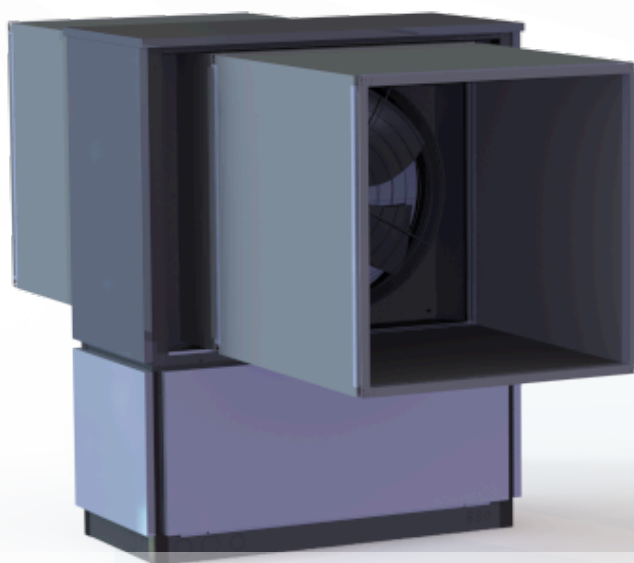




Heat pump



AiWa 18 EVI

H In

WAMAK AiWa 18 EVI H In

Product description

Compact air-to-water heat pump for heating, cooling and domestic hot water with the possibility of installation either in the utility room or outdoors. A short closed refrigerant circuit with a silent scroll compressor at the bottom under the fan simplifies installation and helps for long-term stable operation.

Use for single-family houses and smaller buildings with a heat output requirement of up to 20 kW. The COMFORT range includes robust heat pump internal refrigerant circuit parts as well as all the measuring, distribution and control elements required by today's modern climate technology in single-family houses.

The primary source is the heat energy from the ambient air, which is blown by a silent fan in the shape of an owl's wing through a heat exchanger made of copper and aluminium.

The EVI (Enhanced Vapour Injection) technology allows the heat pump to achieve higher header flow temperatures even at lower source temperatures. EVI also has a positive impact on the compressor lifespan and overall system stability because the discharge gas temperature from the compressor is lower.

The APS (Active Process Subcooling) system simultaneously increases the stability and efficiency of operation by additional utilisation of the liquid refrigerant temperature after it has condensed.

Indoor monoblock

Product features

- Scroll compressor
- EVI technology
- Asymmetric plate heat exchanger
- Active cooling
- Enhanced defrosting with APS system
- Heated drip tray
- Phase and rotation control
- High pressure sensor - analogue
- Flow switch consumer - on/off - (with accessory)
- Plate exchanger protection HG-BYPASS
- Mixed heating/cooling circuit control - (with accessory)
- DHW switching control - (with accessory)
- Outdoor temperature sensor
- Buffer temperature sensor
- Modbus connection - (with accessory)
- Sylomer pads under compressor unit
- Electronic expansion valve
- Large air heat exchanger with APS system
- Reversible defrosting
- Speed - controlled EC fan
- Compressor soft starter
- High pressure switch
- Low pressure sensor - analogue
- Flow sensor consumer - analogue
- ECM speed circulator - condenser
- Direct heating/cooling circuit control - (with accessory)
- DHW circulation control - (with accessory)
- DHW temperature sensor
- Cascade control - (with accessory)
- Solid frame structure

Basic performance data - WAMAK AiWa 18 EVI H In

Heating - EN 14511		
Heating capacity [kW]	A7 / W35	20.7
	A2 / W35	17.6
	A-7 / W34	14.8
Electrical power input [kW]	A7 / W35	4.5
	A2 / W35	4.6
	A-7 / W34	4.4
Heating efficiency faktor [COP]	A7 / W35	4.57
	A2 / W35	3.87
	A-7 / W34	3.32
Seasonal space heating energy efficiency - SCOP EN 14825		
Average Climate / Low Temperature [35 °C]	SCOP	4.37
	η [%]	174.8
	Label	A+++
	Qhe [kWh]	7662.8
	Pdesignh [kW]	16.7
	Tbivalent [°C]	-7
Cooling		
Cooling capacity - [kW]	A35 / W23-18	19.9
	A25 / W23-18	20.9
	A35 / W12-7	14.8
	A25 / W12-7	14.8
Seasonal space cooling energy efficiency - SEER EN 14825		
[W 23 / 18 °C]	SEER	4.44
	Qce [kWh]	8880.0
	η_c [%]	177.4
Sound EN 12102		
Acoustic power - Lw	dB(A)	66.5
Acoustic pressure - Lp	1 m dB(A)	58.5
	5 m dB(A)	44.5
	10 m dB(A)	38.5
Mechanical and operational information		
Compressor type (3~ 400/50)	SCROLL / 1 /	On/Off
Refrigerant	R410A (GWP - 2088)	6 kg
Operating limit temperatures heating - (min / max) [°C]		25 / 65
Operating limit temperatures source - (min / max) [°C]		-22 / 40
Weight		300 kg

Main technical data - WAMAK AiWa 18 EVI H In

Enclosure type		AiWa-I-1200		Heat energy rejection side data			
Basic dimensions	Height [mm]	1760		Operating limit temperatures heating	MAX [°C]	65	
	Width [mm]	1420			MIN [°C]	25	
	Length [mm]	660		for more see operating limits diagram			
Weight [kg]	300		Condenser	Port size	1.1/4 "		
Colour	Gray			Type	BPHE		
Enclosure IP Class	IP44			Count	1		
				Material	AISI 316		
Refrigeration cycle				Maximal operating pressure - refrigerant [bar]	45		
Compressor	Type	Scroll		Maximal operating pressure - Water [bar]	6		
	Number of stages	1		Testing pressure [bar]	70		
	On/Off			Heat transfer medium	Water		
	Power factor Cosφ	0.64		Volume flow @ dT 5K (nom) - Water [m3/h]	3.59		
	Winding resistance	1.79 Ohm		Internal pressure drop - Water [kPa]	15		
Refrigerant		R410A		ECM speed circulator - condenser	UPMXL GEO 32-125		
	Volme	6 kg		Flow sensor consumer - analogue	0..10V		
	GWP	2088		Temperature difference @ 35°C (nom)	5 K		
	Safety class	A1		@ 55°C	8 K		
Refrigeration oil type	POE RL32-3MAF			@ 65°C	10 K		
	Oil volume	1.89 L		Renewable energy extraction side data			
Maximal pressure - refrigerant [bar]		45		Operating limit temperatures source	MIN [°C]	-22	
	PED class	1			MAX [°C]	40	
EVI - vapour injection with economizer				for more see operating limits diagram			
APS System of liquid subcooling				Evaporator	Port size	1200mm x 1200mm "	
Reversible operation (cooling)					Type	Cu-coil /Al-fin	
Reverse defrosting with hot gas					Count	1	
Plate exchanger protection HG-BYPASS				Material	Cu/Al		
Electrical connection data				Maximal operating pressure - refrigerant [bar]	28		
Line voltage [#~ V/Hz]			3~ 400/50		Heat transfer medium	Air	
	Current	nominal [A]	9.32		Volume flow - Air [m3/h]	6470	
		maximal [A]	16.00		Internal pressure drop - Air [kPa]	0.024	
starting [A]		18.9		Temperature difference - Air	7 K		
Softstart			MCI 15		Number of fans	1	
Main safety			C25		Fan diameter [mm]	800	
Control System							
Main controller	SIEMENS	RVS 21 AVS 55.199					
Extension module	AVS75.3xx	AVS75.3xx	AVS75.372				
Bus Clip-In		LPB OCI346	Modbus OCI352				
Online connection		Web server OZW672	ToSyMo				
Superheat controller			1 - EEV H/C				

*** with accessory

WAMAK AiWa 18 EVI H In

ErP (EU) No 811/2013: Technical parameters for heat pump space heaters

Model	AiWa 18 EVI H In
Air-to-water heat pump	yes
Brine-to-water heat pump	no
Water-to-water heat pump	no
Low-temperature heat pump	no
Equipped with a supplementary heater	no
Heat pump combination heater	no
Temperature application	low (35°C - 30°C)
Climate conditions	average

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output at Tdesignh	Prated	16.7	kW	Seasonal space heating energy efficiency	η_s	174.8	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = -7 °C	Pdh	14.8	kW	Tj = -7 °C	COPd	3.32	-
Tj = +2 °C	Pdh	17.5	kW	Tj = +2 °C	COPd	4.3	-
Tj = +7 °C	Pdh	20.6	kW	Tj = +7 °C	COPd	5.5	-
Tj = +12 °C	Pdh	24.4	kW	Tj = +12 °C	COPd	6.8	-
Tj = bivalent temperature	Pdh	14.5	kW	Tj = bivalent temperature	COPd	3.2	-
Tj = operation limit temperature	Pdh	10.6	kW	Tj = operation limit temperature	COPd	2.4	-
Bivalent temperature	Tbiv	-7	°C	Tj = operation limit temperature	TOL	-22	°C
Power consumption in modes other than active mode				Heating water operating limit temperature	WTOL	65	°C
Off mode	Poff	0.010	kW	Supplementary heater			
Thermostat-off mode	Pto	0.010	kW	Rated heat output	Psup	7.4	kW
Standby mode	Psb	0.010	kW	Type of energy input	electricity		
Crankcase heater mode	Pck	0.050	kW	For air-to-water heat pumps:			
Other items				Rated air flow rate, outdoors	-	6470	m ³ /h
Capacity control	fixed			For water- or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Sound power level							
indoors	Lwa	67	dB				
outdoors	Lwa	---	dB				
Annual energy consumption	Q _{HE}	7662.8	kWh				

Contact details: WAMAK, s.r.o., Orovnicna 252, 96652, Orovnicna, Slovakia, info@wamak.sk

WAMAK AiWa 18 EVI H In

ErP (EU) No 811/2013: Technical parameters for heat pump space heaters

Model	AiWa 18 EVI H In
Air-to-water heat pump	yes
Brine-to-water heat pump	no
Water-to-water heat pump	no
Low-temperature heat pump	no
Equipped with a supplementary heater	no
Heat pump combination heater	no
Temperature application	middle (55°C - 47°C)
Climate conditions	average

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output at Tdesignh	Prated	17.8	kW	Seasonal space heating energy efficiency	η_s	136.2	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = -7 °C	Pdh	15.6	kW	Tj = -7 °C	COPd	2.31	-
Tj = +2 °C	Pdh	17.8	kW	Tj = +2 °C	COPd	3.3	-
Tj = +7 °C	Pdh	20.7	kW	Tj = +7 °C	COPd	4.5	-
Tj = +12 °C	Pdh	24.3	kW	Tj = +12 °C	COPd	6.0	-
Tj = bivalent temperature	Pdh	15.4	kW	Tj = bivalent temperature	COPd	2.1	-
Tj = operation limit temperature	Pdh	11.3	kW	Tj = operation limit temperature	COPd	1.7	-
Bivalent temperature	Tbiv	-7	°C	Tj = operation limit temperature	TOL	-22	°C
Power consumption in modes other than active mode				Heating water operating limit temperature	WTOL	65	°C
Off mode	Poff	0.010	kW	Supplementary heater			
Thermostat-off mode	Pto	0.010	kW	Rated heat output	Psup	7.4	kW
Standby mode	Psb	0.010	kW	Type of energy input	electricity		
Crankcase heater mode	Pck	0.050	kW	For air-to-water heat pumps:			
Other items				Rated air flow rate, outdoors	-	6470	m ³ /h
Capacity control	fixed			For water- or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Sound power level							
indoors	Lwa	67	dB				
outdoors	Lwa	---	dB				
Annual energy consumption	Q _{HE}	10570.2	kWh				

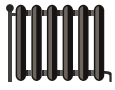
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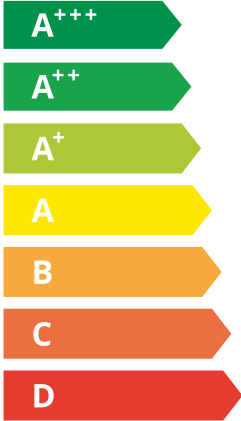


AiWa 18 EVI H In



55 °C

35 °C



67 dB

--- dB

■ 19	■ 18
■ 18	■ 17
■ 18	■ 16
kW	kW

2019

811/2013

AiWa 18 EVI H In

ErP Data

	55 °C	35 °C
Energy class	A++	A+++
η [%]	136.2	174.8
P_{rated} [kW]	18	17
Q_{HE} [kWh/y]	10571	7663
SCOP [-]	3.40	4.37
$T_{bivalent}$ [°C]	-7	-7

CONTROLLER



+ QAA55/75 class VII 3.5% ↓
 - QAA55/75 class III 1.5% ↓

Heating performance data

Version: v2024.010-AW

Average Climate / Low Temperature [35°C]

ZHI18K1P-TFM_R410A_1_AW

Operating conditions		Qh	P	COP
1	A7 / W30-35	20.7	4.5	4.57
2	A2 / W35	17.6	4.6	3.87
3	A-22 / W35	10.6	4.4	2.38
A	A-7 / W34	14.8	4.4	3.32
B	A2 / W30	17.5	4.1	4.31
C	A7 / W27	20.6	3.8	5.45
D	A12 / W24	24.4	3.6	6.84
E	A-10 / W35	14.5	4.5	3.18
F	A-7 / W34	14.8	4.4	3.32

SCOP DATA EN 14825:2018	
Average Climate / Low Temperature [35°C]	
SCOPon	4.50
SCOPnet	4.54
SCOP	4.37
η [%]	174.80
Label	A+++
Qh [kWh]	7662.81
Pdesignh [kW]	16.7
Tbivalent [°C]	-7.00

Average Climate / Medium Temperature [55°C]

Operating conditions		Qh	P	COP
1	A7 / W47-55	21.5	7.5	2.88
2	A2 / W55	18.5	7.4	2.51
3	A-22 / W55	11.3	6.2	1.69
A	A-7 / W52	15.6	6.7	2.31
B	A2 / W42	17.8	5.4	3.32
C	A7 / W36	20.7	4.6	4.47
D	A12 / W30	24.3	4.0	6.04
E	A-10 / W55	15.4	7.2	2.14
F	A-7 / W55	15.8	7.2	2.18

SCOP DATA EN 14825:2018	
Average Climate / Medium Temperature [55°C]	
SCOPon	3.48
SCOPnet	3.51
SCOP	3.40
η [%]	136.16
Label	A++
Qh [kWh]	10570.16
Pdesignh [kW]	17.8
Tbivalent [°C]	-7.00

Cooling performance data

Low temperature cooling W 12 / 7°C

Operating conditions		Qc	P	EER
A	A35 / W12-7	14.8	5.5	2.69
B	A30 / W12-7	15.2	4.9	3.12
C	A25 / W12-7	15.6	4.3	3.59
D	A20 / W12-7	15.9	3.9	4.11

SEER DATA EN 14825:2018 [W 12 / 7°C]	
SEERon	3.50
SEER	3.36
Qc [kWh]	3194.80
η [%]	134.20

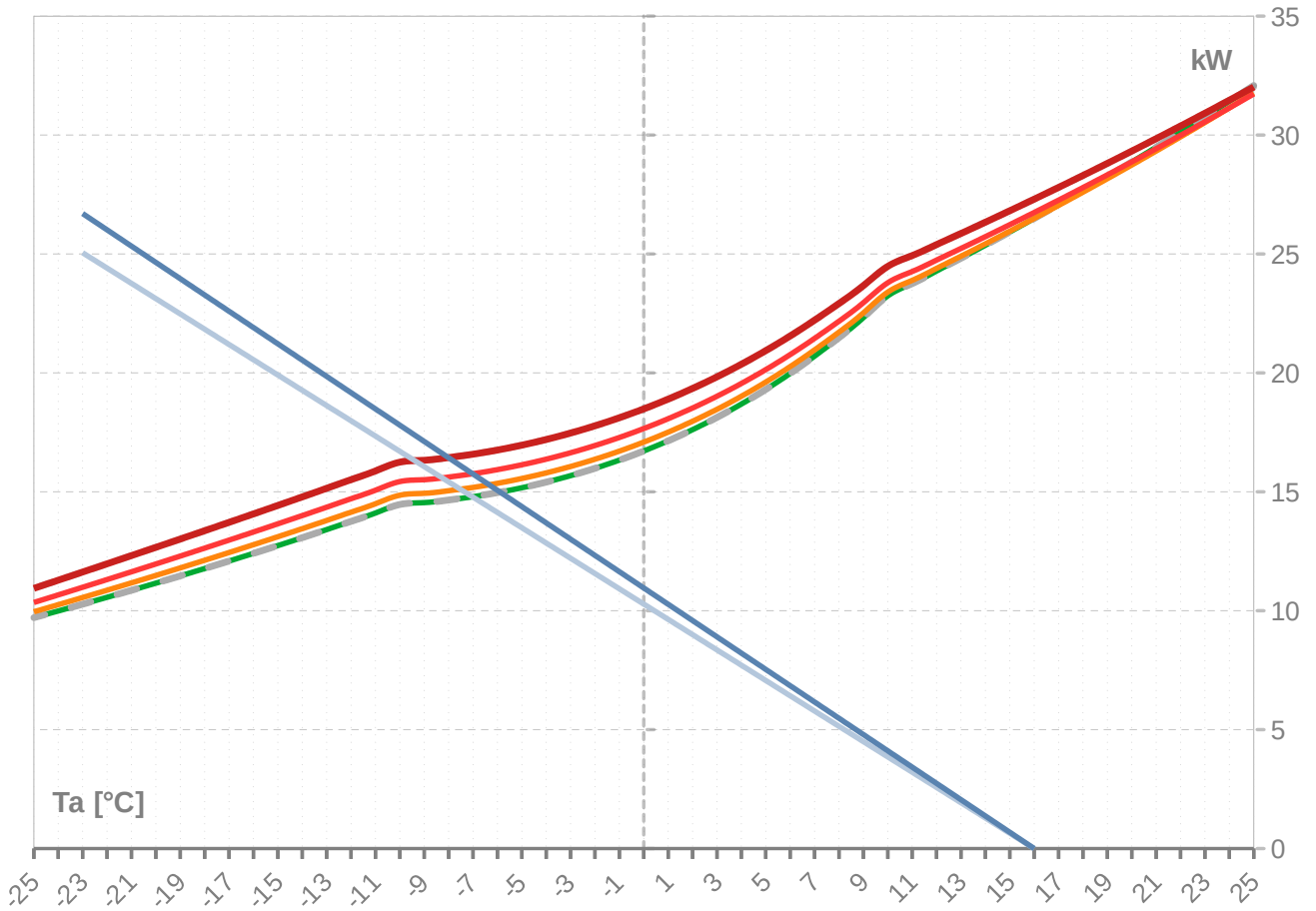
Radiant cooling W 23 / 18°C

Operating conditions		Qc	P	EER
A	A35 / W23-18	19.9	5.5	3.61
B	A30 / W23-18	20.4	4.5	4.18
C	A25 / W23-18	20.9	4.0	4.82
D	A20 / W23-18	21.3	3.6	5.51

SEER DATA EN 14825:2018 [W 23 / 18°C]	
SEERon	4.69
SEER	4.44
Qc [kWh]	2383.20
η [%]	177.43

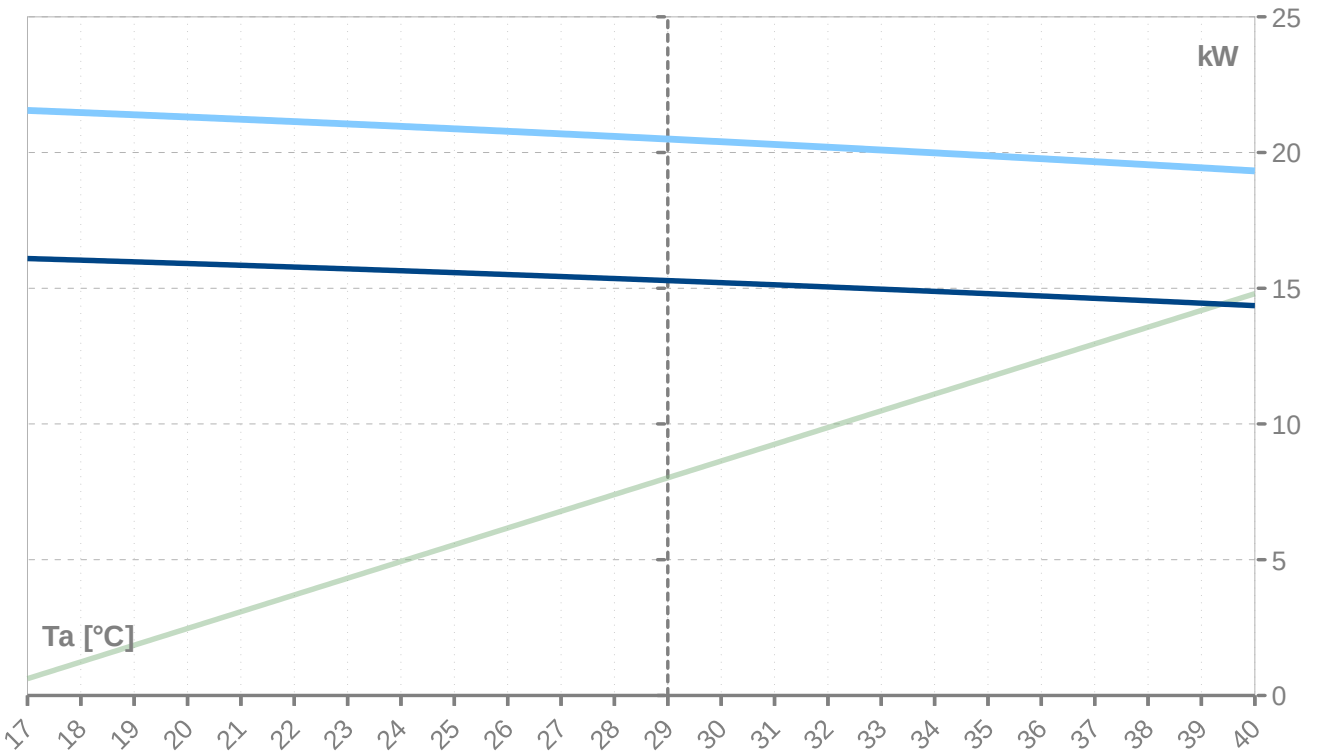
Performance lines - heating

- Qh-nom-35 — Qh-min-35 - - - Qh-max-65 — Qh-nom-45 — Qh-nom-55
- Qh-nom-65 — Pratedh-35 — Pratedh-55



Performance lines - cooling

- Pratedc — Qc-12/7 — Qc-23/18



Th [°C]		35 °C								
Ta [°C]	Qh nom [kW]	Qh min [kW]	Qh max [kW]	Pin nom [kW]	Pin-min [kW]	Pin-max [kW]	COP kW / kW	I nom [A]	I min [A]	I max [A]
25	27.1	27.1		4.5	4.5		6.04	9.3	9.3	
24	27.1	27.1		4.5	4.5		6.04	9.3	9.3	
23	27.1	27.1		4.5	4.5		6.04	9.3	9.3	
22	27.1	27.1		4.5	4.5		6.04	9.3	9.3	
21	27.1	27.1		4.5	4.5		6.04	9.3	9.3	
20	27.1	27.1		4.5	4.5		6.04	9.3	9.3	
19	27.1	27.1		4.5	4.5		6.04	9.3	9.3	
18	27.1	27.1		4.5	4.5		6.04	9.3	9.3	
17	27.1	27.1		4.5	4.5		6.04	9.3	9.3	
16	26.5	26.5	26.5	4.5	4.5	4.5	5.90	9.3	9.3	9.3
15	25.9	25.9	25.9	4.5	4.5	4.5	5.77	9.3	9.3	9.3
14	25.4	25.4	25.4	4.5	4.5	4.5	5.64	9.3	9.3	9.3
13	24.8	24.8	24.8	4.5	4.5	4.5	5.52	9.4	9.4	9.4
12	24.3	24.3	24.3	4.5	4.5	4.5	5.39	9.4	9.4	9.4
11	23.8	23.8	23.8	4.5	4.5	4.5	5.27	9.4	9.4	9.4
10	23.2	23.2	23.2	4.5	4.5	4.5	5.15	9.4	9.4	9.4
9	22.3	22.3	22.3	4.5	4.5	4.5	4.94	9.4	9.4	9.4
8	21.5	21.5	21.5	4.5	4.5	4.5	4.75	9.4	9.4	9.4
7	20.7	20.7	20.7	4.5	4.5	4.5	4.57	9.4	9.4	9.4
6	20.0	20.0	20.0	4.5	4.5	4.5	4.40	9.4	9.4	9.4
5	19.3	19.3	19.3	4.5	4.5	4.5	4.25	9.4	9.4	9.4
4	18.7	18.7	18.7	4.5	4.5	4.5	4.11	9.4	9.4	9.4
3	18.1	18.1	18.1	4.5	4.5	4.5	3.99	9.4	9.4	9.4
2	17.6	17.6	17.6	4.6	4.6	4.6	3.87	9.4	9.4	9.4
1	17.1	17.1	17.1	4.6	4.6	4.6	3.77	9.4	9.4	9.4
0	16.7	16.7	16.7	4.6	4.6	4.6	3.67	9.4	9.4	9.4
-1	16.3	16.3	16.3	4.6	4.6	4.6	3.59	9.4	9.4	9.4
-2	16.0	16.0	16.0	4.6	4.6	4.6	3.51	9.4	9.4	9.4
-3	15.7	15.7	15.7	4.6	4.6	4.6	3.44	9.4	9.4	9.4
-4	15.4	15.4	15.4	4.6	4.6	4.6	3.38	9.4	9.4	9.4
-5	15.2	15.2	15.2	4.6	4.6	4.6	3.33	9.4	9.4	9.4
-6	15.0	15.0	15.0	4.5	4.5	4.5	3.29	9.4	9.4	9.4
-7	14.8	14.8	14.8	4.5	4.5	4.5	3.25	9.4	9.4	9.4
-8	14.7	14.7	14.7	4.5	4.5	4.5	3.22	9.4	9.4	9.4
-9	14.5	14.5	14.5	4.5	4.5	4.5	3.20	9.4	9.4	9.4
-10	14.5	14.5	14.5	4.5	4.5	4.5	3.18	9.4	9.4	9.4
-11	14.1	14.1	14.1	4.5	4.5	4.5	3.11	9.4	9.4	9.4
-12	13.8	13.8	13.8	4.5	4.5	4.5	3.03	9.4	9.4	9.4
-13	13.4	13.4	13.4	4.5	4.5	4.5	2.96	9.4	9.4	9.4
-14	13.1	13.1	13.1	4.5	4.5	4.5	2.89	9.4	9.4	9.4
-15	12.7	12.7	12.7	4.5	4.5	4.5	2.82	9.4	9.4	9.4
-16	12.4	12.4	12.4	4.5	4.5	4.5	2.75	9.4	9.4	9.4
-17	12.1	12.1	12.1	4.5	4.5	4.5	2.69	9.4	9.4	9.4
-18	11.8	11.8	11.8	4.5	4.5	4.5	2.62	9.4	9.4	9.4
-19	11.5	11.5	11.5	4.5	4.5	4.5	2.56	9.4	9.4	9.4
-20	11.2	11.2	11.2	4.5	4.5	4.5	2.50	9.3	9.3	9.3
-21	10.9	10.9	10.9	4.4	4.4	4.4	2.44	9.3	9.3	9.3
-22	10.6	10.6	10.6	4.4	4.4	4.4	2.38	9.3	9.3	9.3
-23	10.3	10.3	10.3	4.4	4.4	4.4	2.33	9.3	9.3	9.3
-24	10.0	10.0	10.0	4.4	4.4	4.4	2.27	9.3	9.3	9.3
-25	9.7	9.7	9.7	4.4	4.4	4.4	2.22	9.3	9.3	9.3

* attention: operating limits not reflected in performance table

ZHI18K1P-TFM_R410A_1_AW

Th [°C]		45 °C								
Ta [°C]	Qh nom [kW]	Qh min [kW]	Qh max [kW]	Pin nom [kW]	Pin-min [kW]	Pin-max [kW]	COP kW / kW	I nom [A]	I min [A]	I max [A]
25	31.8	31.8	31.8	5.7	5.7	5.7	5.60	10.5	10.5	10.5
24	31.1	31.1	31.1	5.7	5.7	5.7	5.48	10.5	10.5	10.5
23	30.5	30.5	30.5	5.7	5.7	5.7	5.37	10.5	10.5	10.5
22	29.9	29.9	29.9	5.7	5.7	5.7	5.26	10.5	10.5	10.5
21	29.3	29.3	29.3	5.7	5.7	5.7	5.15	10.5	10.5	10.5
20	28.7	28.7	28.7	5.7	5.7	5.7	5.04	10.5	10.5	10.5
19	28.2	28.2	28.2	5.7	5.7	5.7	4.93	10.5	10.5	10.5
18	27.6	27.6	27.6	5.7	5.7	5.7	4.82	10.5	10.5	10.5
17	27.0	27.0	27.0	5.7	5.7	5.7	4.72	10.5	10.5	10.5
16	26.5	26.5	26.5	5.7	5.7	5.7	4.62	10.5	10.5	10.5
15	26.0	26.0	26.0	5.7	5.7	5.7	4.52	10.5	10.5	10.5
14	25.4	25.4	25.4	5.7	5.7	5.7	4.42	10.6	10.6	10.6
13	24.9	24.9	24.9	5.8	5.8	5.8	4.33	10.6	10.6	10.6
12	24.4	24.4	24.4	5.8	5.8	5.8	4.24	10.6	10.6	10.6
11	23.9	23.9	23.9	5.8	5.8	5.8	4.15	10.6	10.6	10.6
10	23.4	23.4	23.4	5.8	5.8	5.8	4.06	10.6	10.6	10.6
9	22.5	22.5	22.5	5.8	5.8	5.8	3.90	10.6	10.6	10.6
8	21.7	21.7	21.7	5.8	5.8	5.8	3.76	10.6	10.6	10.6
7	21.0	21.0	21.0	5.8	5.8	5.8	3.63	10.6	10.6	10.6
6	20.3	20.3	20.3	5.8	5.8	5.8	3.50	10.6	10.6	10.6
5	19.6	19.6	19.6	5.8	5.8	5.8	3.39	10.6	10.6	10.6
4	19.0	19.0	19.0	5.8	5.8	5.8	3.29	10.6	10.6	10.6
3	18.5	18.5	18.5	5.8	5.8	5.8	3.20	10.6	10.6	10.6
2	18.0	18.0	18.0	5.8	5.8	5.8	3.11	10.6	10.6	10.6
1	17.5	17.5	17.5	5.8	5.8	5.8	3.04	10.6	10.6	10.6
0	17.1	17.1	17.1	5.8	5.8	5.8	2.97	10.6	10.6	10.6
-1	16.7	16.7	16.7	5.8	5.8	5.8	2.90	10.6	10.6	10.6
-2	16.4	16.4	16.4	5.7	5.7	5.7	2.85	10.6	10.6	10.6
-3	16.1	16.1	16.1	5.7	5.7	5.7	2.80	10.6	10.6	10.6
-4	15.8	15.8	15.8	5.7	5.7	5.7	2.76	10.5	10.5	10.5
-5	15.6	15.6	15.6	5.7	5.7	5.7	2.72	10.5	10.5	10.5
-6	15.4	15.4	15.4	5.7	5.7	5.7	2.68	10.5	10.5	10.5
-7	15.2	15.2	15.2	5.7	5.7	5.7	2.66	10.5	10.5	10.5
-8	15.0	15.0	15.0	5.7	5.7	5.7	2.64	10.5	10.5	10.5
-9	14.9	14.9	14.9	5.7	5.7	5.7	2.62	10.5	10.5	10.5
-10	14.9	14.9	14.9	5.7	5.7	5.7	2.61	10.5	10.5	10.5
-11	14.5	14.5	14.5	5.7	5.7	5.7	2.55	10.5	10.5	10.5
-12	14.1	14.1	14.1	5.7	5.7	5.7	2.49	10.5	10.5	10.5
-13	13.8	13.8	13.8	5.7	5.7	5.7	2.44	10.5	10.5	10.5
-14	13.4	13.4	13.4	5.6	5.6	5.6	2.39	10.4	10.4	10.4
-15	13.1	13.1	13.1	5.6	5.6	5.6	2.34	10.4	10.4	10.4
-16	12.8	12.8	12.8	5.6	5.6	5.6	2.29	10.4	10.4	10.4
-17	12.4	12.4	12.4	5.6	5.6	5.6	2.24	10.4	10.4	10.4
-18	12.1	12.1	12.1	5.5	5.5	5.5	2.19	10.4	10.4	10.4
-19	11.8	11.8	11.8	5.5	5.5	5.5	2.14	10.3	10.3	10.3
-20	11.5	11.5	11.5	5.5	5.5	5.5	2.09	10.3	10.3	10.3
-21	11.2	11.2	11.2	5.5	5.5	5.5	2.05	10.3	10.3	10.3
-22	10.9	10.9	10.9	5.4	5.4	5.4	2.00	10.2	10.2	10.2
-23	10.6	10.6	10.6	5.4	5.4	5.4	1.96	10.2	10.2	10.2
-24	10.3	10.3	10.3	5.3	5.3	5.3	1.92	10.2	10.2	10.2
-25	10.0	10.0	10.0	5.3	5.3	5.3	1.87	10.1	10.1	10.1

* attention: operating limits not reflected in performance table

Th [°C]		55 °C								
Ta [°C]	Qh nom [kW]	Qh min [kW]	Qh max [kW]	Pin nom [kW]	Pin-min [kW]	Pin-max [kW]	COP kW / kW	I nom [A]	I min [A]	I max [A]
25	31.7	31.7	31.7	7.4	7.4	7.4	4.29	12.3	12.3	12.3
24	31.1	31.1	31.1	7.4	7.4	7.4	4.21	12.3	12.3	12.3
23	30.6	30.6	30.6	7.4	7.4	7.4	4.13	12.3	12.3	12.3
22	30.0	30.0	30.0	7.4	7.4	7.4	4.04	12.4	12.4	12.4
21	29.4	29.4	29.4	7.4	7.4	7.4	3.96	12.4	12.4	12.4
20	28.9	28.9	28.9	7.4	7.4	7.4	3.89	12.4	12.4	12.4
19	28.3	28.3	28.3	7.4	7.4	7.4	3.81	12.4	12.4	12.4
18	27.8	27.8	27.8	7.4	7.4	7.4	3.73	12.4	12.4	12.4
17	27.3	27.3	27.3	7.5	7.5	7.5	3.66	12.4	12.4	12.4
16	26.7	26.7	26.7	7.5	7.5	7.5	3.59	12.4	12.4	12.4
15	26.2	26.2	26.2	7.5	7.5	7.5	3.52	12.4	12.4	12.4
14	25.7	25.7	25.7	7.5	7.5	7.5	3.45	12.4	12.4	12.4
13	25.2	25.2	25.2	7.5	7.5	7.5	3.38	12.4	12.4	12.4
12	24.7	24.7	24.7	7.5	7.5	7.5	3.31	12.4	12.4	12.4
11	24.3	24.3	24.3	7.5	7.5	7.5	3.25	12.4	12.4	12.4
10	23.8	23.8	23.8	7.5	7.5	7.5	3.19	12.4	12.4	12.4
9	23.0	23.0	23.0	7.5	7.5	7.5	3.07	12.4	12.4	12.4
8	22.2	22.2	22.2	7.5	7.5	7.5	2.97	12.4	12.4	12.4
7	21.5	21.5	21.5	7.5	7.5	7.5	2.88	12.4	12.4	12.4
6	20.8	20.8	20.8	7.4	7.4	7.4	2.79	12.4	12.4	12.4
5	20.1	20.1	20.1	7.4	7.4	7.4	2.71	12.4	12.4	12.4
4	19.6	19.6	19.6	7.4	7.4	7.4	2.64	12.4	12.4	12.4
3	19.0	19.0	19.0	7.4	7.4	7.4	2.57	12.3	12.3	12.3
2	18.5	18.5	18.5	7.4	7.4	7.4	2.51	12.3	12.3	12.3
1	18.1	18.1	18.1	7.4	7.4	7.4	2.46	12.3	12.3	12.3
0	17.7	17.7	17.7	7.3	7.3	7.3	2.41	12.3	12.3	12.3
-1	17.3	17.3	17.3	7.3	7.3	7.3	2.36	12.3	12.3	12.3
-2	16.9	16.9	16.9	7.3	7.3	7.3	2.32	12.2	12.2	12.2
-3	16.6	16.6	16.6	7.3	7.3	7.3	2.29	12.2	12.2	12.2
-4	16.4	16.4	16.4	7.3	7.3	7.3	2.25	12.2	12.2	12.2
-5	16.1	16.1	16.1	7.2	7.2	7.2	2.23	12.2	12.2	12.2
-6	15.9	15.9	15.9	7.2	7.2	7.2	2.20	12.2	12.2	12.2
-7	15.8	15.8	15.8	7.2	7.2	7.2	2.18	12.1	12.1	12.1
-8	15.6	15.6	15.6	7.2	7.2	7.2	2.17	12.1	12.1	12.1
-9	15.5	15.5	15.5	7.2	7.2	7.2	2.15	12.1	12.1	12.1
-10	15.4	15.4	15.4	7.2	7.2	7.2	2.14	12.1	12.1	12.1
-11	15.1	15.1	15.1	7.2	7.2	7.2	2.10	12.1	12.1	12.1
-12	14.7	14.7	14.7	7.1	7.1	7.1	2.06	12.1	12.1	12.1
-13	14.4	14.4	14.4	7.1	7.1	7.1	2.02	12.0	12.0	12.0
-14	14.0	14.0	14.0	7.1	7.1	7.1	1.98	12.0	12.0	12.0
-15	13.7	13.7	13.7	7.0	7.0	7.0	1.95	11.9	11.9	11.9
-16	13.3	13.3	13.3	7.0	7.0	7.0	1.91	11.9	11.9	11.9
-17	13.0	13.0	13.0	6.9	6.9	6.9	1.87	11.8	11.8	11.8
-18	12.6	12.6	12.6	6.9	6.9	6.9	1.83	11.8	11.8	11.8
-19	12.3	12.3	12.3	6.8	6.8	6.8	1.80	11.7	11.7	11.7
-20	12.0	12.0	12.0	6.8	6.8	6.8	1.76	11.7	11.7	11.7
-21	11.6	11.6	11.6	6.7	6.7	6.7	1.73	11.6	11.6	11.6
-22	11.3	11.3	11.3	6.7	6.7	6.7	1.69	11.6	11.6	11.6
-23	11.0	11.0	11.0	6.6	6.6	6.6	1.66	11.5	11.5	11.5
-24	10.7	10.7	10.7	6.6	6.6	6.6	1.62	11.5	11.5	11.5
-25	10.3	10.3	10.3	6.5	6.5	6.5	1.59	11.4	11.4	11.4

* attention: operating limits not reflected in performance table

Th [°C]		T-Max @ 65 °C								
Ta [°C]	Qh nom [kW]	Qh min [kW]	Qh max [kW]	Pin nom [kW]	Pin-min [kW]	Pin-max [kW]	COP kW / kW	I nom [A]	I min [A]	I max [A]
25	32.0	32.0	32.0	9.7	9.7	9.7	3.30	15.1	15.1	15.1
24	31.5	31.5	31.5	9.7	9.7	9.7	3.24	15.1	15.1	15.1
23	30.9	30.9	30.9	9.7	9.7	9.7	3.18	15.1	15.1	15.1
22	30.4	30.4	30.4	9.7	9.7	9.7	3.13	15.1	15.1	15.1
21	29.8	29.8	29.8	9.7	9.7	9.7	3.07	15.1	15.1	15.1
20	29.3	29.3	29.3	9.7	9.7	9.7	3.02	15.1	15.1	15.1
19	28.8	28.8	28.8	9.7	9.7	9.7	2.96	15.1	15.1	15.1
18	28.3	28.3	28.3	9.7	9.7	9.7	2.91	15.1	15.1	15.1
17	27.8	27.8	27.8	9.7	9.7	9.7	2.86	15.1	15.1	15.1
16	27.3	27.3	27.3	9.7	9.7	9.7	2.81	15.1	15.1	15.1
15	26.8	26.8	26.8	9.7	9.7	9.7	2.76	15.1	15.1	15.1
14	26.3	26.3	26.3	9.7	9.7	9.7	2.71	15.1	15.1	15.1
13	25.9	25.9	25.9	9.7	9.7	9.7	2.66	15.1	15.1	15.1
12	25.4	25.4	25.4	9.7	9.7	9.7	2.62	15.1	15.1	15.1
11	24.9	24.9	24.9	9.7	9.7	9.7	2.57	15.1	15.1	15.1
10	24.5	24.5	24.5	9.7	9.7	9.7	2.53	15.1	15.1	15.1
9	23.7	23.7	23.7	9.7	9.7	9.7	2.45	15.0	15.0	15.0
8	22.9	22.9	22.9	9.6	9.6	9.6	2.38	15.0	15.0	15.0
7	22.2	22.2	22.2	9.6	9.6	9.6	2.31	15.0	15.0	15.0
6	21.6	21.6	21.6	9.6	9.6	9.6	2.25	14.9	14.9	14.9
5	20.9	20.9	20.9	9.5	9.5	9.5	2.19	14.9	14.9	14.9
4	20.4	20.4	20.4	9.5	9.5	9.5	2.14	14.9	14.9	14.9
3	19.8	19.8	19.8	9.5	9.5	9.5	2.10	14.8	14.8	14.8
2	19.3	19.3	19.3	9.4	9.4	9.4	2.05	14.8	14.8	14.8
1	18.9	18.9	18.9	9.4	9.4	9.4	2.01	14.7	14.7	14.7
0	18.5	18.5	18.5	9.4	9.4	9.4	1.98	14.7	14.7	14.7
-1	18.1	18.1	18.1	9.3	9.3	9.3	1.94	14.7	14.7	14.7
-2	17.8	17.8	17.8	9.3	9.3	9.3	1.92	14.6	14.6	14.6
-3	17.5	17.5	17.5	9.2	9.2	9.2	1.89	14.6	14.6	14.6
-4	17.2	17.2	17.2	9.2	9.2	9.2	1.87	14.5	14.5	14.5
-5	17.0	17.0	17.0	9.2	9.2	9.2	1.85	14.5	14.5	14.5
-6	16.8	16.8	16.8	9.2	9.2	9.2	1.83	14.5	14.5	14.5
-7	16.6	16.6	16.6	9.1	9.1	9.1	1.81	14.5	14.5	14.5
-8	16.4	16.4	16.4	9.1	9.1	9.1	1.80	14.4	14.4	14.4
-9	16.3	16.3	16.3	9.1	9.1	9.1	1.79	14.4	14.4	14.4
-10	16.2	16.2	16.2	9.1	9.1	9.1	1.79	14.4	14.4	14.4
-11	15.9	15.9	15.9	9.0	9.0	9.0	1.76	14.4	14.4	14.4
-12	15.5	15.5	15.5	9.0	9.0	9.0	1.73	14.3	14.3	14.3
-13	15.1	15.1	15.1	8.9	8.9	8.9	1.70	14.2	14.2	14.2
-14	14.8	14.8	14.8	8.9	8.9	8.9	1.67	14.2	14.2	14.2
-15	14.4	14.4	14.4	8.8	8.8	8.8	1.64	14.1	14.1	14.1
-16										
-17										
-18										
-19										
-20										
-21										
-22										
-23										
-24										
-25										

* attention: operating limits not reflected in performance table

Tc [°C]		W 12 / 7 °C								
Ta [°C]	Qc nom [kW]	Qc min [kW]	Qc max [kW]	Pin [kW]	Pin min [kW]	Pin max [kW]	EER kW / kW	I nom [A]	I min [A]	I max [A]
40	14.4	14.4	14.4	6.2	6.2	6.2	2.30	11.1	11.1	11.1
39	14.5	14.5	14.5	6.1	6.1	6.1	2.38	10.9	10.9	10.9
38	14.5	14.5	14.5	5.9	5.9	5.9	2.45	10.7	10.7	10.7
37	14.6	14.6	14.6	5.8	5.8	5.8	2.53	10.6	10.6	10.6
36	14.7	14.7	14.7	5.6	5.6	5.6	2.61	10.5	10.5	10.5
35	14.8	14.8	14.8	5.5	5.5	5.5	2.69	10.3	10.3	10.3
34	14.9	14.9	14.9	5.4	5.4	5.4	2.77	10.2	10.2	10.2
33	15.0	15.0	15.0	5.2	5.2	5.2	2.86	10.1	10.1	10.1
32	15.0	15.0	15.0	5.1	5.1	5.1	2.94	9.9	9.9	9.9
31	15.1	15.1	15.1	5.0	5.0	5.0	3.03	9.8	9.8	9.8
30	15.2	15.2	15.2	4.9	4.9	4.9	3.12	9.7	9.7	9.7
29	15.3	15.3	15.3	4.8	4.8	4.8	3.21	9.6	9.6	9.6
28	15.4	15.4	15.4	4.6	4.6	4.6	3.30	9.5	9.5	9.5
27	15.4	15.4	15.4	4.5	4.5	4.5	3.40	9.4	9.4	9.4
26	15.5	15.5	15.5	4.4	4.4	4.4	3.50	9.3	9.3	9.3
25	15.6	15.6	15.6	4.3	4.3	4.3	3.59	9.2	9.2	9.2
24	15.6	15.6	15.6	4.2	4.2	4.2	3.69	9.1	9.1	9.1
23	15.7	15.7	15.7	4.1	4.1	4.1	3.80	9.0	9.0	9.0
22	15.8	15.8	15.8	4.0	4.0	4.0	3.90	8.9	8.9	8.9
21	15.8	15.8	15.8	4.0	4.0	4.0	4.00	8.9	8.9	8.9
20	15.9	15.9	15.9	3.9	3.9	3.9	4.11	8.8	8.8	8.8
19	16.0	16.0	16.0	3.8	3.8	3.8	4.22	8.7	8.7	8.7
18	16.0	16.0	16.0	3.7	3.7	3.7	4.33	8.6	8.6	8.6
17	16.1	16.1	16.1	3.6	3.6	3.6	4.44	8.6	8.6	8.6

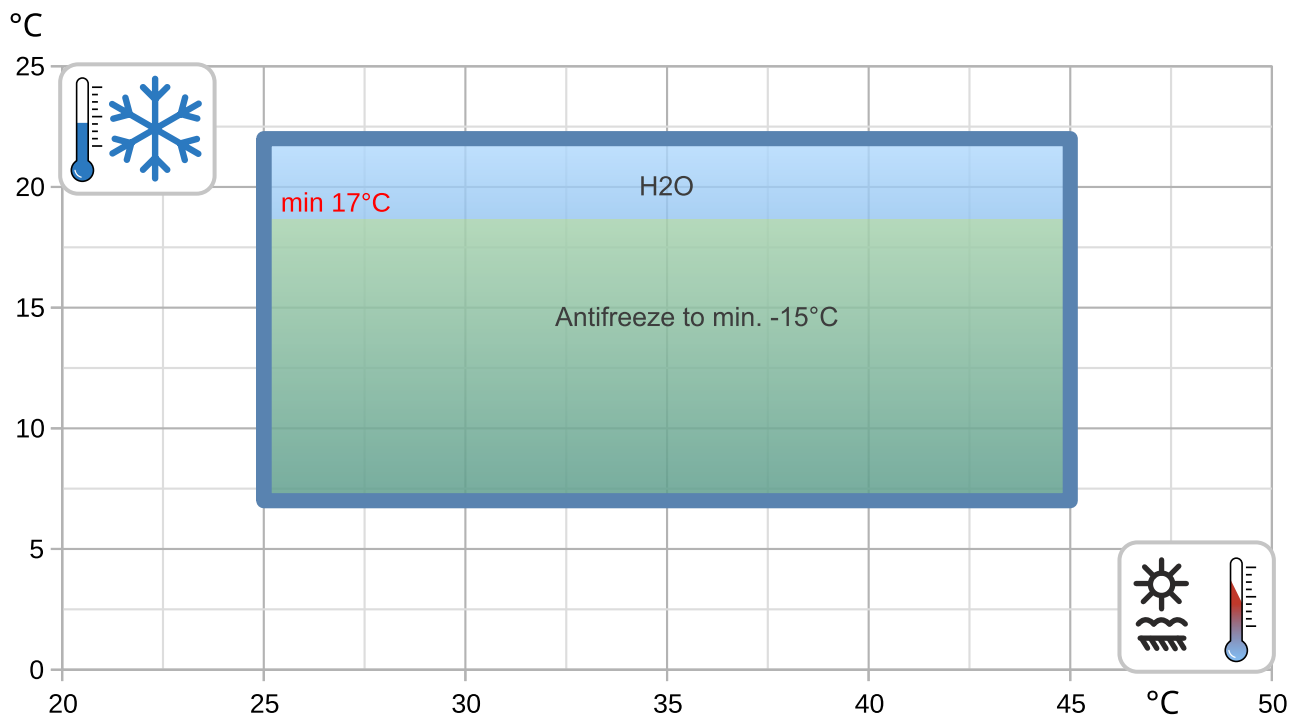
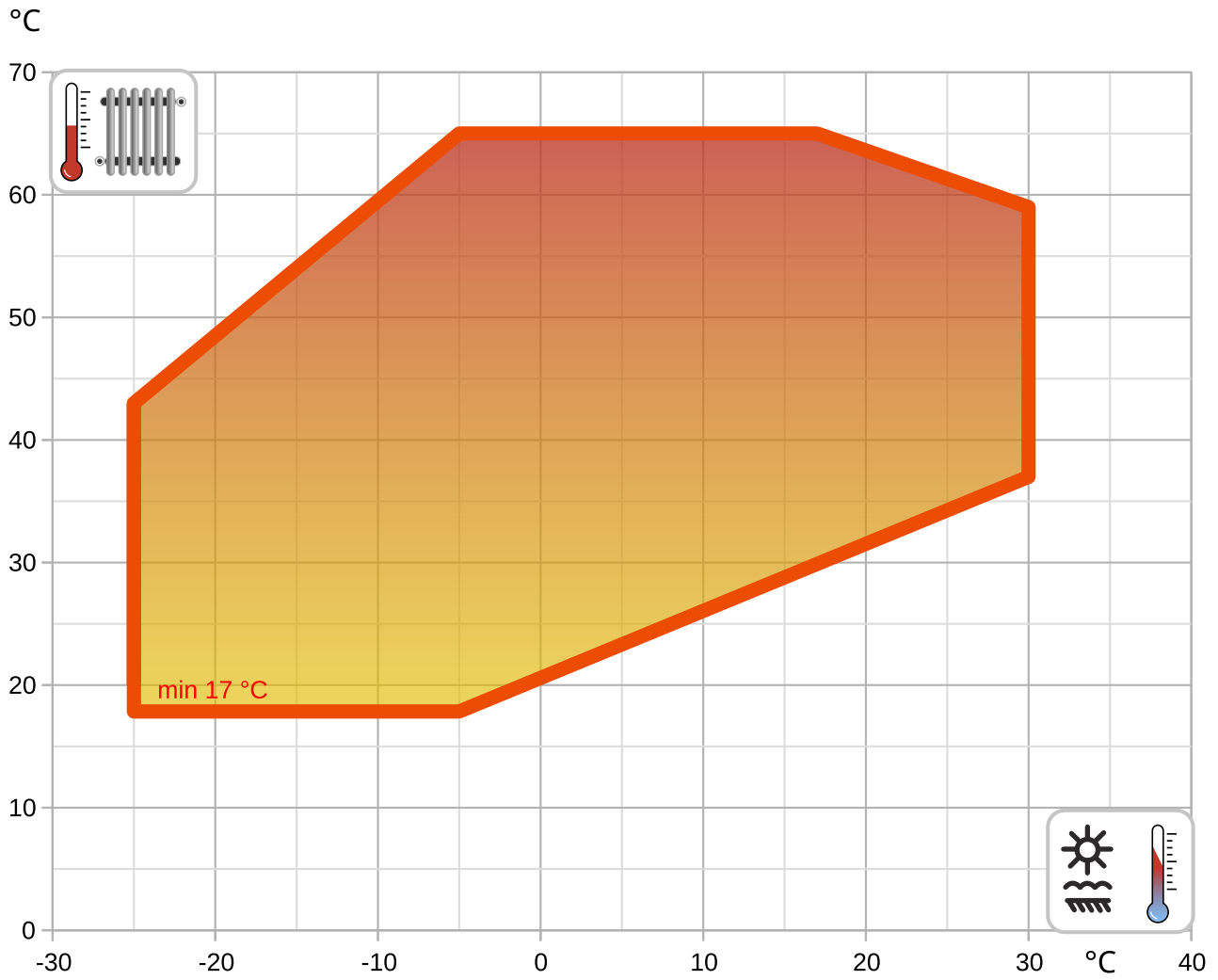
Tc [°C]		W 23 / 18 °C								
Ta [°C]	Qc [kW]	Qh-min [kW]	Qh-max [kW]	Pin [kW]	Pin-min [kW]	Pin-max [kW]	EER kW / kW	I [A]	I-min [A]	I-max [A]
40	19.3	19.3	19.3	6.2	6.2	6.2	3.10	11.0	11.0	11.0
39	19.4	19.4	19.4	6.1	6.1	6.1	3.20	10.9	10.9	10.9
38	19.6	19.6	19.6	5.9	5.9	5.9	3.30	10.7	10.7	10.7
37	19.7	19.7	19.7	5.8	5.8	5.8	3.40	10.6	10.6	10.6
36	19.8	19.8	19.8	5.6	5.6	5.6	3.50	10.4	10.4	10.4
35	19.9	19.9	19.9	5.5	5.5	5.5	3.61	10.3	10.3	10.3
34	20.0	20.0	20.0	5.4	5.4	5.4	3.72	10.1	10.1	10.1
33	20.1	20.1	20.1	5.2	5.2	5.2	3.83	10.0	10.0	10.0
32	20.2	20.2	20.2	5.1	5.1	5.1	3.95	9.9	9.9	9.9
31	20.3	20.3	20.3	5.0	5.0	5.0	4.06	9.8	9.8	9.8
30	20.4	20.4	20.4	4.9	4.9	4.9	4.18	9.7	9.7	9.7
29	20.5	20.5	20.5	4.8	4.8	4.8	4.31	9.6	9.6	9.6
28	20.6	20.6	20.6	4.6	4.6	4.6	4.43	9.5	9.5	9.5
27	20.7	20.7	20.7	4.5	4.5	4.5	4.56	9.4	9.4	9.4
26	20.8	20.8	20.8	4.4	4.4	4.4	4.69	9.3	9.3	9.3
25	20.9	20.9	20.9	4.3	4.3	4.3	4.82	9.2	9.2	9.2
24	21.0	21.0	21.0	4.2	4.2	4.2	4.95	9.1	9.1	9.1
23	21.1	21.1	21.1	4.1	4.1	4.1	5.09	9.0	9.0	9.0
22	21.1	21.1	21.1	4.0	4.0	4.0	5.22	8.9	8.9	8.9
21	21.2	21.2	21.2	4.0	4.0	4.0	5.36	8.9	8.9	8.9
20	21.3	21.3	21.3	3.9	3.9	3.9	5.51	8.8	8.8	8.8
19	21.4	21.4	21.4	3.8	3.8	3.8	5.65	8.7	8.7	8.7
18	21.5	21.5	21.5	3.7	3.7	3.7	5.79	8.6	8.6	8.6
17	21.6	21.6	21.6	3.6	3.6	3.6	5.94	8.6	8.6	8.6

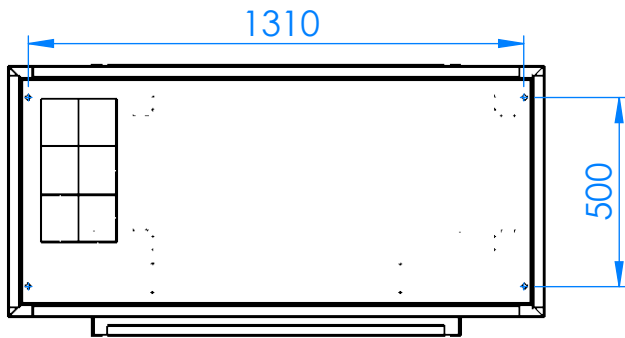
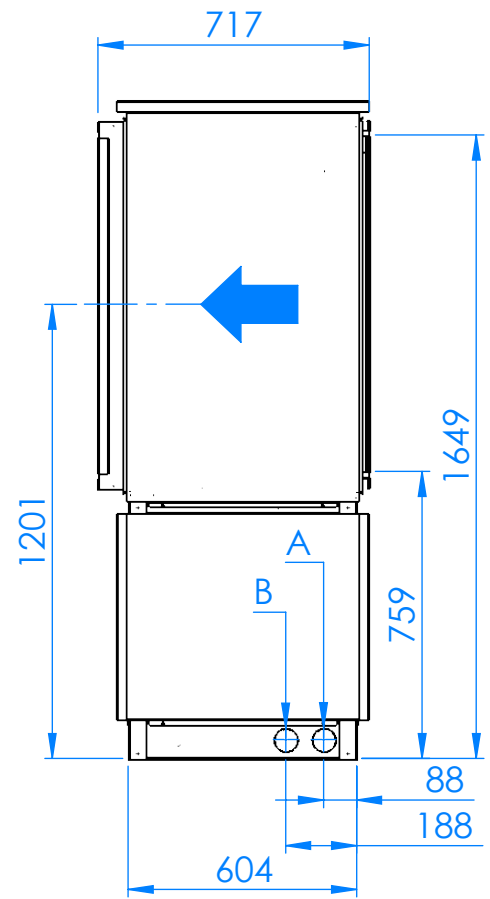
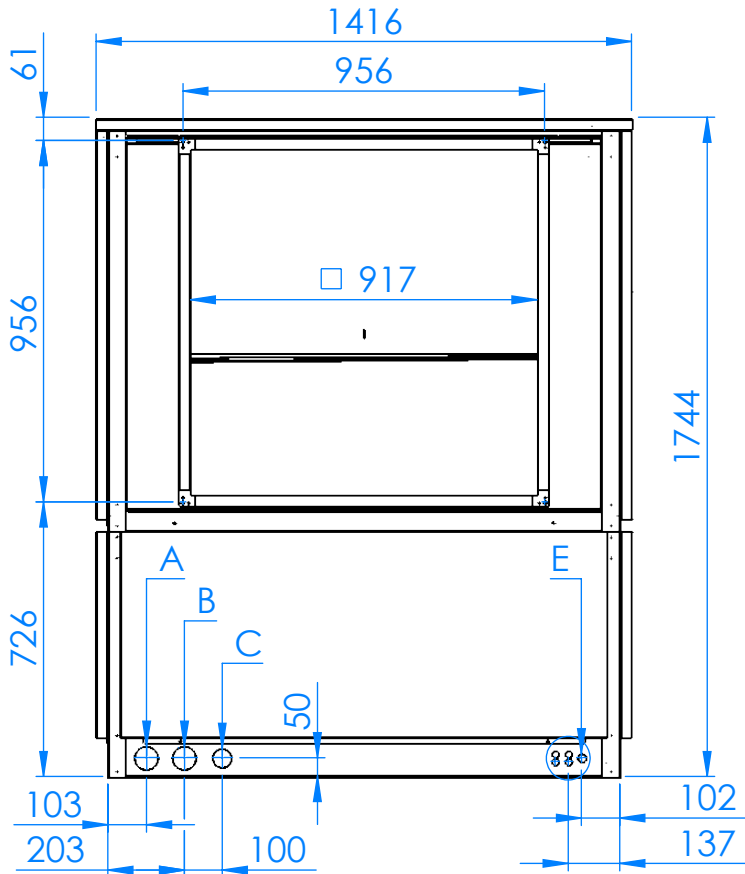
* attention: operating limits not reflected in performance table

LEGENDE:

Ts-IN: Temperature renewable source - inlet [°C]
Th-OU: Temperature heating - outlet (flow) [°C]
Tc-OU: Temperature cooling - outlet (flow) [°C]
Qh nom: Heating capacity nominal
Qh min: Heating capacity minimal
Qh max: Heating capacity maximal
Pin nom: Power input at nominal heating capacity
Pin min: Power input at minimal heating capacity
Pin max: Power input at maximal heating capacity
COP nom: coefficient of performance at nominal heating capacity
Qc nom: cooling / heat extraction capacity at nominal heating capacity
Qc min: cooling / heat extraction at minimal heating capacity
Qc max: cooling / heat extraction at maximal heating capacity
I nom: Current at nominal heating capacity
EER: energy efficiency ratio at nominal cooling capacity

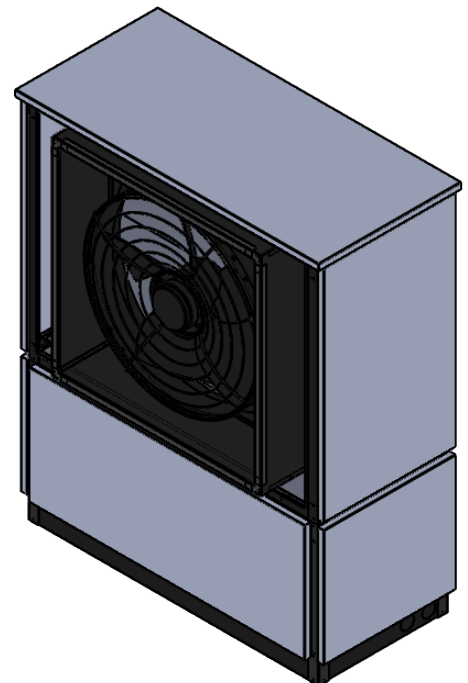
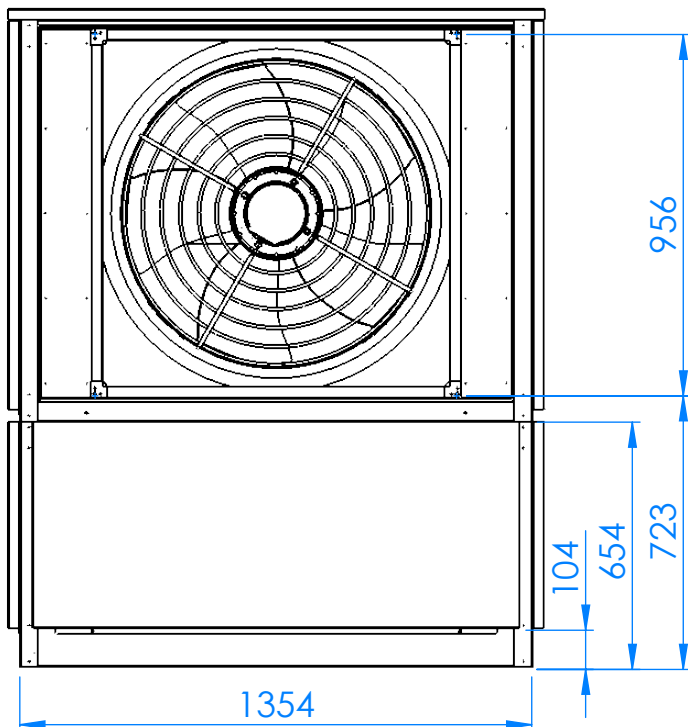
Operating limits

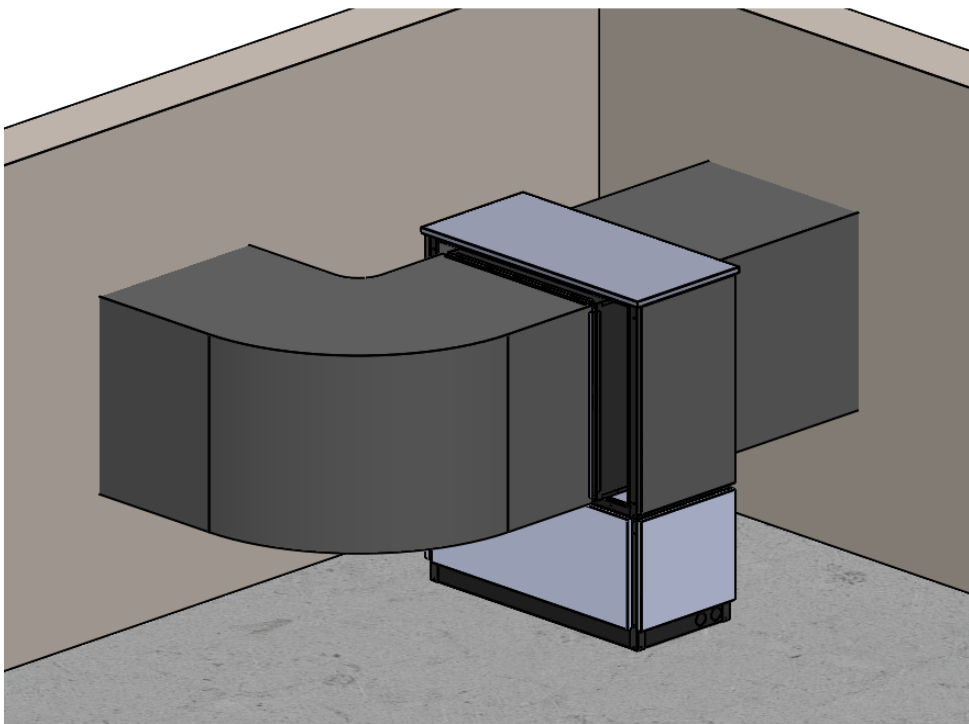
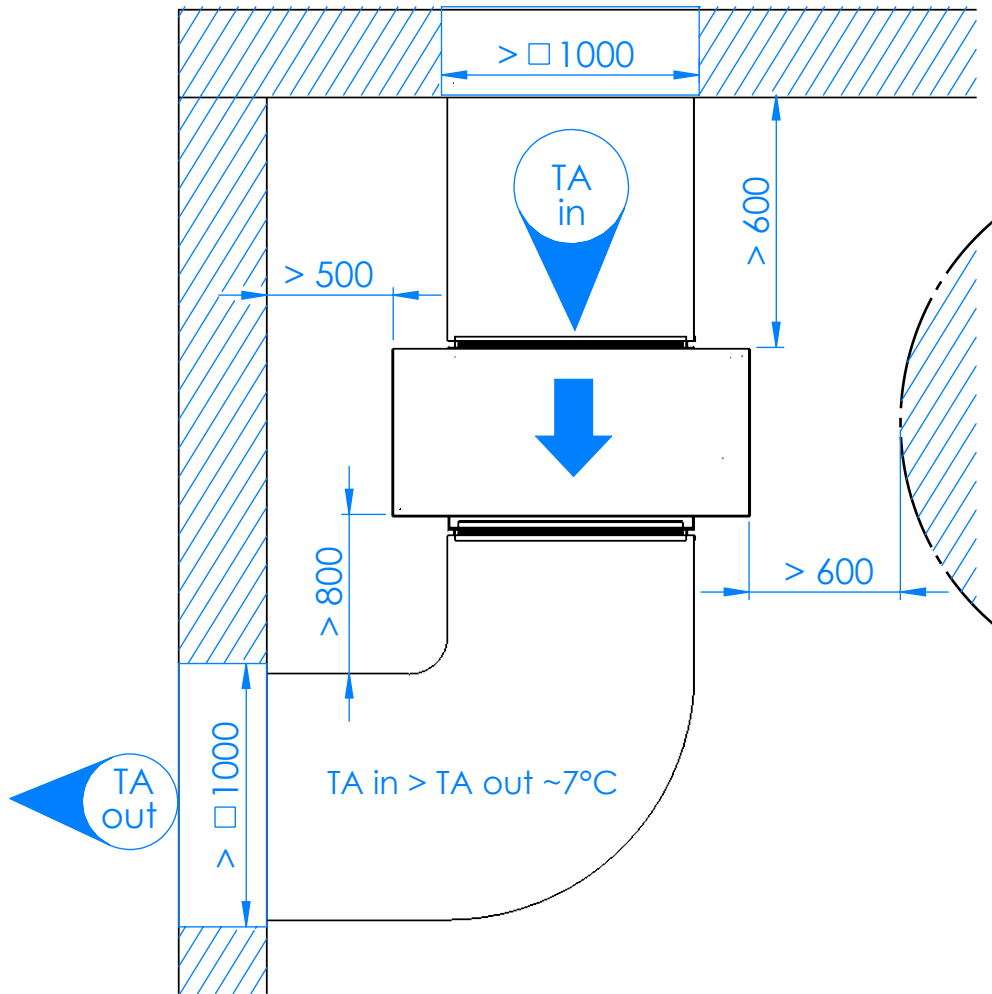


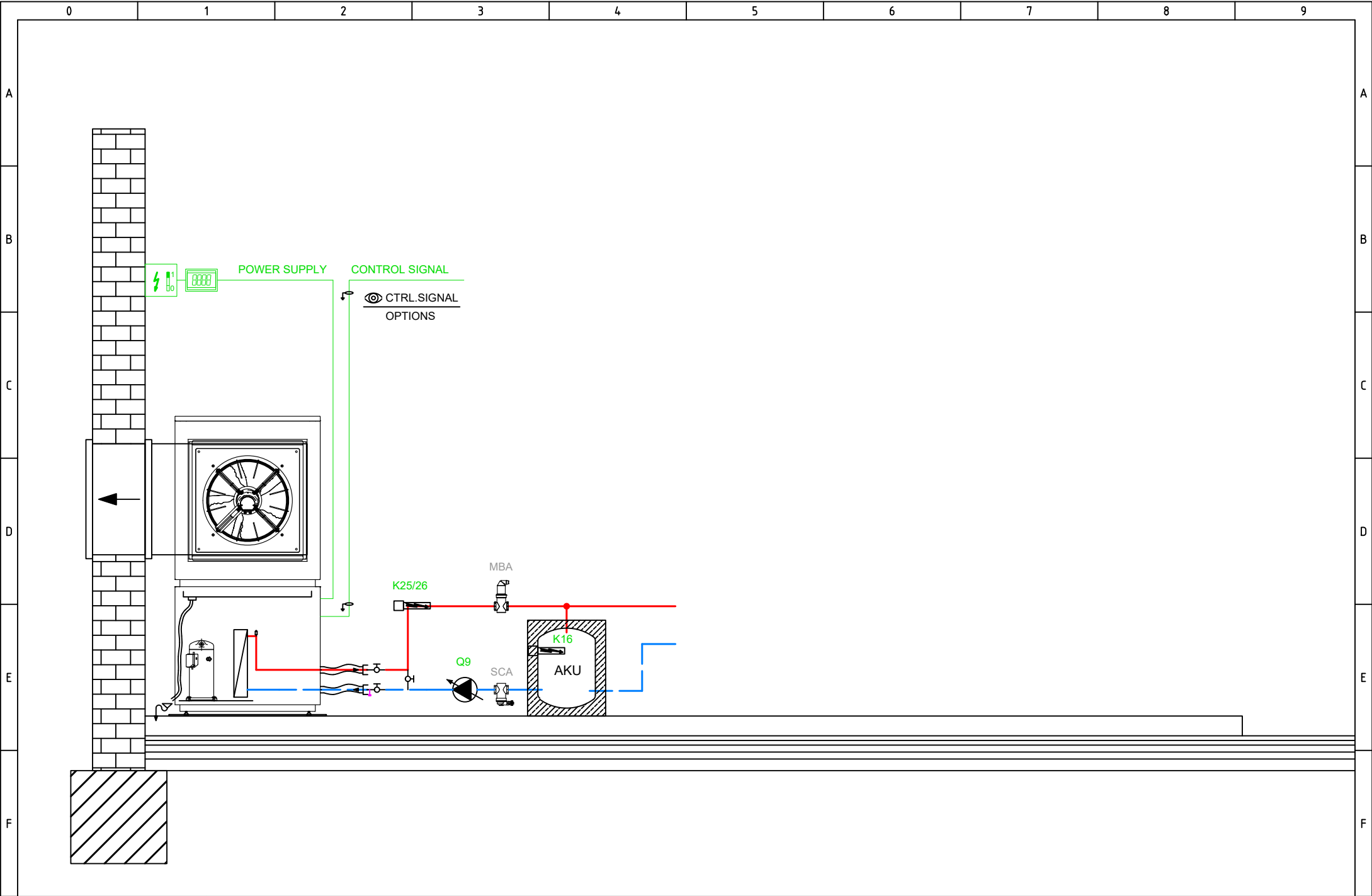


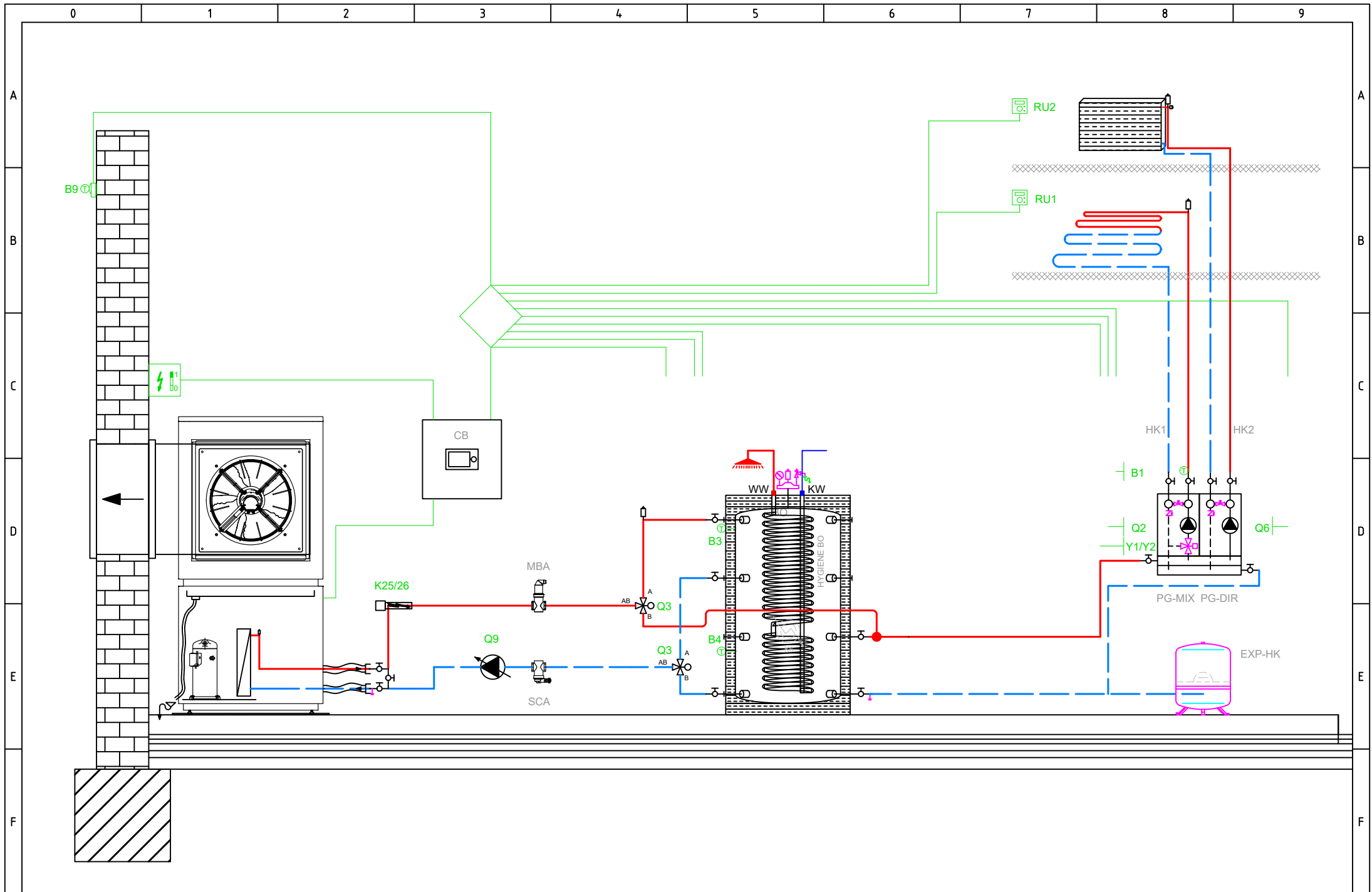
C - condens

E - electro

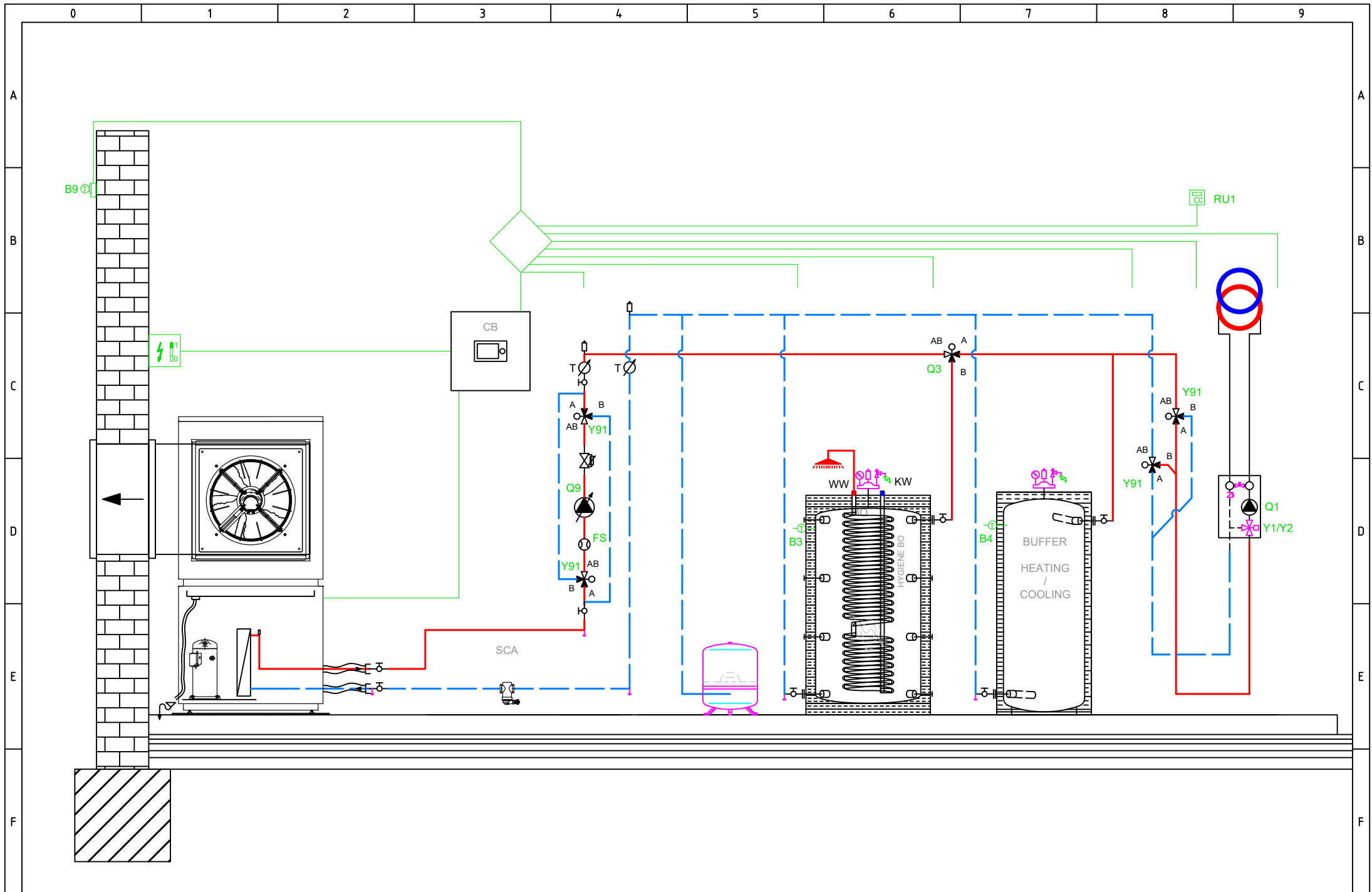








BASIC APPLICATION



OPTIONAL APPLICATION

Main power supply 230V / 50 Hz
Ground
Neutral conductor

- E10 High-pressure switch E10
- E11 Overload compressor 1 E11
- E14 Overload source E14
- E24 Flow switch consumers E24
- K82 Valve EVI K82

K40 Crankcase heater K40

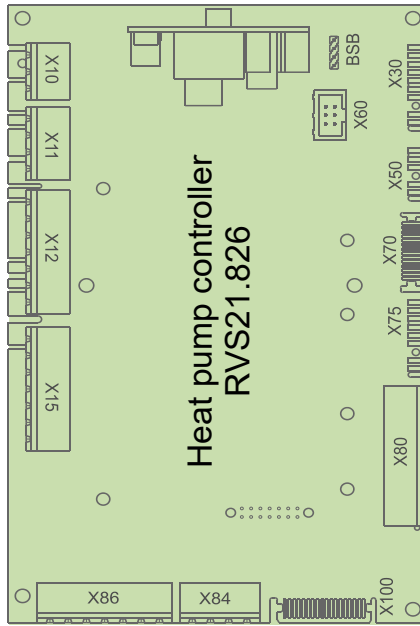
- L Phase 230V
- K1 Compressor stage 1 K1
- Y22 Process revers valve Y22

Q9 Condenser pump Q9

X10	1	L
X10	1	PE
X10	1	N
X11	1	EX1
X11	1	EX2
X11	1	EX3
X11	1	EX4
X12	1	QX1
X12	1	N
X12	1	QX2
X12	1	QX2i
X12	1	N
X12	1	FX3
X12	1	QX3
X15	1	QX4
X15	1	QX4i
X15	1	N
X15	1	QX5
X15	1	N
X15	1	ZX6
X15	1	N
X86	1	GX1
X86	1	H3
X86	1	M
X86	1	H1
X86	1	G+
X86	1	M
X86	1	BSB



Total: max 6A
1 x QX...: max 2A



BSB
X30
X60
X50
X70

- BSB Connection service tool (OCI700)
- X30 Operating unit (HMI) AVS37.xxx
- X60 Modbus clip-in OCI351.01
- X50 Extension module AVS75.xxx
- X70 LPB clip-in

D1
D2
D3
UX3
M
DI6
DI7
M

- D1 Digital output 1 Heating
- D2 Digital output 2 Cooling
- D3 Digital output 3 HP On/Off

- DI6 Digital input 6 Defrosting
- DI7 Digital input 7 Alarm

BX1
M
BX2
M
UX1
M
UX2
M

- B91 Source inlet sensor B91
- B84 Source outl sens B92/B84
- K19 Fan K19
- 0..10 V Signal
- Q9 Condenser pump Q9
- PWM Signal

BX3
M
BX4
M

- B71 HP return sensor B71
- B9 Outside sensor B9

Main power supply 230V / 50 Hz
Ground
Neutral conductor

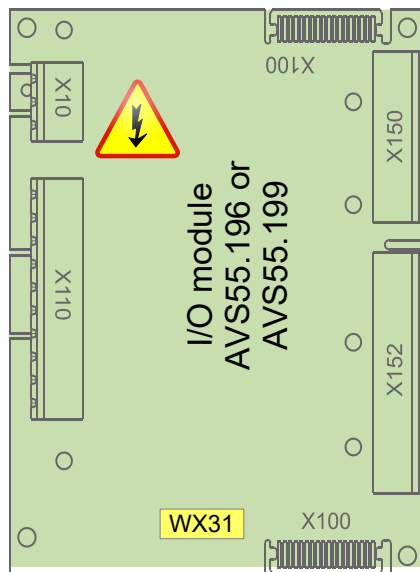
K10 Alarm output K10

V81 EEV evaporator V81

X10	1	L
X10	1	PE
X10	1	N
X110	1	QX31
X110	1	QX32
X110	1	N
X110	1	QX33
X110	1	N
X110	1	ZX34
X110	1	N
X115	1	QX35
X115	1	QX35i
X115	1	N



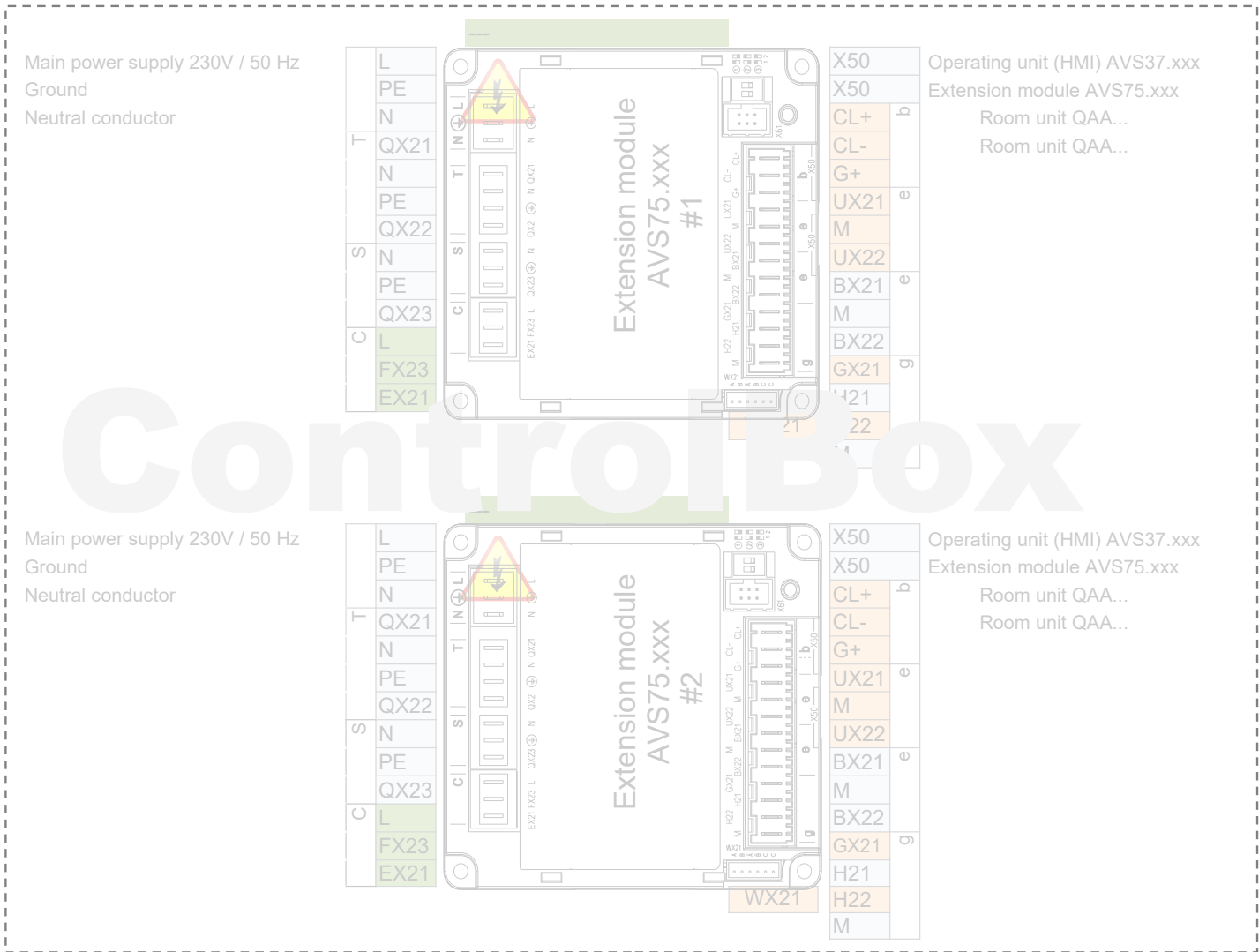
I/O module
AVS55.196 or
AVS55.199



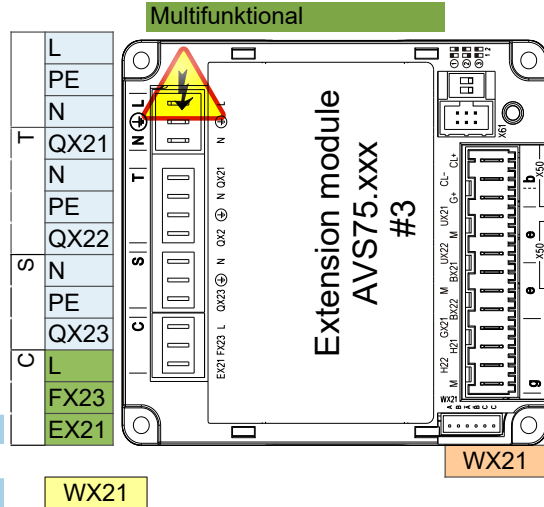
BSB
M
G+
H31
M
H32
GX1
H33
M
BX31
M
BX32
M
BX33
M
BX34
M

- 5 V/12 V for active sensors
- Flow measurement 10V
- Low pressure 0..10V
- 5 V/12 V for active sensors
- High pressure 0..10V
- B21 HP flow sensor B21
- B81 Hot-gas sensor B81
- B85 Suction gas sensor B85
- B83 Refrig sensor liquid B83

- AVS75.390
- AVS75.391
- AVS75.370



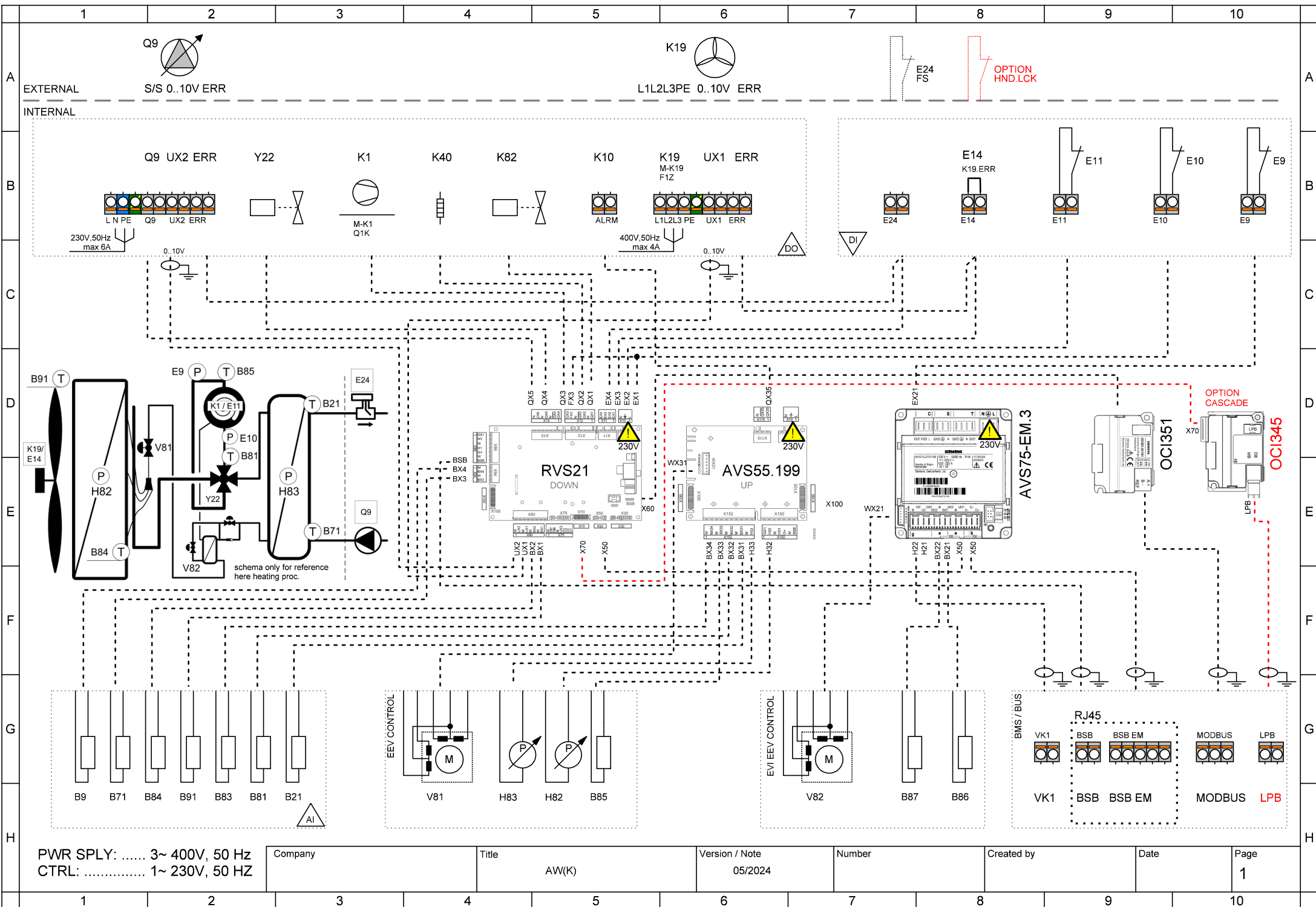
Main power supply 230V / 50 Hz
Ground
Neutral conductor



- E9 Low-pressure switch E9
- V82 EEV EVI V82
- WX21

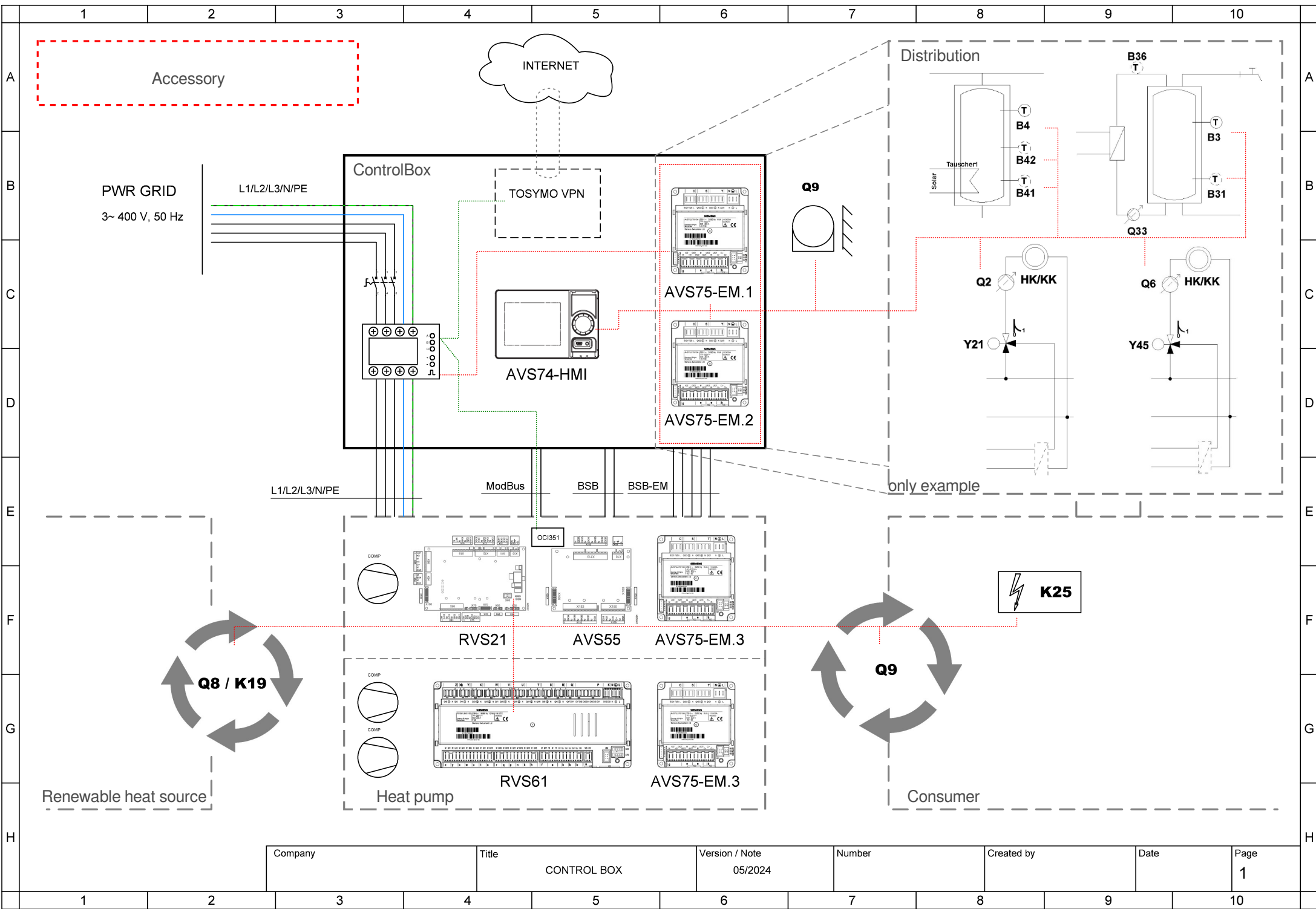
Operating unit (HMI) AVS37.xxx
Extension module AVS75.xxx
Room unit QAA...
Room unit QAA...

- B86 Suction gas sensor EVI B86
- B87 Evaporation sensor EVI B87

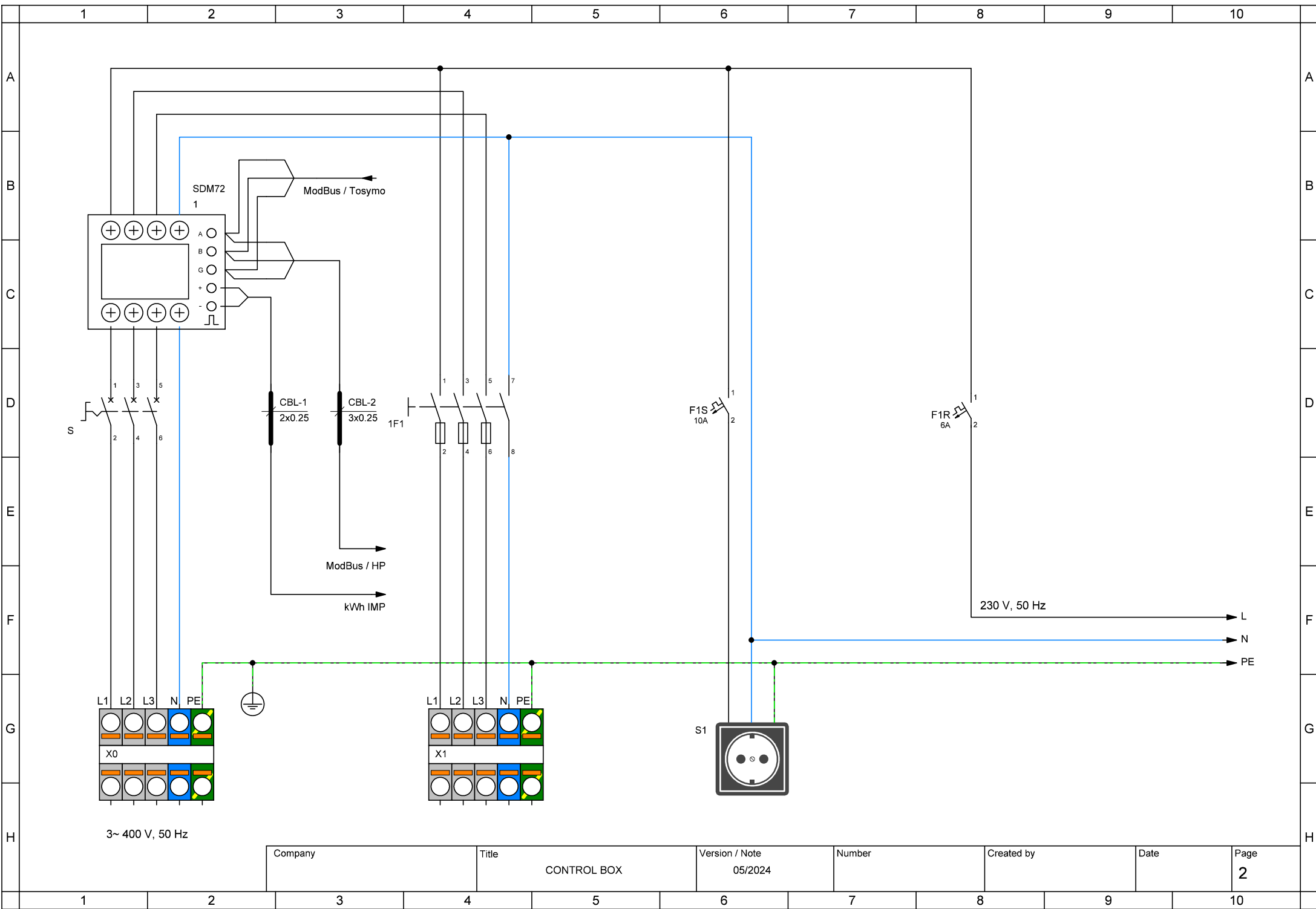


PWR SPLY: 3~ 400V, 50 Hz
 CTRL: 1~ 230V, 50 HZ

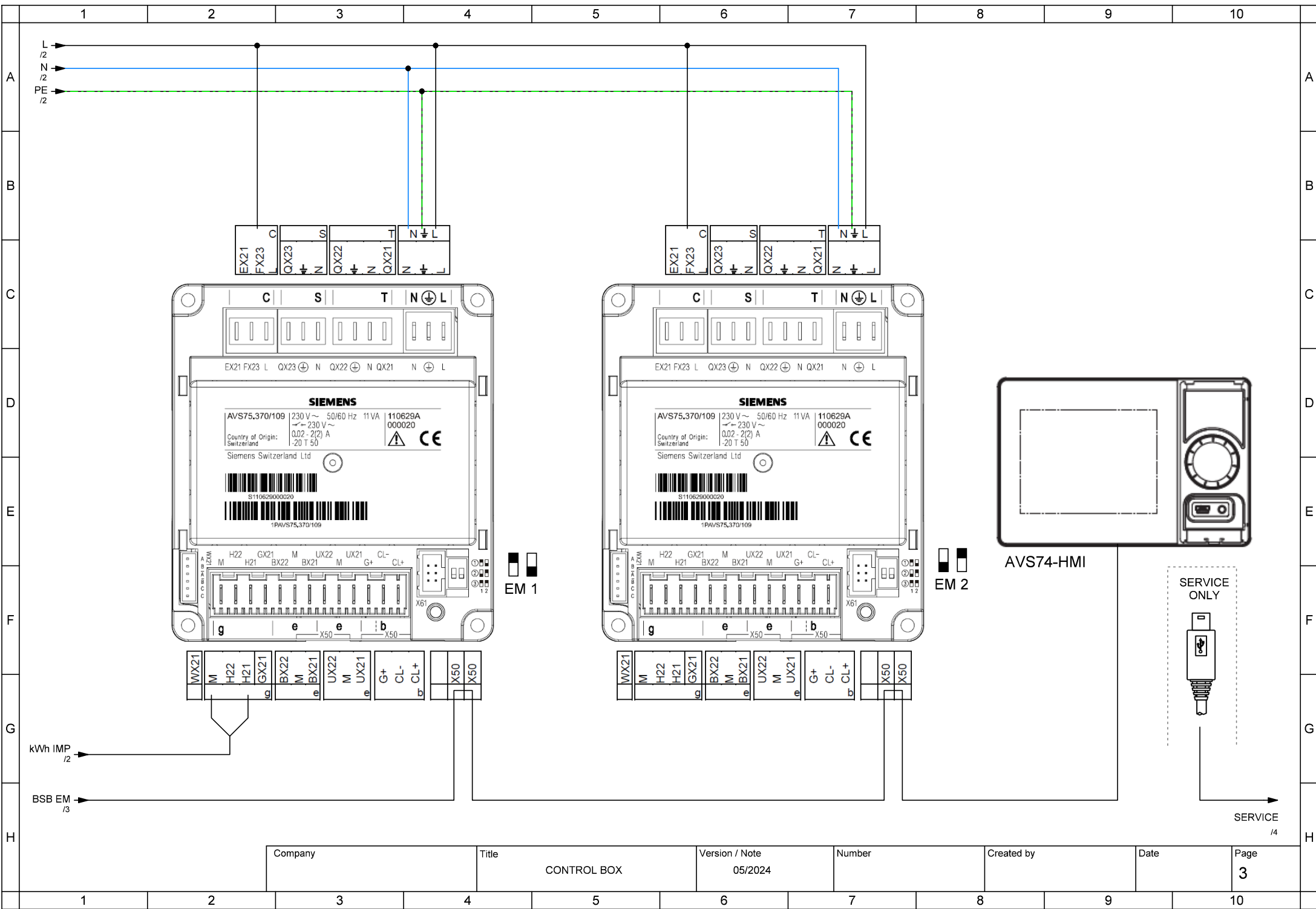
Company	Title	Version / Note	Number	Created by	Date	Page
	AW(K)	05/2024				1



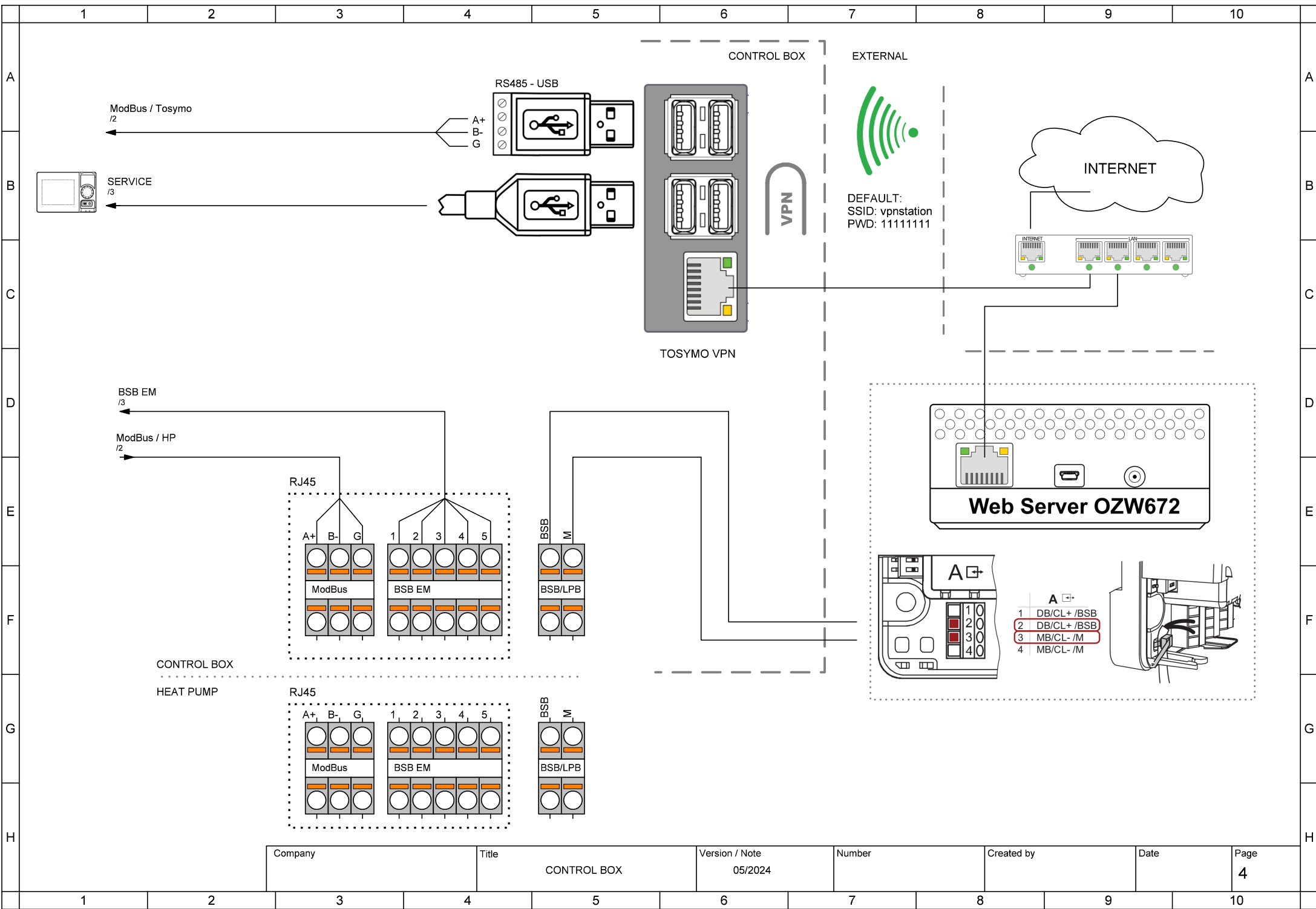
Company	Title	Version / Note	Number	Created by	Date	Page
	CONTROL BOX	05/2024				1



1	2	3	4	5	6	7	8	9	10
A	B	C	D	E	F	G	H		



Company	Title	Version / Note	Number	Created by	Date	Page
	CONTROL BOX	05/2024				3



Company	Title	Version / Note	Number	Created by	Date	Page
	CONTROL BOX	05/2024				4

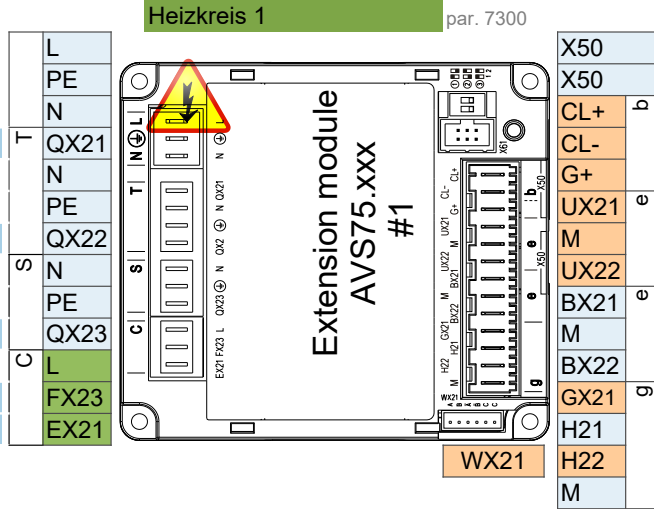
- AVS75.390
- AVS75.391
- AVS75.370

- AVS75.370**
 Main power supply 230V / 50 Hz
 Ground
 Neutral conductor
Y1 Mixing valve Open

Y2 Mixing valve Close

Q2 Heat circuit pump HC1 Q2

L Phase 230V
E61 Smart grid E61



- Extension module AVS75.xxx
 Room unit QAA...
 Room unit QAA...

B1 Flow sensor 1

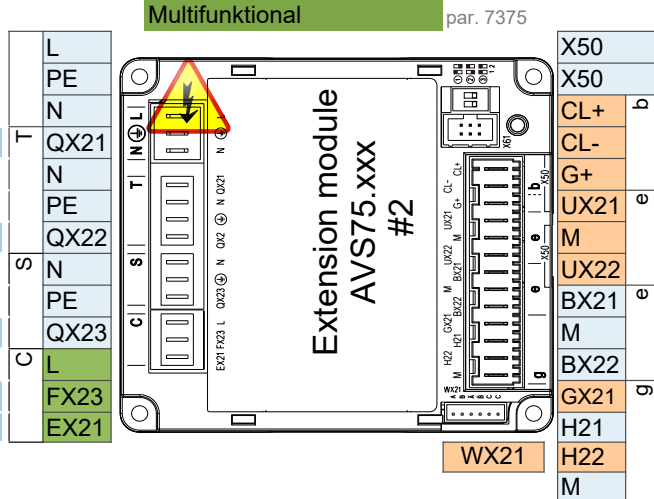
 Pulse count

- AVS75.370**
 Main power supply 230V / 50 Hz
 Ground
 Neutral conductor
Q3 DHW ctrl elem Q3

K6 El imm heater DHW K6

Q6 Heat circuit pump HC2 Q6

L Phase 230V
E62 Smart grid E62

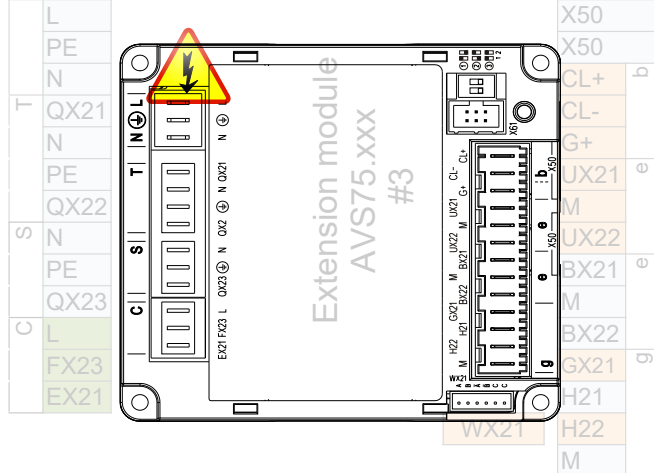


- Operating unit (HMI) AVS37.xxx
 Extension module AVS75.xxx
 Room unit QAA...
 Room unit QAA...

B3 DHW sensor B3

B4 Buffer sensor B4

- Main power supply 230V / 50 Hz
 Ground
 Neutral conductor



- Operating unit (HMI) AVS37.xxx
 Extension module AVS75.xxx
 Room unit QAA...
 Room unit QAA...

Attention: Extension module 3 is inside the heat pump

Control connection options

1 ControlBox

ControlBox, with two built-in extension modules, enables numerous options for application control on the consumer side behind the heat pump. For more, see the ControlBox schematic and the application diagrams sheet.

2 Fix flow temperature setpoint - On / Off dry (potential free) contact

2 wire shielded cable 2 x 0.5 mm² - Setpoint = 45°C (editable by param. 1859)

Connection terminal - see wiring diagram

3 Analog 0..10V flow temperature setpoint control

2 wire shielded cable 2 x 0.5 mm² - Setpoint: 0V = 16°C ~ 10V = 60°C (editable in parameter set)

Connection terminal - see wiring diagram

4 ModBus RTU communication command

3 wire shielded cable min. 3 x 0.25mm²

For ModBus mapping table contact technical support

5 MQTT IoT communication protocol

For more information contact technical support