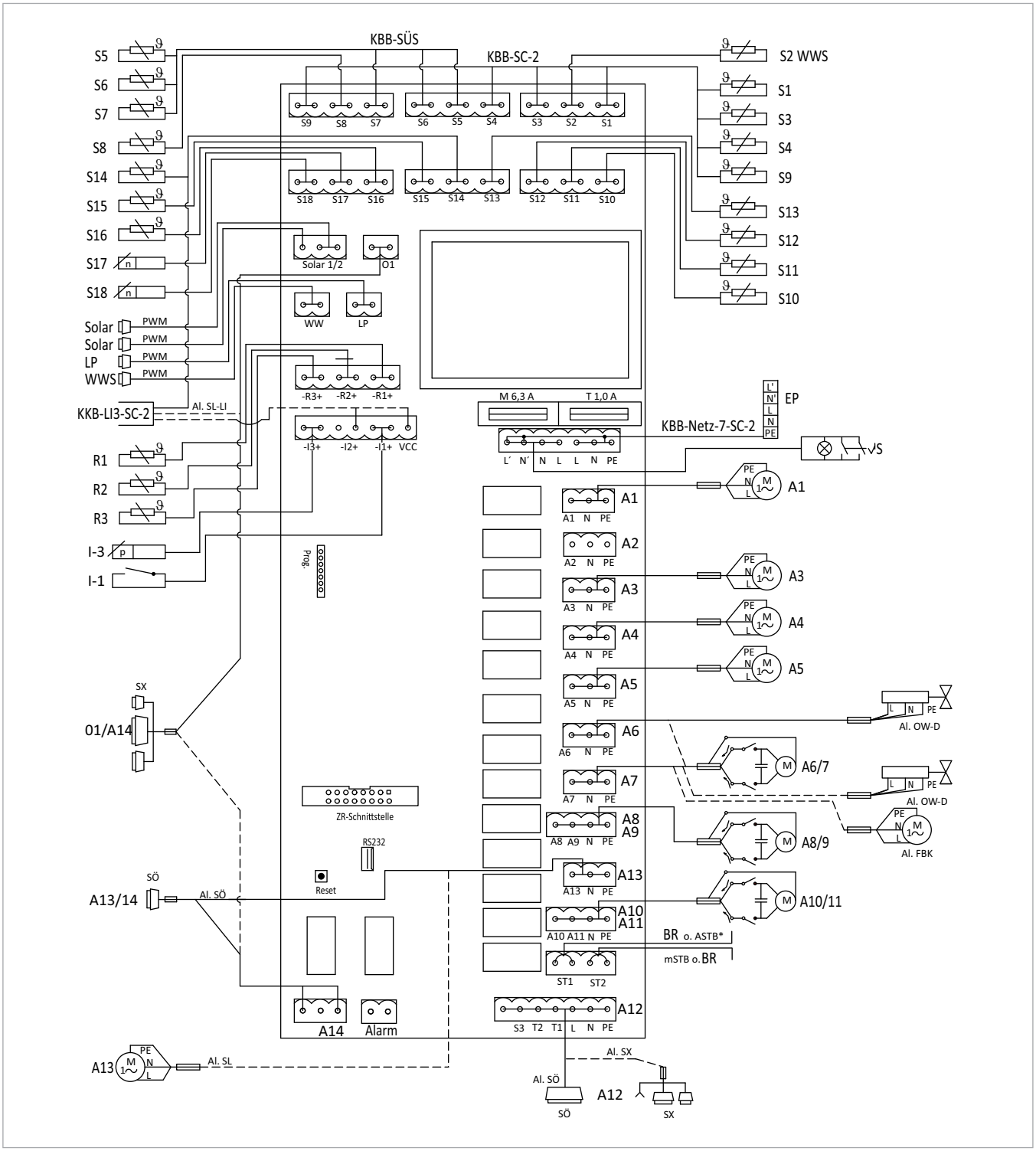


Fig. 27: SolvisControl 2 mains module for SolvisMax Gas, Öl, Fernwärme (with district heating) and Solo

* 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. 28, p. 32
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 Expansion Board

3.1 Connection table

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

3.2 Connection Diagram

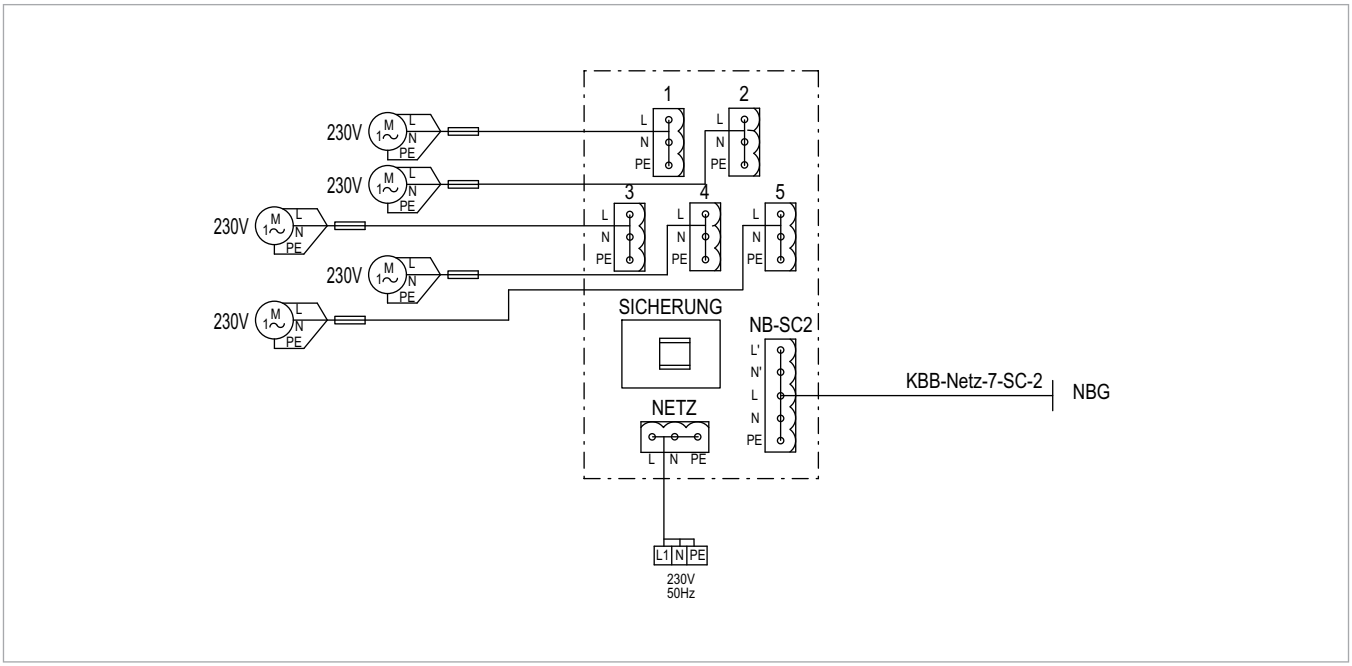


Fig. 28: Expansion board for SolvisControl 2 mains module

KBB	*Cable harness*
NBG	*SolvisControl 2 mains module*
MAINS	*Mains connection*
NB-SC2	*SolvisControl 2 mains module*
FUSE	*Glass socket fuse, 5x20mm, max. 4A delayed-action*

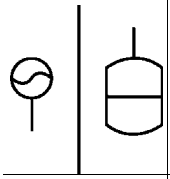
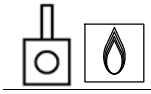
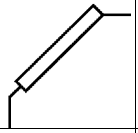
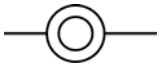
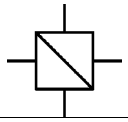
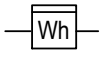
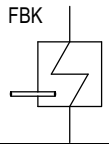
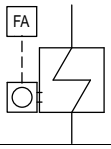
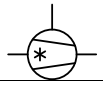
4 Explanation of Symbols

4.1 Hydraulic elements

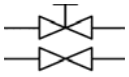
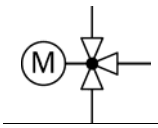
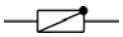
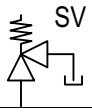
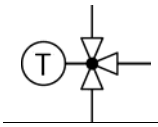
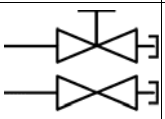
Valves

Symbol	Meaning
	Manometer
	Thermometer

Components

Symbol	Meaning
	Membrane expansion vessel
	Oil or gas burner
	Solar collector
	Consumers in the heating circuit
	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

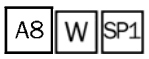
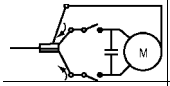
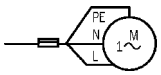
Symbol	Meaning
	Shut-off valve or valve
	Adjusting valve
	Bleeding tap
	Motor-driven mixing valve
	Gravity brake / non-return valve
	Safety valve
	Thermostatic mixing valve
	Solar cap valve
	Boiler filling and draining valve
	Thermal discharge safety device (TAS)

Other hydraulic components

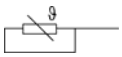
Symbol	Meaning
	Pressure controller, brine circuit
	Volume flow encoder
	Pump
	Sludge separator
	Drinking water filter

4.2 Electrical symbols

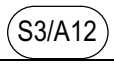
Actuators

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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