

Basic performance data - WAMAK TWW 85 WHR

Heating - EN 14511		
Heating capacity [kW]	W10 / W35 (max)	46.1 (23.0 / 46.1)
	W10 / W35 (min)	23.0 (23.0 / 46.1)
	W10 / W34	46.4 (23.2 / 46.4)
Electrical power input [kW]	W10 / W35 (max)	7.9 (3.9 / 7.9)
	W10 / W35 (min)	3.9 (3.9 / 7.9)
	W10 / W34	7.7 (3.8 / 7.7)
Heating efficiency faktor [COP]	W10 / W35 (max)	5.87
	W10 / W35 (min)	5.97
	W10 / W34	6.01
Seasonal space heating energy efficiency - SCOP EN 14825		
Average Climate / Low Temperature [35 °C]	SCOP	6.59
	η [%]	263.5
	Label	A+++
	Qhe [kWh]	14116.1
	Pdesignh [kW]	46.1
	Tbivalent [°C]	-7
Cooling		
Cooling capacity - [kW]	A35 / W23-18	34.8
	A25 / W23-18	39.2
	A35 / W12-7	22.6
	A25 / W12-7	22.6
Seasonal space cooling energy efficiency - SEER EN 14825		
[W 23 / 18 °C]	SEER	5.26
	Qce [kWh]	13560.0
	ηc [%]	210.3
Sound EN 12102		
Acoustic power - Lw	dB(A)	59.4
Acoustic pressure - Lp	1 m dB(A)	51.4
	5 m dB(A)	37.4
	10 m dB(A)	31.4
Mechanical and operational information		
Compressor type (3~ 400/50)	SCROLL / 2 /	On/Off
Refrigerant	R513A (GWP - 631)	9.6 kg
Operating limit temperatures heating - (min / max) [°C]	45 / 85	
Operating limit temperatures source - (min / max) [°C]	-10 / 50	
Weight	420 kg	

Main technical data - WAMAK TWW 85 WHR

Enclosure type			VN1100			
Basic dimensions	Height [mm]	1270	Operating limit temperatures heating	MAX [°C]	85	
	Width [mm]	1100		MIN [°C]	45	
	Length [mm]	750	for more see operating limits diagram			
Weight [kg]	420		Condenser	Port size	VIC 2.1/2 "	
Colour	Gray			Type	BPHE	
Enclosure IP Class	IP20			Count	1	
Refrigeration cycle				Material	AISI 316	
Compressor	Type	Scroll	Maximal operating pressure - refrigerant [bar]			32
	Number of stages	2	Maximal operating pressure - Water [bar]			6
	On/Off		Testing pressure [bar]			70
	Power factor Cosφ	0.60	Heat transfer medium			Water
	Winding resistance	1.47 Ohm	Volume flow @ dT 5K (nom) - Water [m3/h]			5.53 ~ 11.06
Refrigerant		R513A	Internal pressure drop - Water [kPa]			20
	Volme	9.6 kg	Temperature difference	@ 35°C (nom)	5 K	
	GWP	631		@ 55°C	8 K	
	Safety class	A1		@ 65°C	10 K	
Refrigeration oil type	POE RL32-3MAF		Renewable energy extraction side data			
	Oil volume	2 x 3.38 L	Operating limit temperatures source	MIN [°C]	-10	
Maximal pressure - refrigerant [bar]		32		MAX [°C]	50	
	PED class	2	for more see operating limits diagram			
EVI - vapour injection with economizer						
Electrical connection data						
Line voltage [#~ V/Hz]		3~ 400/50				
Current	nominal [A]	26.38				
	maximal [A]	35.40				
	starting [A]	10.5				
Softstart		-				
Main safety		C40				
Control System						
Main controller	SIEMENS	RVS 61				
Extension module	AVS75.3xx	AVS75.3xx	AVS75.372			
Bus Clip-In		Modbus OCl352				
Online connection		Web server OZW672	ToSyMo			
Superheat controller		SEC61				
*** with accessory						

WAMAK TWW 85 WHR

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

Model	TWW 85 WHR
Air-to-water heat pump	no
Brine-to-water heat pump	no
Water-to-water heat pump	yes
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	46.1	kW	Seasonal space heating energy efficiency	ηs	263.5	%
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	46.4	kW	Tj = -7 °C	COPd	6.01	-
Tj = +2 °C	Pdh	47.5	kW	Tj = +2 °C	COPd	6.6	-
Tj = +7 °C	Pdh	48.3	kW	Tj = +7 °C	COPd	7.2	-
Tj = +12 °C	Pdh	49.1	kW	Tj = +12 °C	COPd	7.7	-
Tj = bivalent temperature	Pdh	46.1	kW	Tj = bivalent temperature	COPd	5.9	-
Tj = operation limit temperature	Pdh	---	kW	Tj = operation limit temperature	COPd	---	-
Bivalent temperature	Tbiv	-7	°C	Tj = operation limit temperature	TOL	---	°C
Power consumption in modes other than active mode				Heating water operating limit temperature	WTOL	85	°C
Off mode	Poff	0.040	kW	Supplementary heater			
Thermostat-off mode	Pto	0.010	kW	Rated heat output	Psup	8.8	kW
Standby mode	Psb	0.010	kW	Type of energy input		electricity	
Crankcase heater mode	Pck	0.050	kW				
Other items							
Capacity control		multi-stage		For air-to-water heat pumps: Rated air flow rate, outdoors	-	---	m ³ /h
Sound power level				For water- or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	5.20 ~ 10.40	m ³ /h
indoors	Lwa	59	dB				
outdoors	Lwa	---	dB				
Annual energy consumption	QHE	14116.1	kWh				

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

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

Model	TWW 85 WHR
Air-to-water heat pump	no
Brine-to-water heat pump	no
Water-to-water heat pump	yes
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	40.2	kW	Seasonal space heating energy efficiency	ηs	199.1	%
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	42.0	kW	Tj = -7 °C	COPd	3.95	-
Tj = +2 °C	Pdh	45.4	kW	Tj = +2 °C	COPd	5.3	-
Tj = +7 °C	Pdh	47.0	kW	Tj = +7 °C	COPd	6.1	-
Tj = +12 °C	Pdh	48.3	kW	Tj = +12 °C	COPd	6.8	-
Tj = bivalent temperature	Pdh	40.2	kW	Tj = bivalent temperature	COPd	3.5	-
Tj = operation limit temperature	Pdh	---	kW	Tj = operation limit temperature	COPd	---	-
Bivalent temperature	Tbiv	-7	°C	Tj = operation limit temperature	TOL	---	°C
Power consumption in modes other than active mode				Heating water operating limit temperature	WTOL	85	°C
Off mode	Poff	0.040	kW	Supplementary heater			
Thermostat-off mode	Pto	0.010	kW	Rated heat output	Psup	8.8	kW
Standby mode	Psb	0.010	kW	Type of energy input		electricity	
Crankcase heater mode	Pck	0.050	kW				
Other items							
Capacity control		multi-stage		For air-to-water heat pumps: Rated air flow rate, outdoors	-	---	m3/h
Sound power level				For water- or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	5.20 ~ 10.40	m3/h
indoors	Lwa	59	dB				
outdoors	Lwa	---	dB				
Annual energy consumption	QHE	16343.1	kWh				

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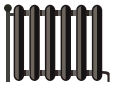
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WAMAK

TWW 85 WHR



55 °C

35 °C

A+++

A+++

A+++

A++

A+

A

B

C

D



59 dB



--- dB

■ 43
■ 41
■ 40
kW

■ 48
■ 47
■ 44
kW



2019

811/2013

TWW 85 WHR

ErP Data

	55 °C	35 °C
Energy class	A+++	A+++
η [%]	199.1	263.5
P_{rated} [kW]	41	47
Q_{HE} [kWh/y]	16344	14117
SCOP [-]	4.98	6.59
$T_{bivalent}$ [°C]	-7	-7

CONTROLLER



+ QAA55/75

class VII

3.5% ↓

- QAA55/75

class III

1.5% ↓

Heating performance data		Heat recovery		
Operating conditions		Qh	P	COP
W45 / W80		86.0	19.1	4.50
W30 / W70		63.9	15.8	4.05
W25 / W60		71.2	13.0	5.46

Version: v2024.010-TWW-WHR

ZR108KRE-TFD_R513A_2_WHR

Normative data: water - water application

Source - Water [10°C] / Low Temperature [35°C]

Operating conditions		Qh	P	COP
1	W10 / W30-35	46.1	7.9	5.87
2	W10 / W30-35 (MIN)	23.0	3.9	5.97
A	W10 / Wxx-34	46.4	7.7	6.01
B	W10 / Wxx-30	47.5	7.2	6.61
C	W10 / Wxx-27	48.3	6.8	7.21
D	W10 / Wxx-24	49.1	6.5	7.72
E	W10 / Wxx-35	46.1	7.9	5.87
F	W10 / Wxx-35	46.1	7.9	5.87

SCOP DATA EN 14825:2018	
Source - Water [10°C] / Low Temperature [35°C]	
SCOPon	6.75
SCOPnet	6.75
SCOP	6.59
η [%]	263.47
Label	A+++
Qh [kWh]	14116
Pdesignh [kW]	46.1
Tbivalent [°C]	-7.00

Source - Water [10°C] / Medium Temperature [55°C]

Operating conditions		Qh	P	COP
1	W10 / W47-55	40.2	11.5	3.49
2	W10 / W47-55 (MIN)	20.1	5.7	3.55
A	W10 / Wxx-52	42.0	10.6	3.95
B	W10 / Wxx-42	45.4	8.6	5.27
C	W10 / Wxx-36	47.0	7.8	6.14
D	W10 / Wxx-30	48.3	7.2	6.83
E	W10 / Wxx-55	40.2	11.5	3.49
F	W10 / Wxx-55	40.2	11.5	3.49

SCOP DATA EN 14825:2018	
Source - Water [10°C] / Medium Temperature [55°C]	
SCOPon	5.08
SCOPnet	5.08
SCOP	4.98
η [%]	199.08
Label	A+++
Qh [kWh]	16343
Pdesignh [kW]	40.2
Tbivalent [°C]	-7.00

Low temperature cooling W 12 / 7°C

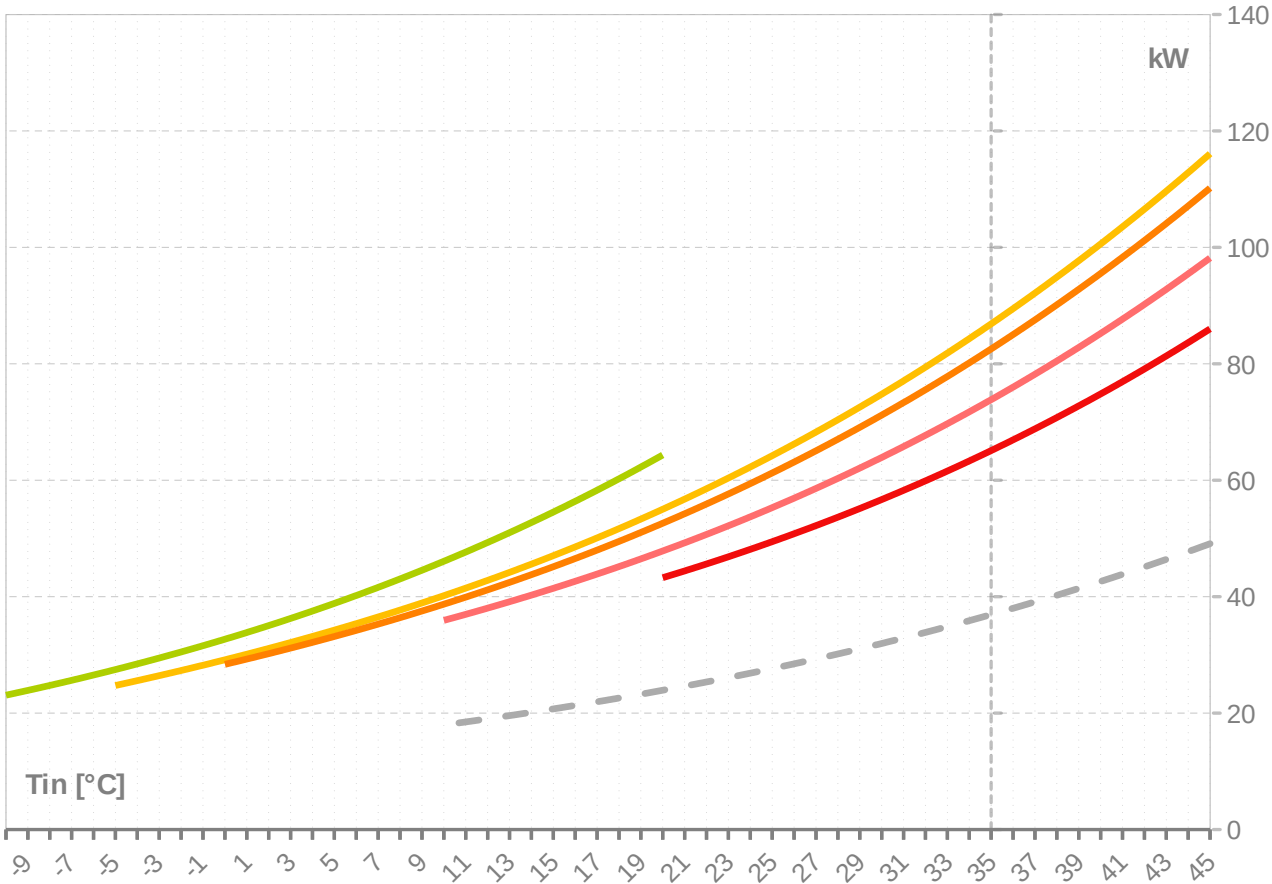
Operating conditions		Qc	P	EER	SEER DATA EN 14825:2018 [W 12 / 7°C]	
A	W30-35 / W12-7	24.3	8.3	2.94	SEERon	3.63
B	W26-xx / W12-7	25.6	7.7	3.34	SEER	3.53
C	W22-xx / W12-7	26.8	7.1	3.77	Qc [kWh]	13560
D	W18-xx / W12-7	27.4	6.9	3.99	η [%]	141.17

Radiant cooling W 23 / 18°C

Operating conditions		Qc	P	EER	SEER DATA EN 14825:2018 [W 23 / 18°C]	
A	W50-xx / W23-18	27.4	12.4	2.21	SEERon	5.49
B	W40-xx / W23-18	32.5	10.1	3.23	SEER	5.26
C	W30-35 / W23-18	37.1	8.3	4.49	Qc [kWh]	13560
D	W26-xx / W23-18	38.8	7.7	5.06	η [%]	210.28

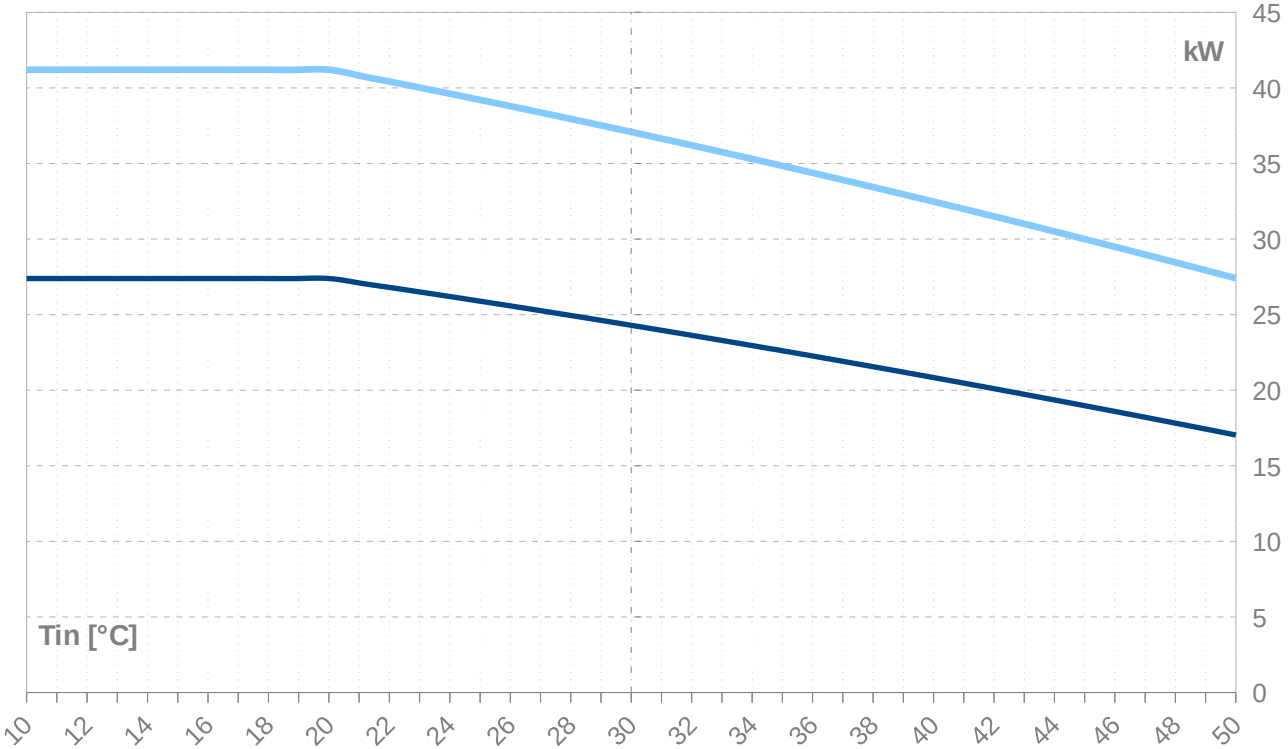
Performance lines - heating

Qh-nom-35 Qh-nom-55 Qh-nom-60 Qh-nom-70 Qh-nom-80
Qh-min-70



Performance lines - cooling

Qc-nom-12-7 Qc-nom-23-18



Th -OU	55										
°C]	Qh nom	Qh min	Qh max	Pin nom	Pin min	Pin max	COP nom	Qc nom	Qc min	Qc max	I nom
[°C]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	kW / kW	[kW]	[kW]	[kW]	[A]
45	116.1	58.0	116.1	12.3	6.0	12.3	9.48	104.7	52.4	104.7	22.6
44	112.8	56.4	112.8	12.2	6.0	12.2	9.23	101.5	50.8	101.5	22.5
43	109.7	54.8	109.7	12.2	6.0	12.2	8.99	98.4	49.2	98.4	22.5
42	106.6	53.3	106.6	12.2	6.0	12.2	8.76	95.3	47.6	95.3	22.5
41	103.5	51.8	103.5	12.1	6.0	12.1	8.53	92.3	46.1	92.3	22.5
40	100.6	50.3	100.6	12.1	6.0	12.1	8.30	89.3	44.7	89.3	22.4
39	97.7	48.9	97.7	12.1	5.9	12.1	8.08	86.5	43.2	86.5	22.4
38	94.9	47.4	94.9	12.1	5.9	12.1	7.86	83.7	41.8	83.7	22.4
37	92.1	46.1	92.1	12.0	5.9	12.0	7.65	81.0	40.5	81.0	22.4
36	89.5	44.7	89.5	12.0	5.9	12.0	7.45	78.3	39.2	78.3	22.3
35	86.9	43.4	86.9	12.0	5.9	12.0	7.24	75.7	37.9	75.7	22.3
34	84.3	42.2	84.3	12.0	5.9	12.0	7.05	73.2	36.6	73.2	22.3
33	81.8	40.9	81.8	11.9	5.9	11.9	6.85	70.8	35.4	70.8	22.3
32	79.4	39.7	79.4	11.9	5.9	11.9	6.66	68.4	34.2	68.4	22.2
31	77.1	38.5	77.1	11.9	5.8	11.9	6.48	66.0	33.0	66.0	22.2
30	74.8	37.4	74.8	11.9	5.8	11.9	6.30	63.8	31.9	63.8	22.2
29	72.6	36.3	72.6	11.9	5.8	11.9	6.12	61.6	30.8	61.6	22.2
28	70.4	35.2	70.4	11.8	5.8	11.8	5.95	59.4	29.7	59.4	22.2
27	68.3	34.1	68.3	11.8	5.8	11.8	5.78	57.3	28.7	57.3	22.1
26	66.2	33.1	66.2	11.8	5.8	11.8	5.62	55.3	27.6	55.3	22.1
25	64.2	32.1	64.2	11.8	5.8	11.8	5.45	53.3	26.6	53.3	22.1
24	62.3	31.1	62.3	11.8	5.8	11.8	5.30	51.4	25.7	51.4	22.1
23	60.4	30.2	60.4	11.7	5.8	11.7	5.15	49.5	24.7	49.5	22.0
22	58.5	29.3	58.5	11.7	5.8	11.7	5.00	47.7	23.8	47.7	22.0
21	56.7	28.4	56.7	11.7	5.7	11.7	4.85	45.9	23.0	45.9	22.0
20	55.0	27.5	55.0	11.7	5.7	11.7	4.71	44.2	22.1	44.2	22.0
19	53.3	26.7	53.3	11.7	5.7	11.7	4.57	42.5	21.3	42.5	22.0
18	51.7	25.8	51.7	11.6	5.7	11.6	4.44	40.9	20.4	40.9	21.9
17	50.1	25.0	50.1	11.6	5.7	11.6	4.31	39.3	19.7	39.3	21.9
16	48.5	24.3	48.5	11.6	5.7	11.6	4.18	37.8	18.9	37.8	21.9
15	47.0	23.5	47.0	11.6	5.7	11.6	4.06	36.3	18.1	36.3	21.9
14	45.6	22.8	45.6	11.6	5.7	11.6	3.94	34.8	17.4	34.8	21.9
13	44.2	22.1	44.2	11.6	5.7	11.6	3.82	33.4	16.7	33.4	21.8
12	42.8	21.4	42.8	11.5	5.7	11.5	3.71	32.1	16.0	32.1	21.8
11	41.5	20.7	41.5	11.5	5.7	11.5	3.60	30.8	15.4	30.8	21.8
10	40.2	20.1	40.2	11.5	5.7	11.5	3.49	29.5	14.7	29.5	21.8
9	38.9	19.5	38.9	11.5	5.7	11.5	3.38	28.2	14.1	28.2	21.8
8	37.7	18.8	37.7	11.5	5.6	11.5	3.28	27.0	13.5	27.0	21.8
7	36.5	18.3	36.5	11.5	5.6	11.5	3.18	25.9	12.9	25.9	21.7
6	35.4	17.7	35.4	11.5	5.6	11.5	3.09	24.7	12.4	24.7	21.7
5	34.2	17.1	34.2	11.4	5.6	11.4	2.99	23.6	11.8	23.6	21.7
4	33.2	16.6	33.2	11.4	5.6	11.4	2.90	22.6	11.3	22.6	21.7
3	32.1	16.1	32.1	11.4	5.6	11.4	2.81	21.5	10.8	21.5	21.7
2	31.1	15.6	31.1	11.4	5.6	11.4	2.73	20.5	10.3	20.5	21.7
1	30.1	15.1	30.1	11.4	5.6	11.4	2.64	19.5	9.8	19.5	21.7
0	29.2	14.6	29.2	11.4	5.6	11.4	2.56	18.6	9.3	18.6	21.7
-1	28.2	14.1	28.2	11.4	5.6	11.4	2.48	17.7	8.8	17.7	21.6
-2	27.3	13.7	27.3	11.4	5.6	11.4	2.40	16.8	8.4	16.8	21.6
-3	26.4	13.2	26.4	11.4	5.6	11.4	2.33	15.9	7.9	15.9	21.6
-4	25.6	12.8	25.6	11.3	5.6	11.3	2.25	15.0	7.5	15.0	21.6
-5	24.7	12.4	24.7	11.3	5.6	11.3	2.18	14.2	7.1	14.2	21.6

-- attention: operating limits not reflected in performance table

ZR108KRE-TFD_R513A_2_WHR

Th -OU	60										
[°C]	Qh nom	Qh min	Qh max	Pin nom	Pin min	Pin max	COP nom	Qc nom	Qc min	Qc max	I nom
[°C]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	kW / kW	[kW]	[kW]	[kW]	[A]
45	110.2	55.1	110.2	13.3	6.5	13.3	8.29	97.9	48.9	97.9	23.8
44	107.1	53.6	107.1	13.3	6.5	13.3	8.07	94.8	47.4	94.8	23.8
43	104.1	52.1	104.1	13.3	6.5	13.3	7.85	91.8	45.9	91.8	23.8
42	101.2	50.6	101.2	13.2	6.5	13.2	7.64	88.9	44.4	88.9	23.8
41	98.3	49.2	98.3	13.2	6.5	13.2	7.44	86.1	43.0	86.1	23.8
40	95.5	47.8	95.5	13.2	6.5	13.2	7.24	83.3	41.6	83.3	23.7
39	92.8	46.4	92.8	13.2	6.5	13.2	7.04	80.6	40.3	80.6	23.7
38	90.1	45.1	90.1	13.2	6.5	13.2	6.85	77.9	39.0	77.9	23.7
37	87.5	43.8	87.5	13.1	6.5	13.1	6.66	75.4	37.7	75.4	23.7
36	85.0	42.5	85.0	13.1	6.5	13.1	6.48	72.8	36.4	72.8	23.7
35	82.6	41.3	82.6	13.1	6.4	13.1	6.30	70.4	35.2	70.4	23.6
34	80.2	40.1	80.2	13.1	6.4	13.1	6.12	68.0	34.0	68.0	23.6
33	77.8	38.9	77.8	13.1	6.4	13.1	5.95	65.7	32.8	65.7	23.6
32	75.6	37.8	75.6	13.1	6.4	13.1	5.79	63.4	31.7	63.4	23.6
31	73.3	36.7	73.3	13.0	6.4	13.0	5.62	61.2	30.6	61.2	23.6
30	71.2	35.6	71.2	13.0	6.4	13.0	5.46	59.1	29.5	59.1	23.5
29	69.1	34.5	69.1	13.0	6.4	13.0	5.31	57.0	28.5	57.0	23.5
28	67.0	33.5	67.0	13.0	6.4	13.0	5.16	55.0	27.5	55.0	23.5
27	65.1	32.5	65.1	13.0	6.4	13.0	5.01	53.0	26.5	53.0	23.5
26	63.1	31.6	63.1	13.0	6.4	13.0	4.87	51.1	25.5	51.1	23.5
25	61.2	30.6	61.2	12.9	6.4	12.9	4.73	49.2	24.6	49.2	23.4
24	59.4	29.7	59.4	12.9	6.4	12.9	4.59	47.4	23.7	47.4	23.4
23	57.6	28.8	57.6	12.9	6.4	12.9	4.46	45.7	22.8	45.7	23.4
22	55.9	28.0	55.9	12.9	6.3	12.9	4.33	43.9	22.0	43.9	23.4
21	54.2	27.1	54.2	12.9	6.3	12.9	4.21	42.3	21.1	42.3	23.4
20	52.6	26.3	52.6	12.9	6.3	12.9	4.09	40.7	20.3	40.7	23.4
19	51.0	25.5	51.0	12.9	6.3	12.9	3.97	39.1	19.5	39.1	23.3
18	49.5	24.7	49.5	12.8	6.3	12.8	3.85	37.6	18.8	37.6	23.3
17	48.0	24.0	48.0	12.8	6.3	12.8	3.74	36.1	18.0	36.1	23.3
16	46.5	23.3	46.5	12.8	6.3	12.8	3.63	34.7	17.3	34.7	23.3
15	45.1	22.6	45.1	12.8	6.3	12.8	3.52	33.3	16.6	33.3	23.3
14	43.8	21.9	43.8	12.8	6.3	12.8	3.42	31.9	16.0	31.9	23.3
13	42.4	21.2	42.4	12.8	6.3	12.8	3.32	30.6	15.3	30.6	23.3
12	41.2	20.6	41.2	12.8	6.3	12.8	3.22	29.3	14.7	29.3	23.2
11	39.9	20.0	39.9	12.8	6.3	12.8	3.13	28.1	14.0	28.1	23.2
10	38.7	19.4	38.7	12.8	6.3	12.8	3.04	26.9	13.4	26.9	23.2
9	37.5	18.8	37.5	12.7	6.3	12.7	2.95	25.7	12.9	25.7	23.2
8	36.4	18.2	36.4	12.7	6.3	12.7	2.86	24.6	12.3	24.6	23.2
7	35.3	17.6	35.3	12.7	6.3	12.7	2.77	23.5	11.7	23.5	23.2
6	34.2	17.1	34.2	12.7	6.2	12.7	2.69	22.4	11.2	22.4	23.2
5	33.2	16.6	33.2	12.7	6.2	12.7	2.61	21.4	10.7	21.4	23.2
4	32.1	16.1	32.1	12.7	6.2	12.7	2.53	20.4	10.2	20.4	23.2
3	31.2	15.6	31.2	12.7	6.2	12.7	2.46	19.4	9.7	19.4	23.1
2	30.2	15.1	30.2	12.7	6.2	12.7	2.38	18.5	9.2	18.5	23.1
1	29.3	14.6	29.3	12.7	6.2	12.7	2.31	17.5	8.8	17.5	23.1
0	28.4	14.2	28.4	12.6	6.2	12.6	2.24	16.6	8.3	16.6	23.1
-1											
-2											
-3											
-4											
-5											

-- attention: operating limits not reflected in performance table

Th -OU	70										
	[°C]										
Ts -IN [°C]	Qh nom [kW]	Qh min [kW]	Qh max [kW]	Pin nom [kW]	Pin min [kW]	Pin max [kW]	COP nom kW / kW	Qc nom [kW]	Qc min [kW]	Qc max [kW]	I nom [A]
45	98.2	49.1	98.2	15.8	7.8	15.8	6.20	83.5	41.7	83.5	26.8
44	95.5	47.7	95.5	15.8	7.8	15.8	6.02	80.8	40.4	80.8	26.8
43	92.8	46.4	92.8	15.8	7.8	15.8	5.86	78.1	39.1	78.1	26.8
42	90.2	45.1	90.2	15.8	7.8	15.8	5.70	75.5	37.8	75.5	26.8
41	87.7	43.8	87.7	15.8	7.8	15.8	5.54	73.0	36.5	73.0	26.8
40	85.2	42.6	85.2	15.8	7.8	15.8	5.38	70.5	35.3	70.5	26.8
39	82.8	41.4	82.8	15.8	7.8	15.8	5.23	68.1	34.1	68.1	26.8
38	80.5	40.2	80.5	15.8	7.8	15.8	5.09	65.8	32.9	65.8	26.8
37	78.2	39.1	78.2	15.8	7.8	15.8	4.94	63.5	31.8	63.5	26.8
36	76.0	38.0	76.0	15.8	7.8	15.8	4.80	61.3	30.7	61.3	26.8
35	73.8	36.9	73.8	15.8	7.8	15.8	4.67	59.2	29.6	59.2	26.8
34	71.7	35.9	71.7	15.8	7.8	15.8	4.54	57.1	28.5	57.1	26.8
33	69.7	34.8	69.7	15.8	7.8	15.8	4.41	55.0	27.5	55.0	26.8
32	67.7	33.9	67.7	15.8	7.8	15.8	4.28	53.1	26.5	53.1	26.7
31	65.8	32.9	65.8	15.8	7.8	15.8	4.16	51.1	25.6	51.1	26.7
30	63.9	32.0	63.9	15.8	7.8	15.8	4.05	49.3	24.6	49.3	26.7
29	62.1	31.0	62.1	15.8	7.8	15.8	3.93	47.4	23.7	47.4	26.7
28	60.3	30.2	60.3	15.8	7.8	15.8	3.82	45.7	22.8	45.7	26.7
27	58.6	29.3	58.6	15.8	7.8	15.8	3.71	43.9	22.0	43.9	26.7
26	56.9	28.5	56.9	15.8	7.8	15.8	3.61	42.3	21.1	42.3	26.7
25	55.3	27.6	55.3	15.8	7.8	15.8	3.50	40.6	20.3	40.6	26.7
24	53.7	26.9	53.7	15.8	7.8	15.8	3.40	39.1	19.5	39.1	26.7
23	52.2	26.1	52.2	15.8	7.8	15.8	3.31	37.5	18.8	37.5	26.7
22	50.7	25.3	50.7	15.8	7.8	15.8	3.21	36.1	18.0	36.1	26.7
21	49.2	24.6	49.2	15.8	7.7	15.8	3.12	34.6	17.3	34.6	26.7
20	47.8	23.9	47.8	15.8	7.7	15.8	3.04	33.2	16.6	33.2	26.7
19	46.5	23.2	46.5	15.8	7.7	15.8	2.95	31.9	15.9	31.9	26.7
18	45.2	22.6	45.2	15.8	7.7	15.8	2.87	30.5	15.3	30.5	26.7
17	43.9	21.9	43.9	15.8	7.7	15.8	2.79	29.3	14.6	29.3	26.7
16	42.6	21.3	42.6	15.7	7.7	15.7	2.71	28.0	14.0	28.0	26.7
15	41.4	20.7	41.4	15.7	7.7	15.7	2.63	26.8	13.4	26.8	26.7
14	40.3	20.1	40.3	15.7	7.7	15.7	2.56	25.7	12.8	25.7	26.7
13	39.1	19.6	39.1	15.7	7.7	15.7	2.49	24.5	12.3	24.5	26.7
12	38.0	19.0	38.0	15.7	7.7	15.7	2.42	23.4	11.7	23.4	26.7
11	37.0	18.5	37.0	15.7	7.7	15.7	2.35	22.4	11.2	22.4	26.7
10	35.9	18.0	35.9	15.7	7.7	15.7	2.28	21.3	10.7	21.3	26.7
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-- attention: operating limits not reflected in performance table

Th -OU	80										
[°C]	Qh nom	Qh min	Qh max	Pin nom	Pin min	Pin max	COP nom	Qc nom	Qc min	Qc max	I nom
[°C]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	kW / kW	[kW]	[kW]	[kW]	[A]
45	86.0	43.0	86.0	19.1	9.4	19.1	4.50	68.3	34.1	68.3	30.5
44	83.7	41.8	83.7	19.1	9.4	19.1	4.37	65.9	33.0	65.9	30.5
43	81.4	40.7	81.4	19.1	9.4	19.1	4.25	63.6	31.8	63.6	30.5
42	79.1	39.6	79.1	19.2	9.4	19.2	4.13	61.3	30.7	61.3	30.5
41	76.9	38.5	76.9	19.2	9.4	19.2	4.01	59.2	29.6	59.2	30.5
40	74.8	37.4	74.8	19.2	9.4	19.2	3.90	57.0	28.5	57.0	30.5
39	72.8	36.4	72.8	19.2	9.4	19.2	3.79	55.0	27.5	55.0	30.6
38	70.8	35.4	70.8	19.2	9.4	19.2	3.68	52.9	26.5	52.9	30.6
37	68.8	34.4	68.8	19.2	9.5	19.2	3.58	51.0	25.5	51.0	30.6
36	66.9	33.5	66.9	19.2	9.5	19.2	3.48	49.1	24.5	49.1	30.6
35	65.1	32.5	65.1	19.3	9.5	19.3	3.38	47.2	23.6	47.2	30.6
34	63.3	31.7	63.3	19.3	9.5	19.3	3.29	45.4	22.7	45.4	30.6
33	61.6	30.8	61.6	19.3	9.5	19.3	3.19	43.7	21.8	43.7	30.6
32	59.9	29.9	59.9	19.3	9.5	19.3	3.11	42.0	21.0	42.0	30.6
31	58.3	29.1	58.3	19.3	9.5	19.3	3.02	40.4	20.2	40.4	30.7
30	56.7	28.3	56.7	19.3	9.5	19.3	2.94	38.8	19.4	38.8	30.7
29	55.1	27.6	55.1	19.3	9.5	19.3	2.85	37.2	18.6	37.2	30.7
28	53.6	26.8	53.6	19.3	9.5	19.3	2.78	35.7	17.9	35.7	30.7
27	52.2	26.1	52.2	19.3	9.5	19.3	2.70	34.3	17.1	34.3	30.7
26	50.8	25.4	50.8	19.3	9.5	19.3	2.63	32.9	16.4	32.9	30.7
25	49.4	24.7	49.4	19.4	9.5	19.4	2.55	31.5	15.7	31.5	30.7
24	48.1	24.1	48.1	19.4	9.5	19.4	2.49	30.2	15.1	30.2	30.8
23	46.8	23.4	46.8	19.4	9.5	19.4	2.42	28.9	14.4	28.9	30.8
22	45.6	22.8	45.6	19.4	9.5	19.4	2.35	27.6	13.8	27.6	30.8
21	44.4	22.2	44.4	19.4	9.5	19.4	2.29	26.4	13.2	26.4	30.8
20	43.3	21.6	43.3	19.4	9.5	19.4	2.23	25.3	12.6	25.3	30.8
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-- attention: operating limits not reflected in performance table

Tc -OU		W 12 / 7 °C									
Ts -IN	Qc nom	Qc min	Qc max	Pin nom	Pin min	Pin max	EER	Qh nom	Qh min	Qh max	I nom
[°C]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	kW / kW	[kW]	[kW]	[kW]	[A]
40	20.8	10.4	20.8	10.1	4.9	10.1	2.07	30.2	15.1	30.2	20.2
39	21.2	10.6	21.2	9.9	4.8	9.9	2.15	30.3	15.2	30.3	20.0
38	21.6	10.8	21.6	9.7	4.8	9.7	2.23	30.5	15.3	30.5	19.7
37	21.9	11.0	21.9	9.5	4.7	9.5	2.31	30.7	15.3	30.7	19.5
36	22.3	11.1	22.3	9.3	4.6	9.3	2.40	30.9	15.4	30.9	19.3
35	22.6	11.3	22.6	9.1	4.5	9.1	2.48	31.1	15.5	31.1	19.2
34	23.0	11.5	23.0	8.9	4.4	8.9	2.57	31.2	15.6	31.2	19.0
33	23.3	11.6	23.3	8.8	4.3	8.8	2.66	31.4	15.7	31.4	18.8
32	23.6	11.8	23.6	8.6	4.2	8.6	2.75	31.6	15.8	31.6	18.6
31	24.0	12.0	24.0	8.4	4.1	8.4	2.84	31.8	15.9	31.8	18.5
30	24.3	12.1	24.3	8.3	4.1	8.3	2.94	32.0	16.0	32.0	18.3
29	24.6	12.3	24.6	8.1	4.0	8.1	3.04	32.1	16.1	32.1	18.2
28	24.9	12.5	24.9	8.0	3.9	8.0	3.13	32.3	16.2	32.3	18.1
27	25.3	12.6	25.3	7.8	3.8	7.8	3.24	32.5	16.3	32.5	17.9
26	25.6	12.8	25.6	7.7	3.8	7.7	3.34	32.7	16.3	32.7	17.8
25	25.9	12.9	25.9	7.5	3.7	7.5	3.44	32.9	16.4	32.9	17.7
24	26.2	13.1	26.2	7.4	3.6	7.4	3.55	33.0	16.5	33.0	17.6
23	26.5	13.3	26.5	7.2	3.6	7.2	3.66	33.2	16.6	33.2	17.5
22	26.8	13.4	26.8	7.1	3.5	7.1	3.77	33.4	16.7	33.4	17.4
21	27.1	13.5	27.1	7.0	3.4	7.0	3.88	33.6	16.8	33.6	17.4
20	27.4	13.7	27.4	6.9	3.4	6.9	3.99	33.8	16.9	33.8	17.3

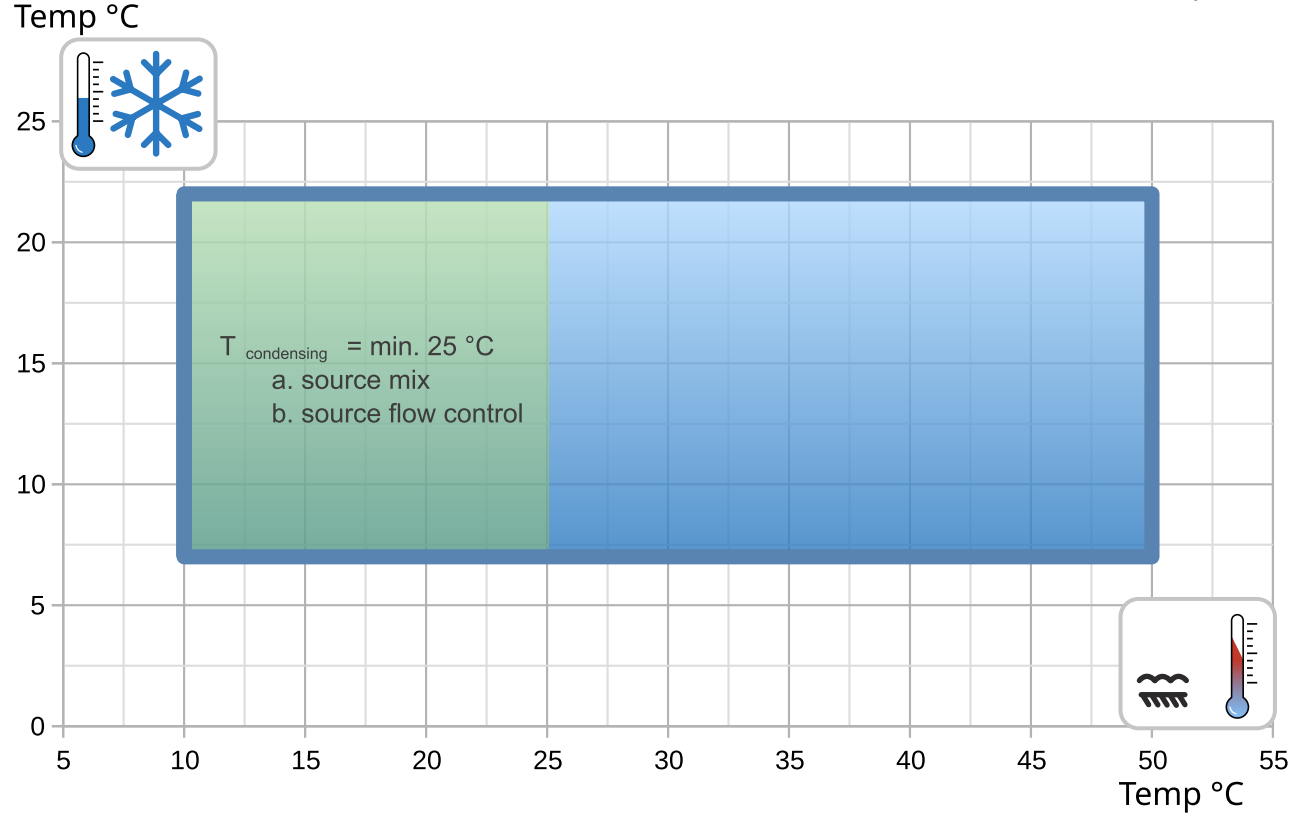
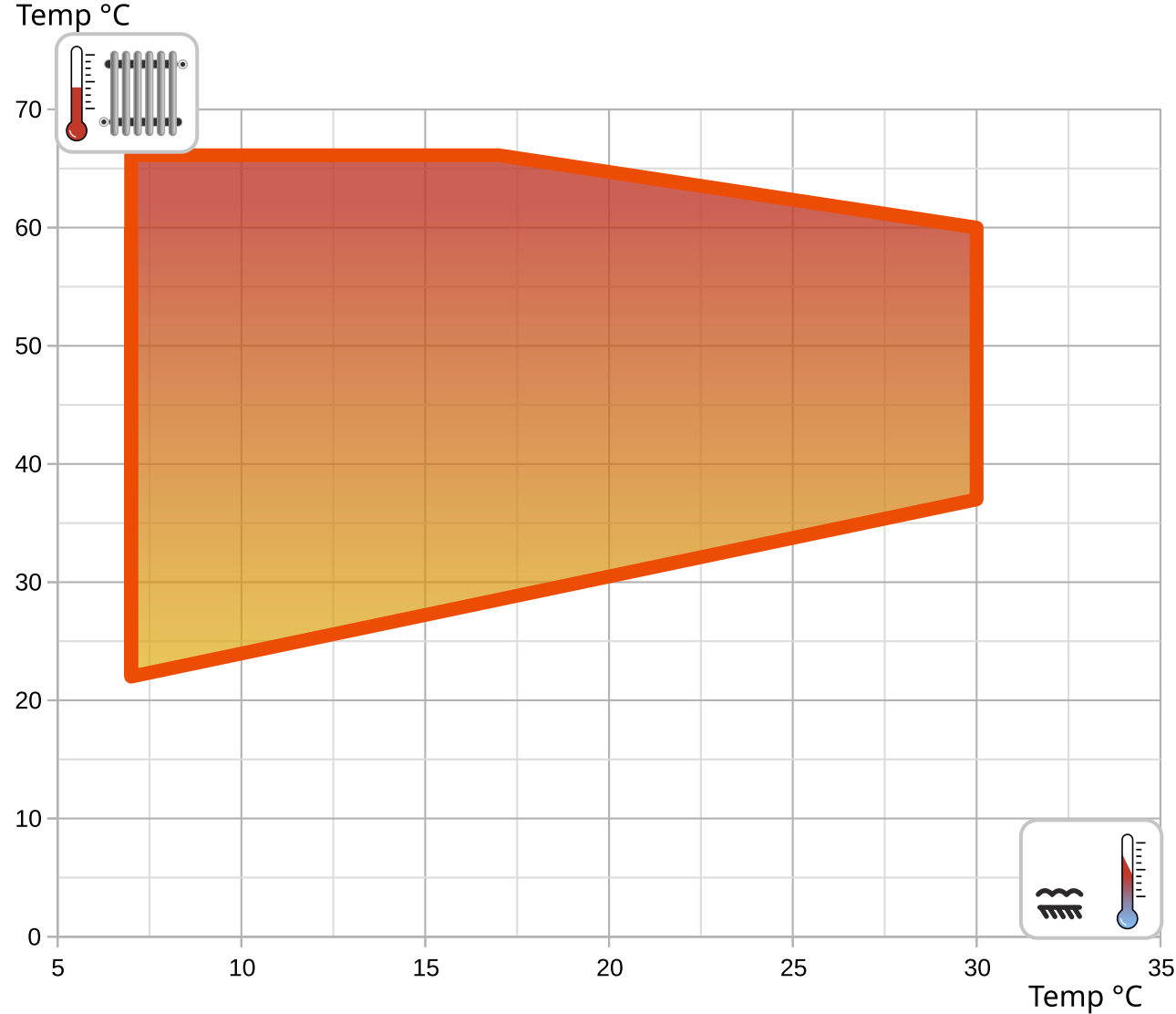
Tc [°C]		W 23 / 18 °C									
0	Qc nom	Qc min	Qc max	Pin nom	Pin min	Pin max	EER	Qh nom	Qh min	Qh max	I nom
[°C]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	kW / kW	[kW]	[kW]	[kW]	[A]
40	32.5	16.2	32.5	10.1	4.9	10.1	3.23	42.0	21.0	39.0	20.3
39	33.0	16.5	33.0	9.9	4.8	9.9	3.34	42.3	21.1	39.3	20.1
38	33.4	16.7	33.4	9.7	4.8	9.7	3.46	42.6	21.3	39.6	19.9
37	33.9	17.0	33.9	9.5	4.7	9.5	3.58	42.8	21.4	39.9	19.7
36	34.4	17.2	34.4	9.3	4.6	9.3	3.70	43.1	21.6	40.2	19.5
35	34.8	17.4	34.8	9.1	4.5	9.1	3.82	43.4	21.7	40.5	19.3
34	35.3	17.6	35.3	8.9	4.4	8.9	3.95	43.7	21.9	40.8	19.2
33	35.8	17.9	35.8	8.8	4.3	8.8	4.08	44.0	22.0	41.1	19.0
32	36.2	18.1	36.2	8.6	4.2	8.6	4.21	44.3	22.2	41.4	18.8
31	36.6	18.3	36.6	8.4	4.1	8.4	4.35	44.6	22.3	41.7	18.7
30	37.1	18.5	37.1	8.3	4.1	8.3	4.49	44.9	22.5	42.0	18.5
29	37.5	18.8	37.5	8.1	4.0	8.1	4.63	45.2	22.6	42.3	18.4
28	37.9	19.0	37.9	8.0	3.9	8.0	4.77	45.5	22.8	42.6	18.2
27	38.4	19.2	38.4	7.8	3.8	7.8	4.91	45.8	22.9	42.8	18.1
26	38.8	19.4	38.8	7.7	3.8	7.7	5.06	46.1	23.0	43.1	18.0
25	39.2	19.6	39.2	7.5	3.7	7.5	5.21	46.4	23.2	43.4	17.9
24	39.6	19.8	39.6	7.4	3.6	7.4	5.37	46.6	23.3	43.7	17.8
23	40.0	20.0	40.0	7.2	3.6	7.2	5.52	46.9	23.5	44.0	17.7
22	40.4	20.2	40.4	7.1	3.5	7.1	5.68	47.2	23.6	44.3	17.6
21	40.8	20.4	40.8	7.0	3.4	7.0	5.84	47.5	23.7	44.6	17.5
20	41.2	20.6	41.2	6.9	3.4	6.9	6.01	47.7	23.9	44.9	17.4

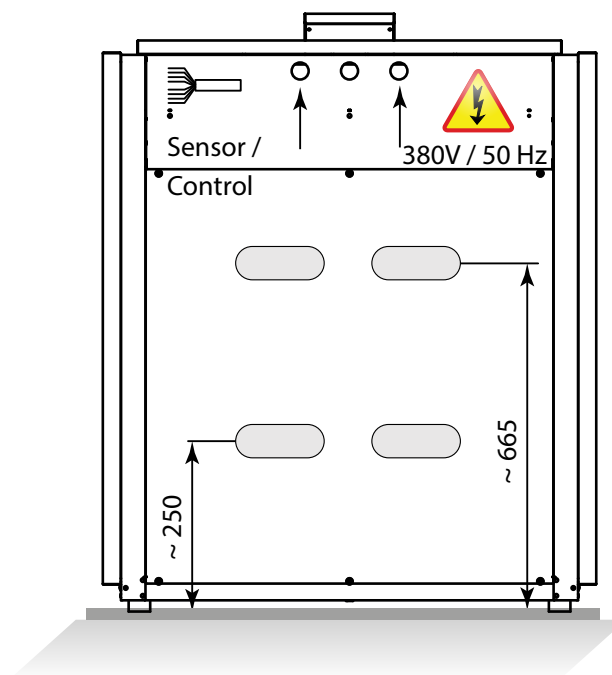
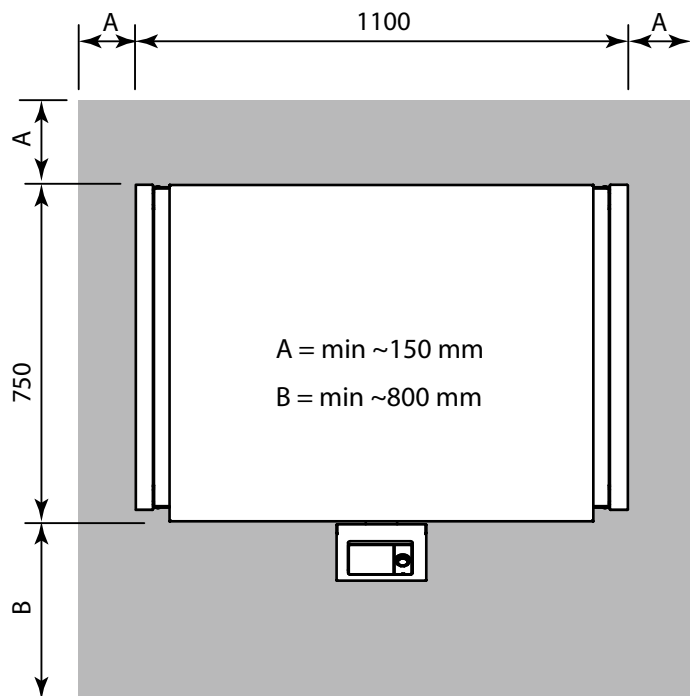
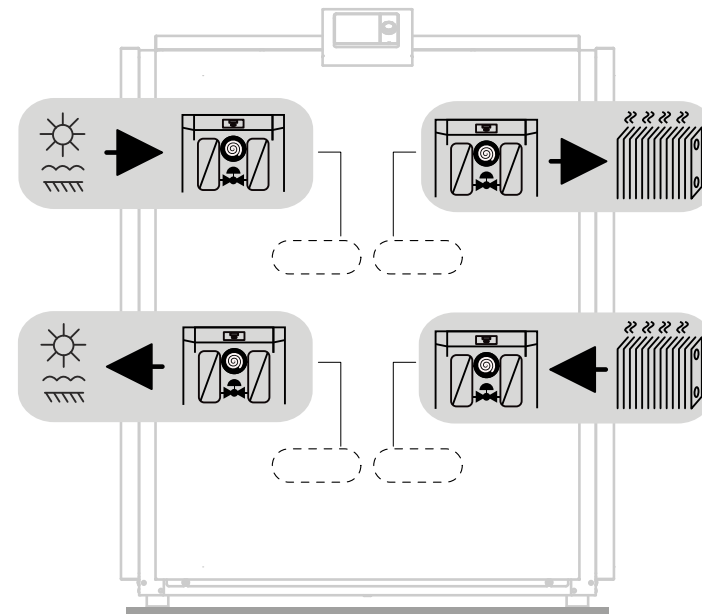
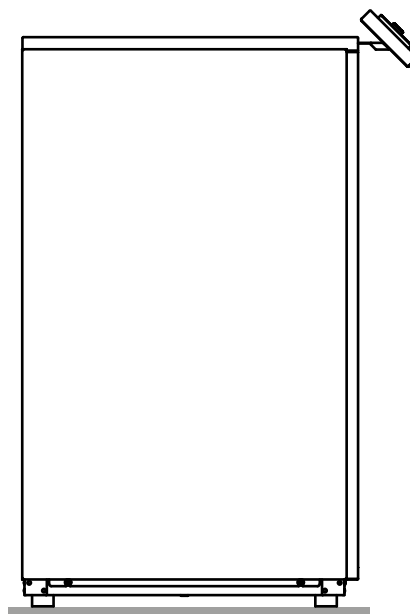
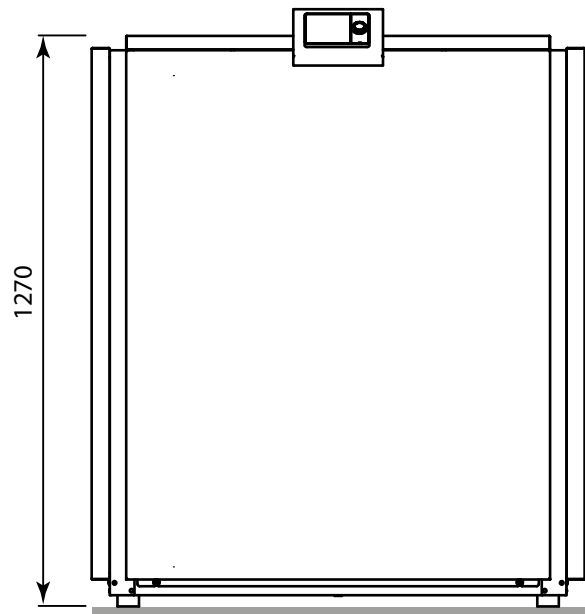
-- attention: operating limits not reflected in performance table

LEGEND:

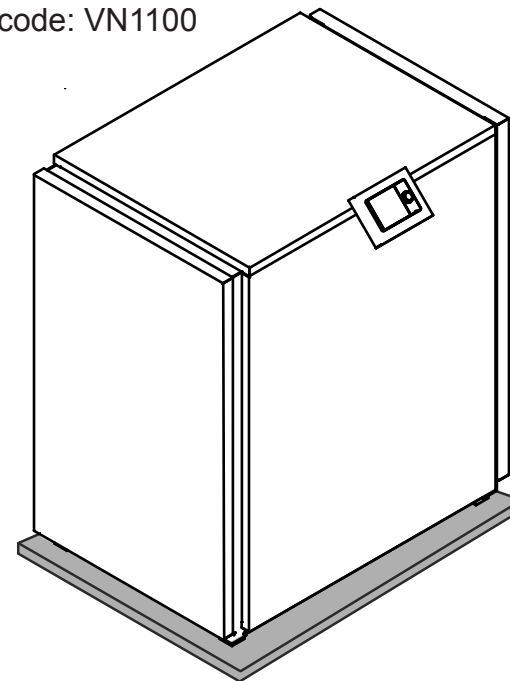
Ts-IN: Temperature renewable source - inlet [°C]
Th-OU: Temperature heating - outlet (flow) [°C]
Tc-OU: Temperature cooling - outlet (flow) [°C]
Qh nom: Heating capacity nominal
Qh min: Heating capacity minimal
Qh max: Heating capacity maximal
Pin nom: Power input at nominal heating capacity
Pin min: 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

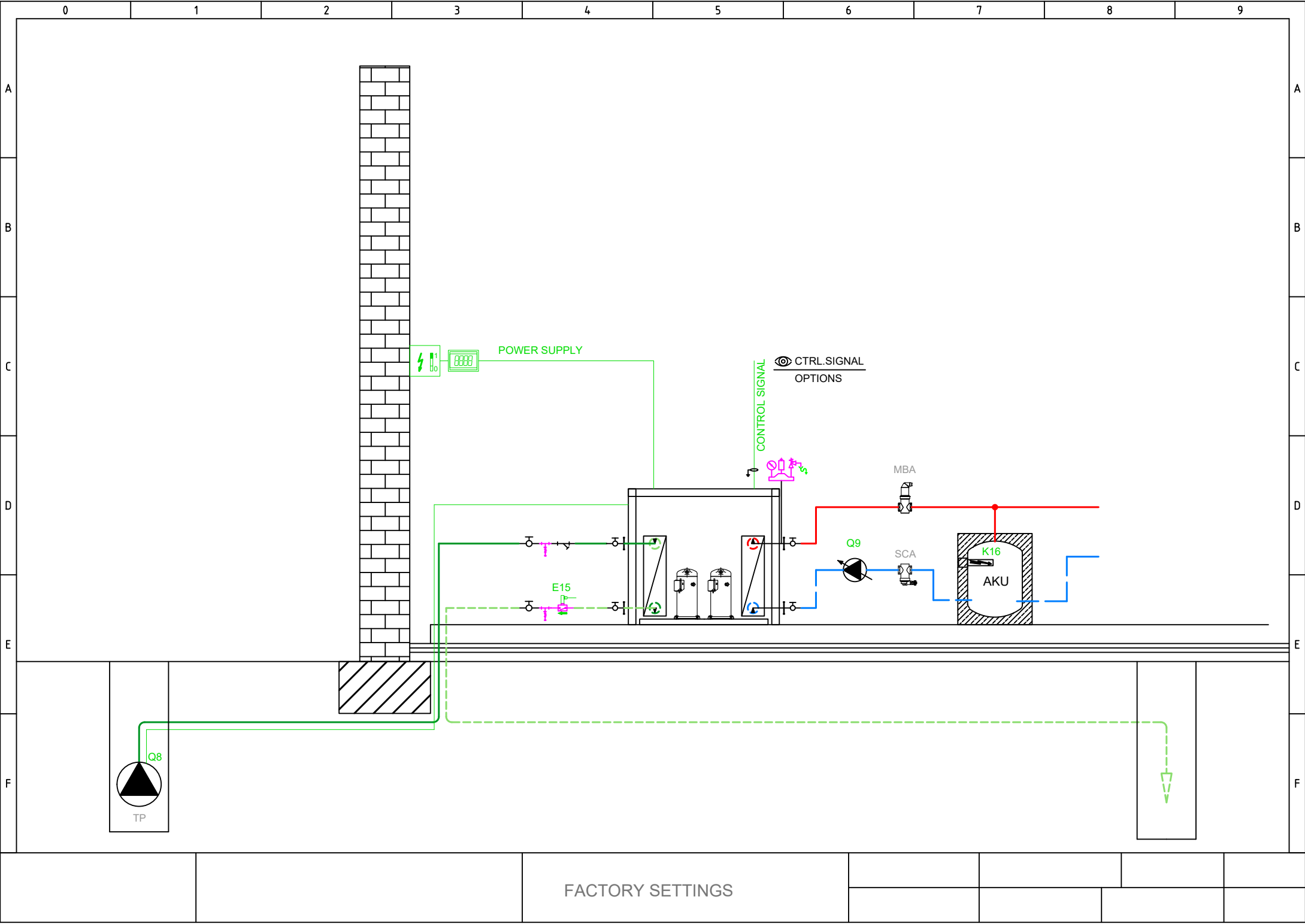
Operating limits



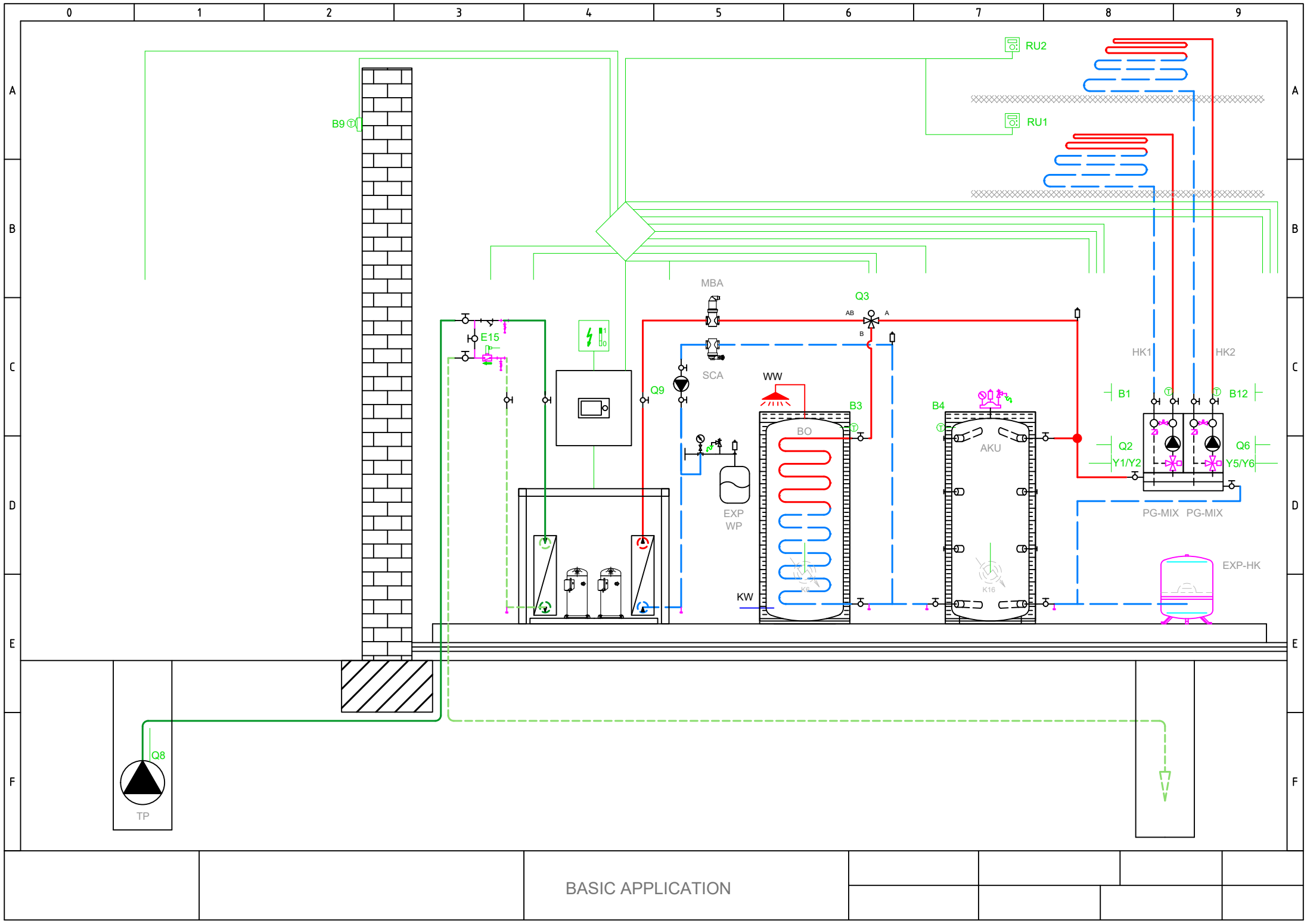


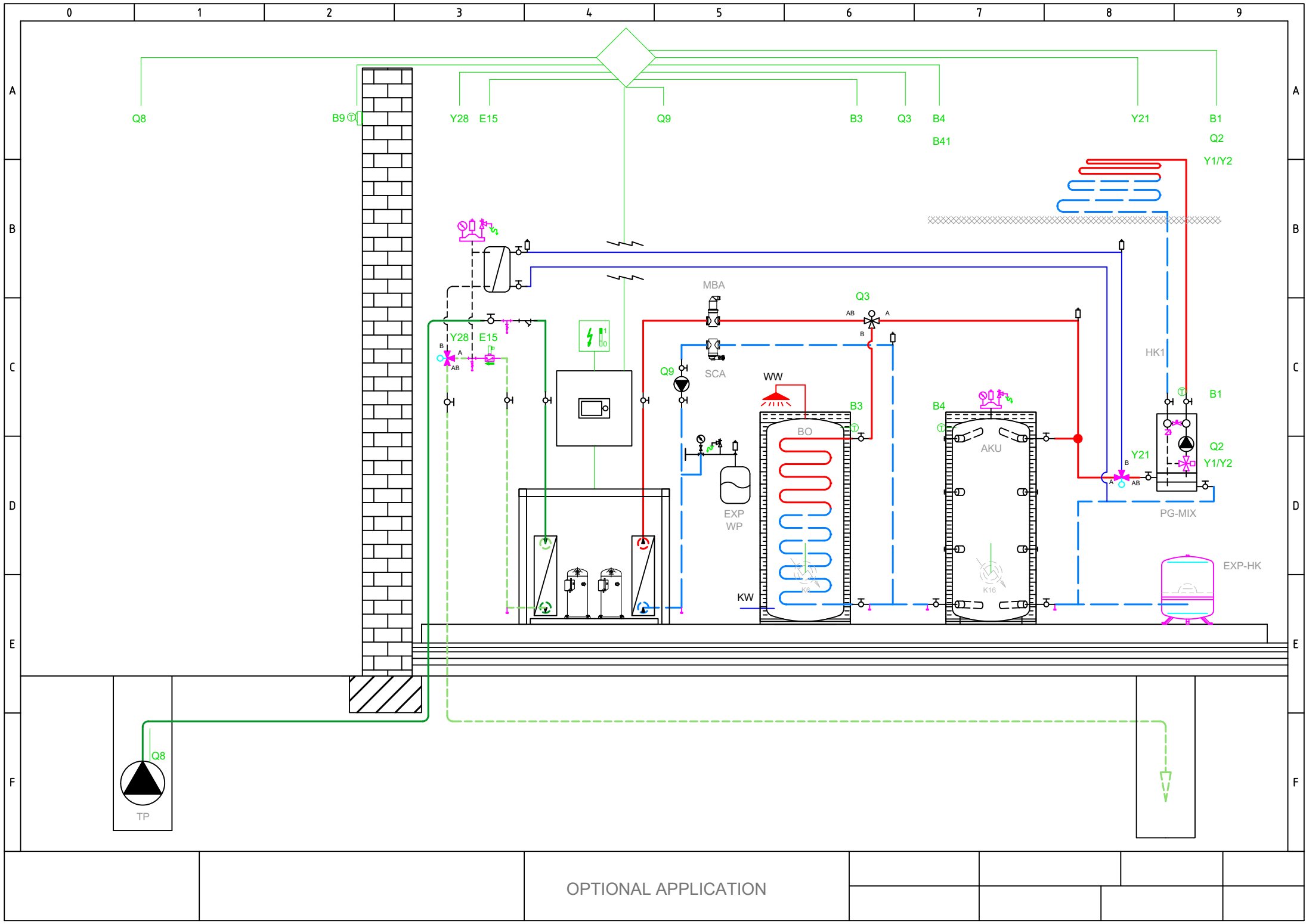
int. code: VN1100





FACTORY SETTINGS





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

Main power supply 230V / 50 Hz
Ground
Neutral conductor

E9 Low-pressure switch E9

E10 High-pressure switch E10

E15 Flow switch source E15

E24 Flow switch consumers E24

E6 Electrical utility lock E6

E12 Overload compressor 2 E12

E21 Mains supervision E21

E22 Mains supervision E22

E23 Mains supervision E23

E11 Overload compressor 1 E11

K1 Compressor stage 1 K1

Q8 Source pump Q8

Q9 Condenser pump Q9

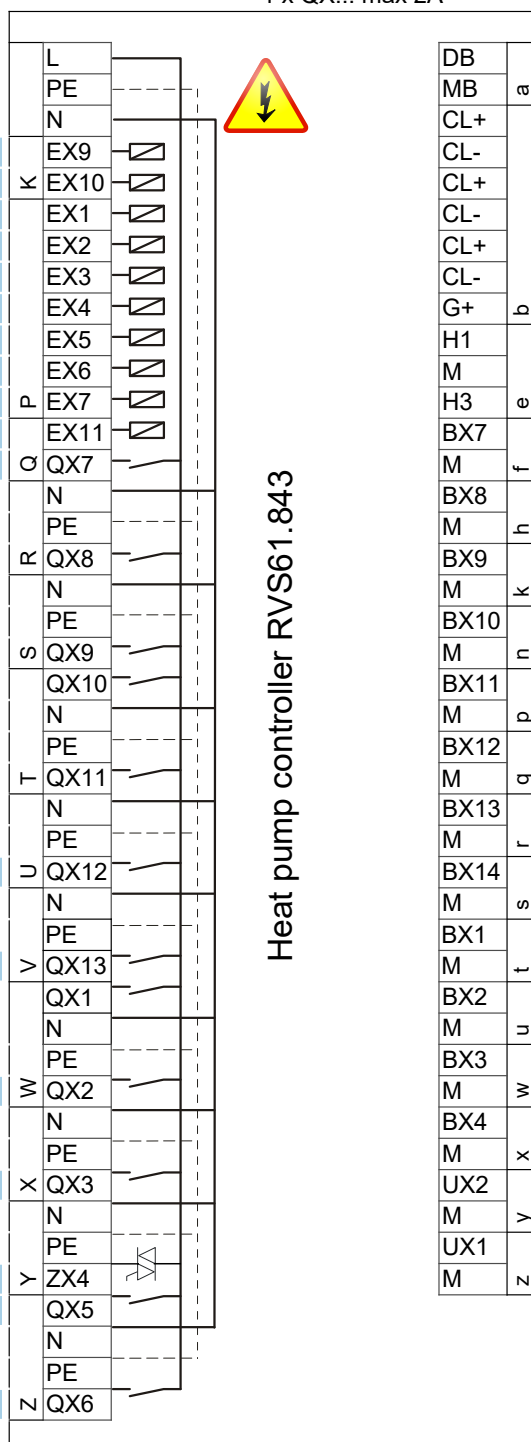
K10 Alarm output K10

K40 Crankcase heater K40

K81 Valve evaporator K81

K82 Valve EVI K82

K2 Compressor stage 2 K2



LPB Bus data

LPB Bus GND

Room unit QAA...

Room unit QAA...

Room unit QAA... 2.

Room unit QAA... 2.

Room unit QAA... 3.

Room unit QAA... 3.

12V supply → OUT

Consumer request VK1

B81 Hot-gas sensor K1 B81

B21 HP flow sensor B21

B71 HP return sensor B71

B91 Source inlet sensor B91

B84 Source outl sens B92/B84

B83 Refrig sensor liquid B83

B82 Hot-gas sensor K2 B82

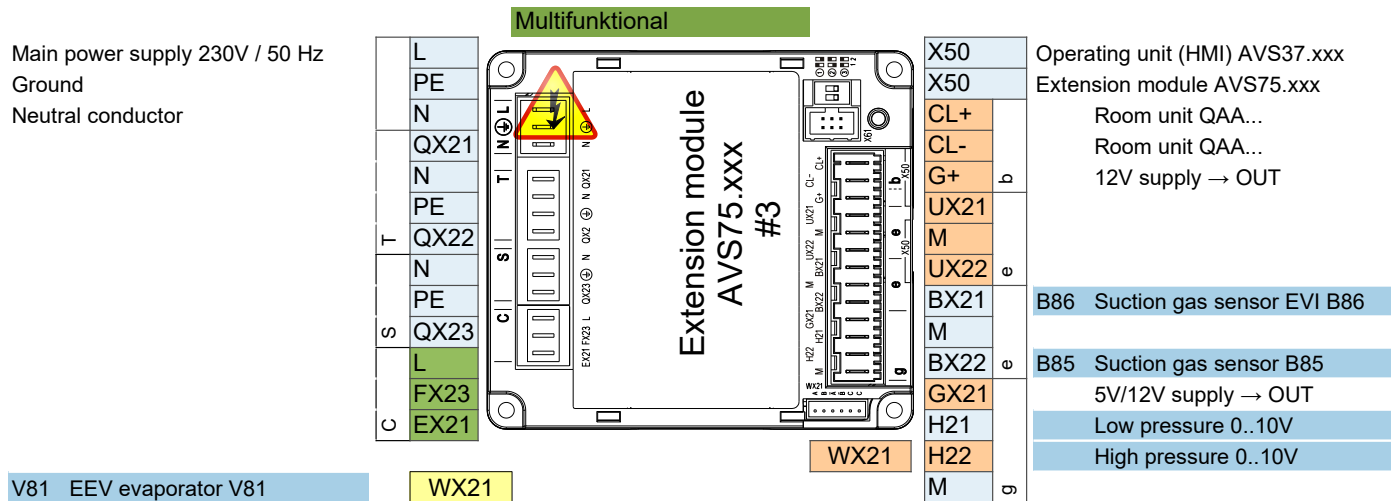
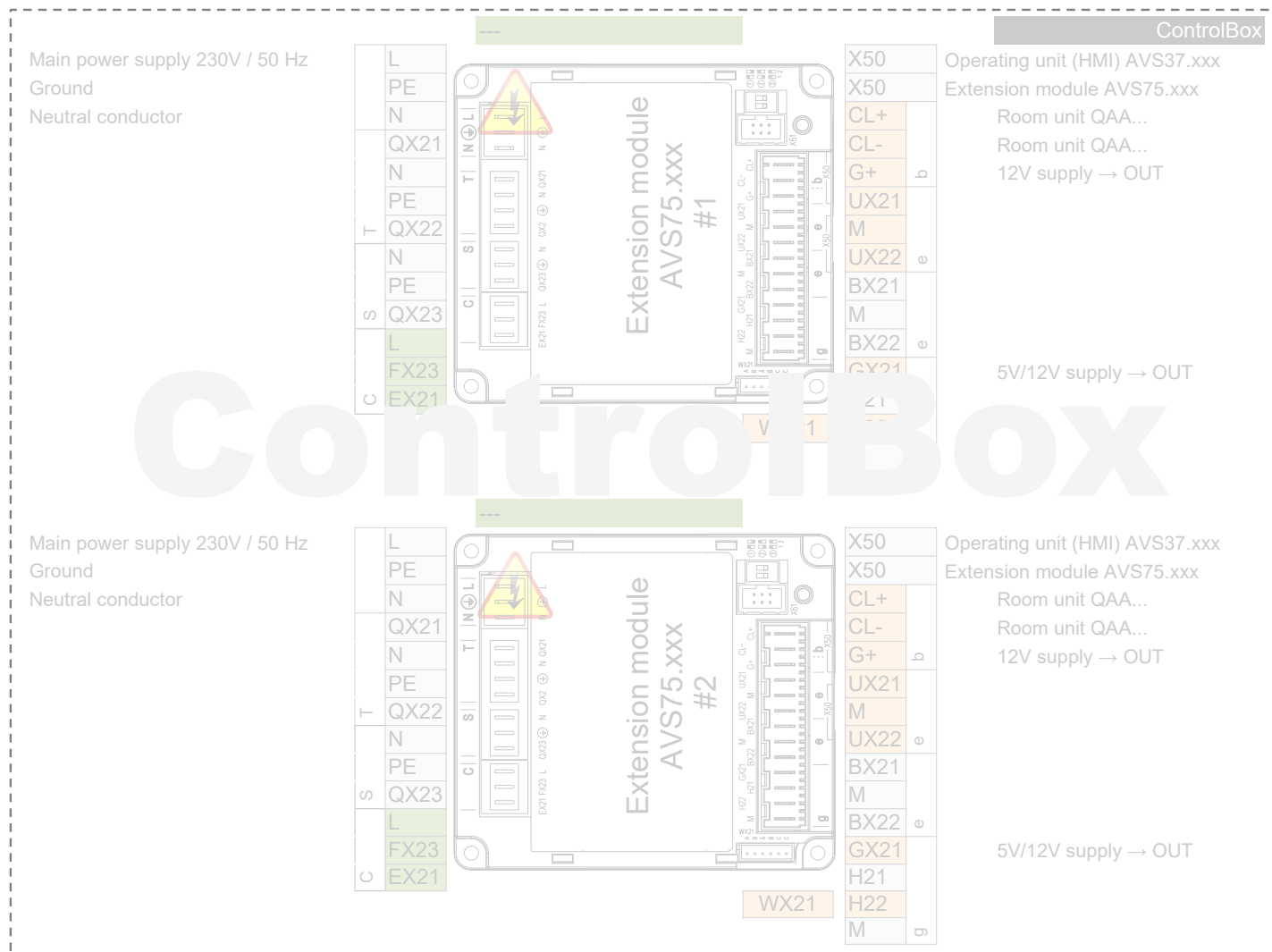
Condenser pump Q9

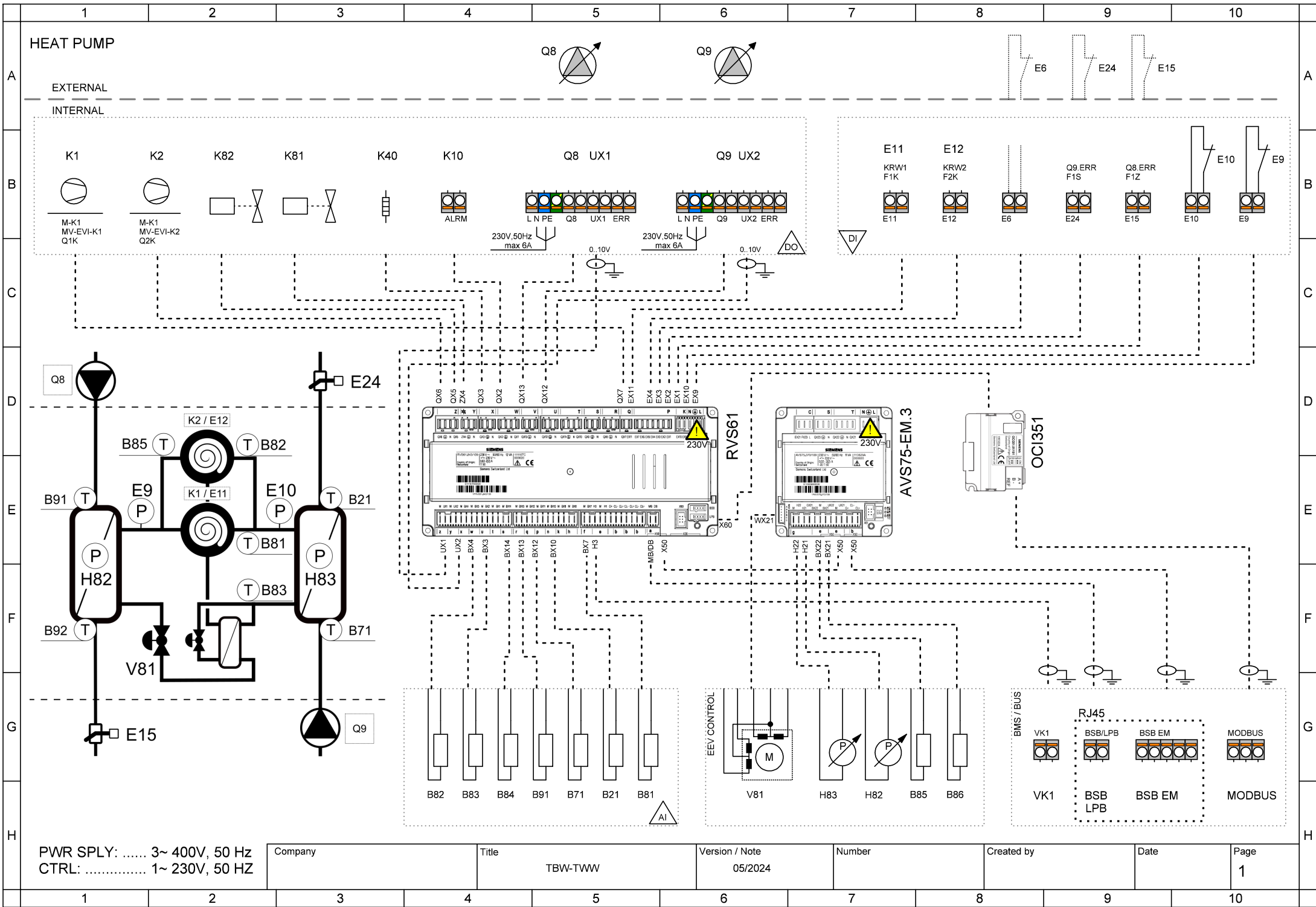
0..10 V Signal

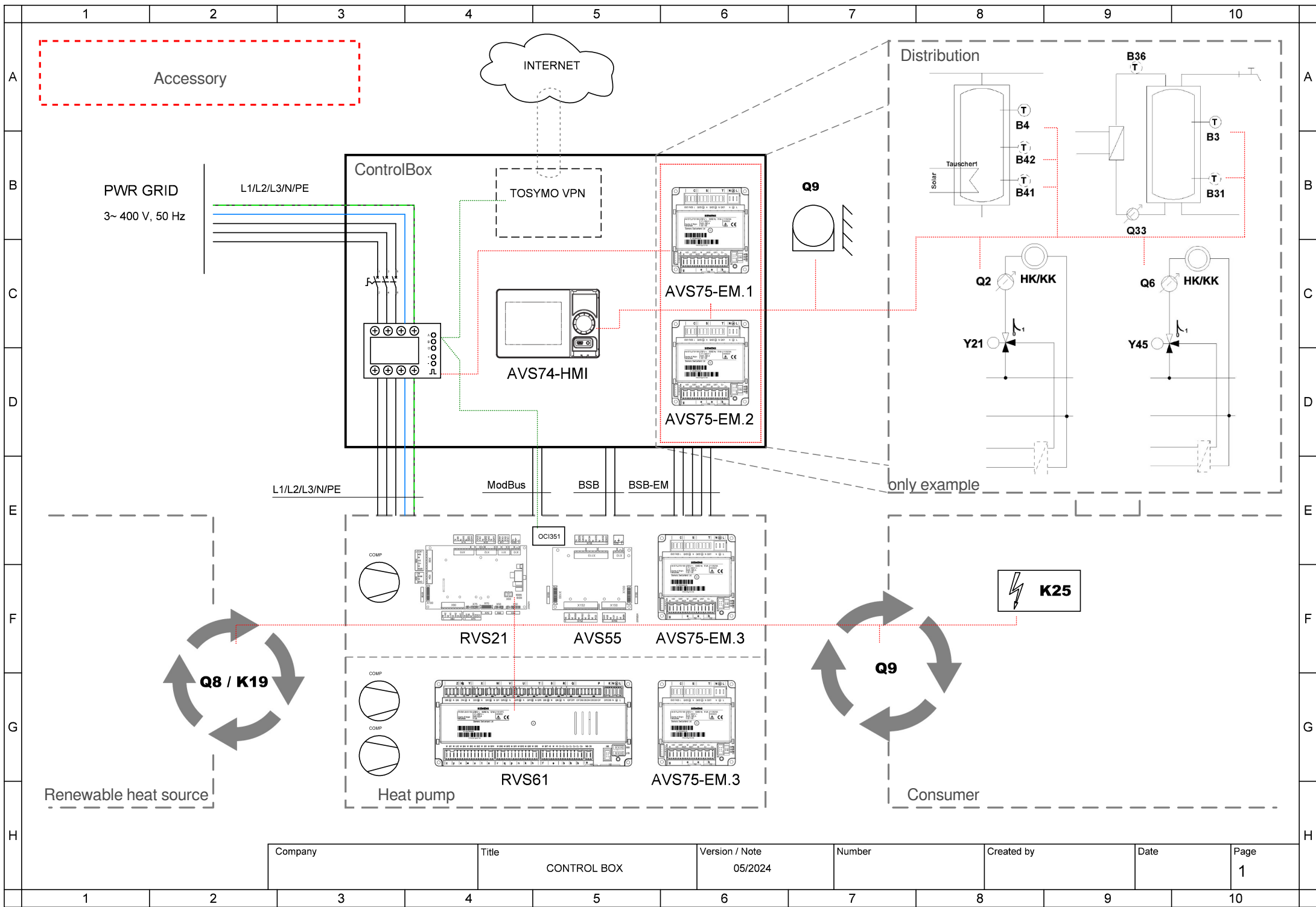
Source pump Q8

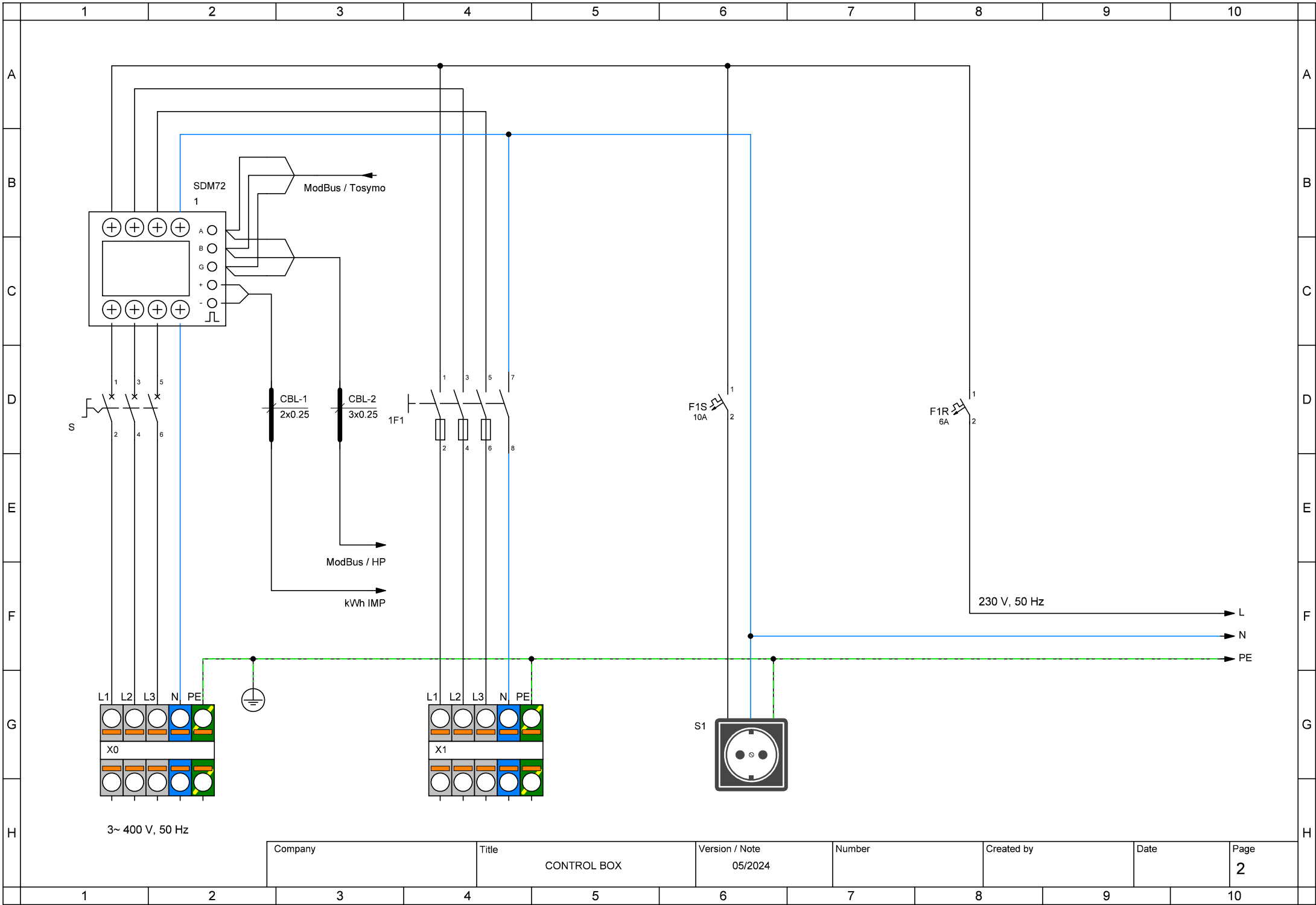
0..10 V Signal

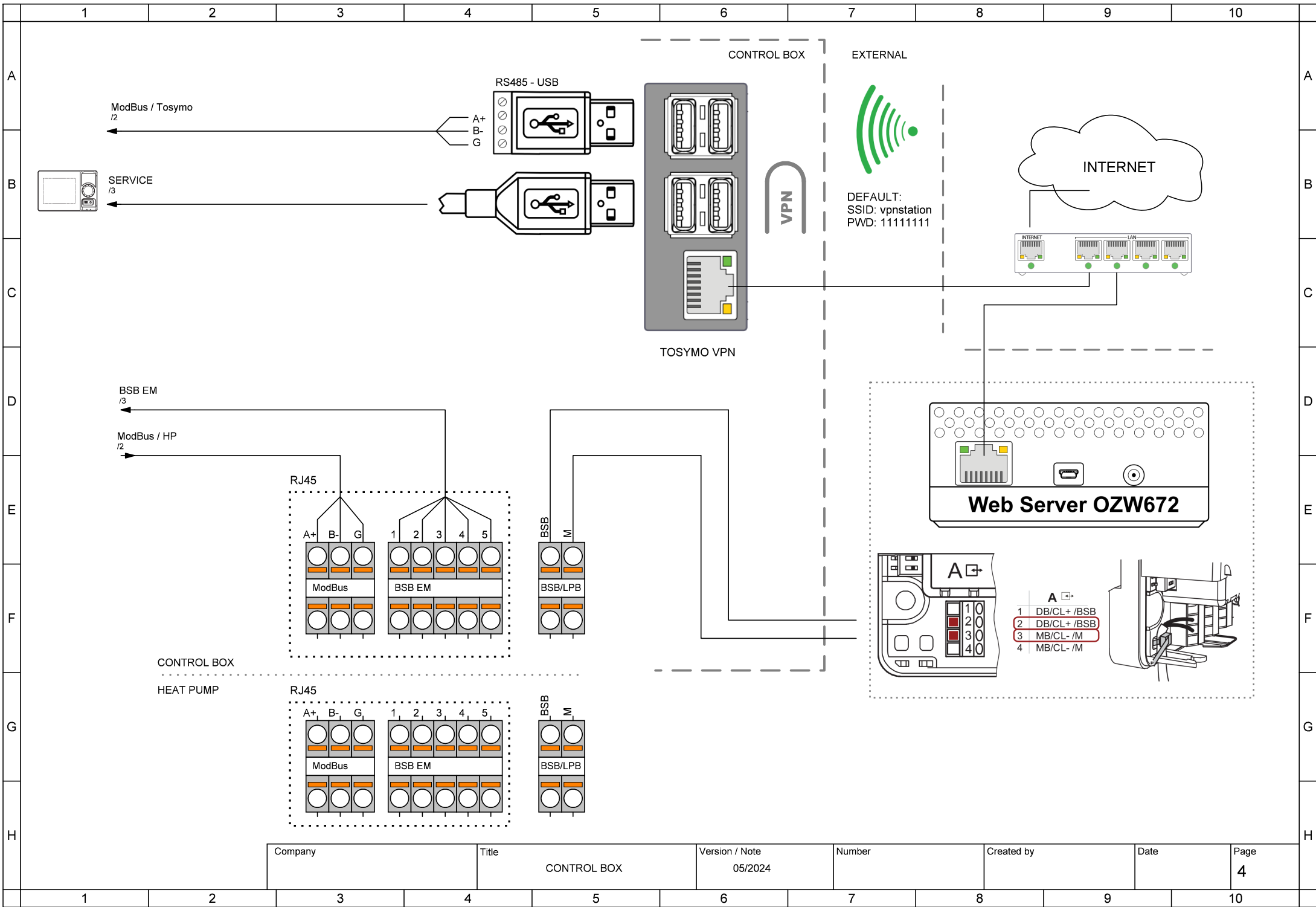
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	AVS75.391
	AVS75.370

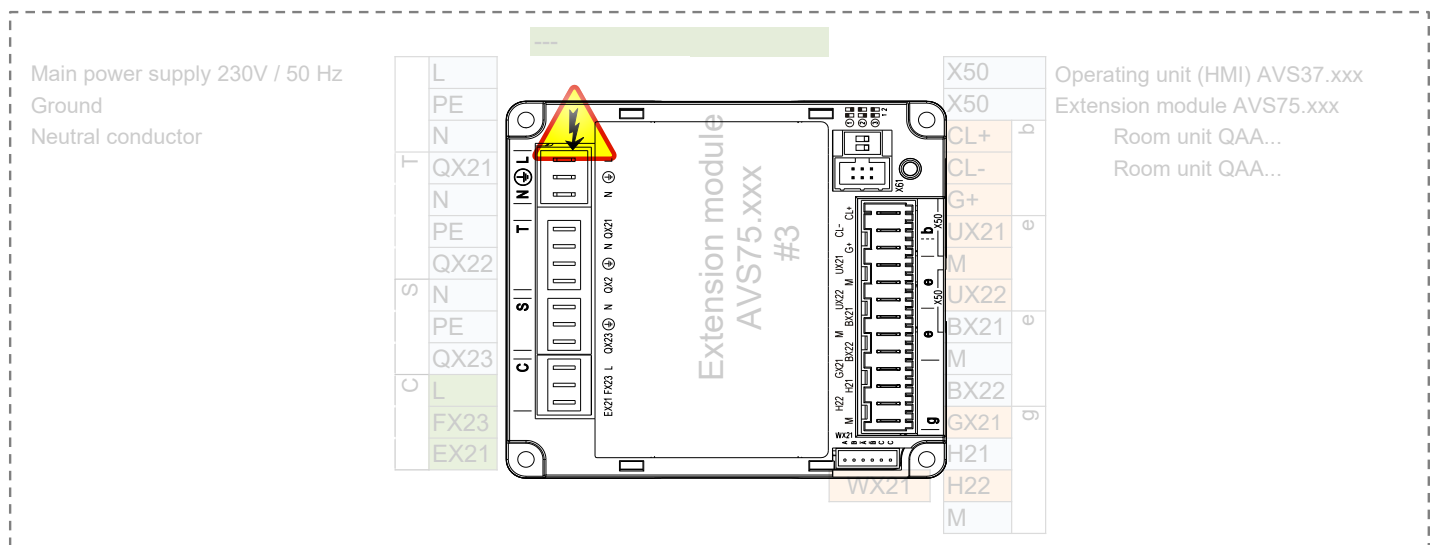
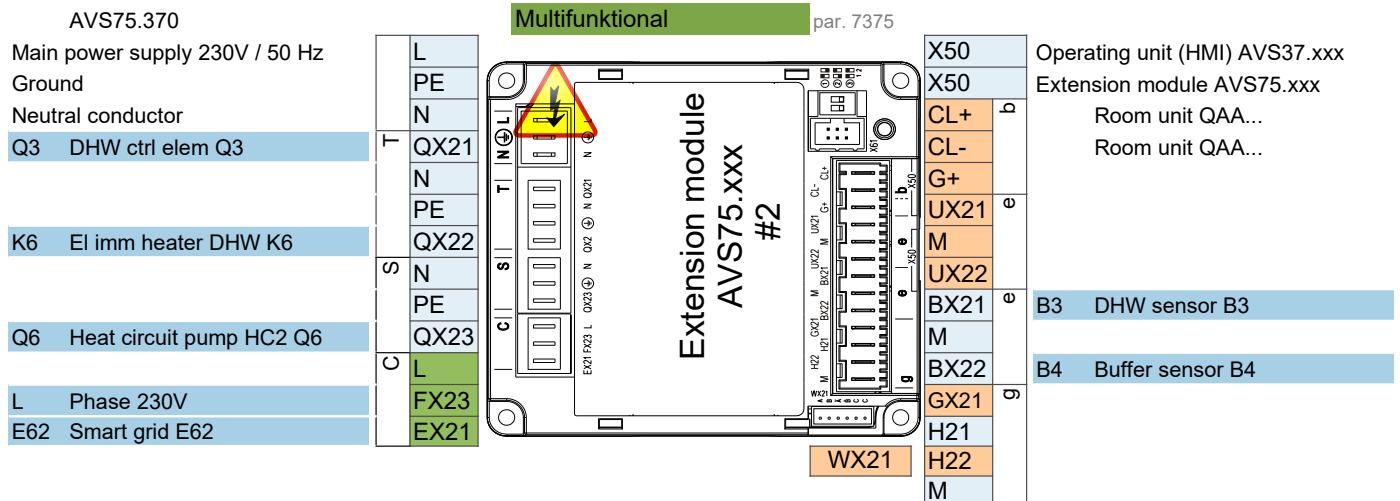
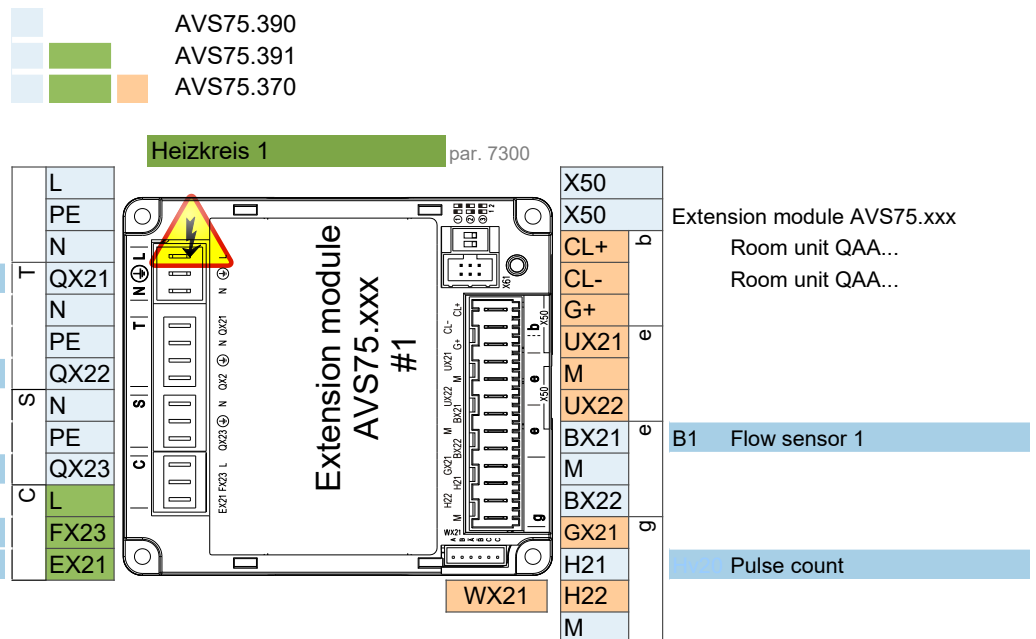












Attention: Extension module 3 is inside the heat pump

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