

Basic performance data - WAMAK TWW 110 WHR

Heating - EN 14511		
Heating capacity [kW]	W10 / W35 (max)	60.7 (30.4 / 60.7)
	W10 / W35 (min)	30.4 (30.4 / 60.7)
	W10 / W34	61.1 (30.5 / 61.1)
Electrical power input [kW]	W10 / W35 (max)	10.3 (5.1 / 10.3)
	W10 / W35 (min)	5.1 (5.1 / 10.3)
	W10 / W34	10.1 (5.0 / 10.1)
Heating efficiency faktor [COP]	W10 / W35 (max)	5.89
	W10 / W35 (min)	6.00
	W10 / W34	6.04
Seasonal space heating energy efficiency - SCOP EN 14825		
Average Climate / Low Temperature [35 °C]	SCOP	6.66
	η [%]	266.5
	Label	A+++
	Qhe [kWh]	18475.0
	Pdesignh [kW]	60.7
	Tbivalent [°C]	-7
Cooling		
Cooling capacity - [kW]	A35 / W23-18	46.0
	A25 / W23-18	51.7
	A35 / W12-7	29.9
	A25 / W12-7	29.9
Seasonal space cooling energy efficiency - SEER EN 14825		
[W 23 / 18 °C]	SEER	5.30
	Qce [kWh]	17940.0
	η_c [%]	212.1
Sound EN 12102		
Acoustic power - Lw	dB(A)	61.6
Acoustic pressure - Lp	1 m dB(A)	53.6
	5 m dB(A)	39.6
	10 m dB(A)	33.6
Mechanical and operational information		
Compressor type (3~ 400/50)	SCROLL / 2 /	On/Off
Refrigerant	R513A (GWP - 631)	11.2 kg
Operating limit temperatures heating - (min / max) [°C]	45 / 85	
Operating limit temperatures source - (min / max) [°C]	-10 / 50	
Weight	490 kg	

WAMAK TWW 110 WHR

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

Model	TWW 110 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	60.7	kW	Seasonal space heating energy efficiency	ηs	266.5	%
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	61.1	kW	Tj = -7 °C	COPd	6.04	-
Tj = +2 °C	Pdh	62.6	kW	Tj = +2 °C	COPd	6.6	-
Tj = +7 °C	Pdh	63.6	kW	Tj = +7 °C	COPd	7.3	-
Tj = +12 °C	Pdh	64.6	kW	Tj = +12 °C	COPd	7.8	-
Tj = bivalent temperature	Pdh	60.7	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	11.5	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	-	6.84 ~ 13.69	m3/h
indoors	Lwa	62	dB				
outdoors	Lwa	---	dB				
Annual energy consumption	QHE	18475.0	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 110 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	53.0	kW	Seasonal space heating energy efficiency	ηs	201.0	%
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	55.4	kW	Tj = -7 °C	COPd	3.97	-
Tj = +2 °C	Pdh	59.8	kW	Tj = +2 °C	COPd	5.3	-
Tj = +7 °C	Pdh	61.9	kW	Tj = +7 °C	COPd	6.2	-
Tj = +12 °C	Pdh	63.6	kW	Tj = +12 °C	COPd	6.9	-
Tj = bivalent temperature	Pdh	53.0	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	11.5	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	-	6.84 ~ 13.69	m3/h
indoors	Lwa	62	dB				
outdoors	Lwa	---	dB				
Annual energy consumption	QHE	21444.7	kWh				

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ENERG

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WAMAK

TWW 110 WHR



55 °C

35 °C

A+++

A+++

A+++

A++

A+

A

B

C

D



62 dB



--- dB

■ 56
■ 53
■ 52
kW

■ 62
■ 61
■ 58
kW



2019

811/2013

TWW 110 WHR

ErP Data

	55 °C	35 °C
Energy class	A+++	A+++
η [%]	201.0	266.5
P_{rated} [kW]	53	61
Q_{HE} [kWh/y]	21445	18475
SCOP [-]	5.03	6.66
$T_{bivalent}$ [°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		113.2	25.3	4.47
W30 / W70		84.1	20.8	4.04
W25 / W60		93.6	17.2	5.45

Version: v2024.010-TWW-WHR

ZR144KRE-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	60.7	10.3	5.89
2	W10 / W30-35 (MIN)	30.4	5.1	6.00
A	W10 / Wxx-34	61.1	10.1	6.04
B	W10 / Wxx-30	62.6	9.4	6.65
C	W10 / Wxx-27	63.6	8.9	7.26
D	W10 / Wxx-24	64.6	8.4	7.79
E	W10 / Wxx-35	60.7	10.3	5.89
F	W10 / Wxx-35	60.7	10.3	5.89

SCOP DATA EN 14825:2018	
Source - Water [10°C] / Low Temperature [35°C]	
SCOPon	6.79
SCOPnet	6.79
SCOP	6.66
η [%]	266.54
Label	A+++
Qh [kWh]	18475
Pdesignh [kW]	60.7
Tbivalent [°C]	-7.00

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

Operating conditions		Qh	P	COP
1	W10 / W47-55	53.0	15.1	3.50
2	W10 / W47-55 (MIN)	26.5	7.4	3.56
A	W10 / Wxx-52	55.4	14.0	3.97
B	W10 / Wxx-42	59.8	11.3	5.29
C	W10 / Wxx-36	61.9	10.2	6.16
D	W10 / Wxx-30	63.6	9.4	6.87
E	W10 / Wxx-55	53.0	15.1	3.50
F	W10 / Wxx-55	53.0	15.1	3.50

SCOP DATA EN 14825:2018	
Source - Water [10°C] / Medium Temperature [55°C]	
SCOPon	5.11
SCOPnet	5.11
SCOP	5.03
η [%]	201.01
Label	A+++
Qh [kWh]	21445
Pdesignh [kW]	53.0
Tbivalent [°C]	-7.00

Low temperature cooling W 12 / 7°C

Operating conditions		Qc	P	EER
A	W30-35 / W12-7	32.2	10.9	2.95
B	W26-xx / W12-7	33.9	10.1	3.35
C	W22-xx / W12-7	35.5	9.4	3.77
D	W18-xx / W12-7	36.3	9.1	4.00

SEER DATA EN 14825:2018 [W 12 / 7°C]	
SEERon	3.64
SEER	3.56
Qc [kWh]	17940
η [%]	142.41

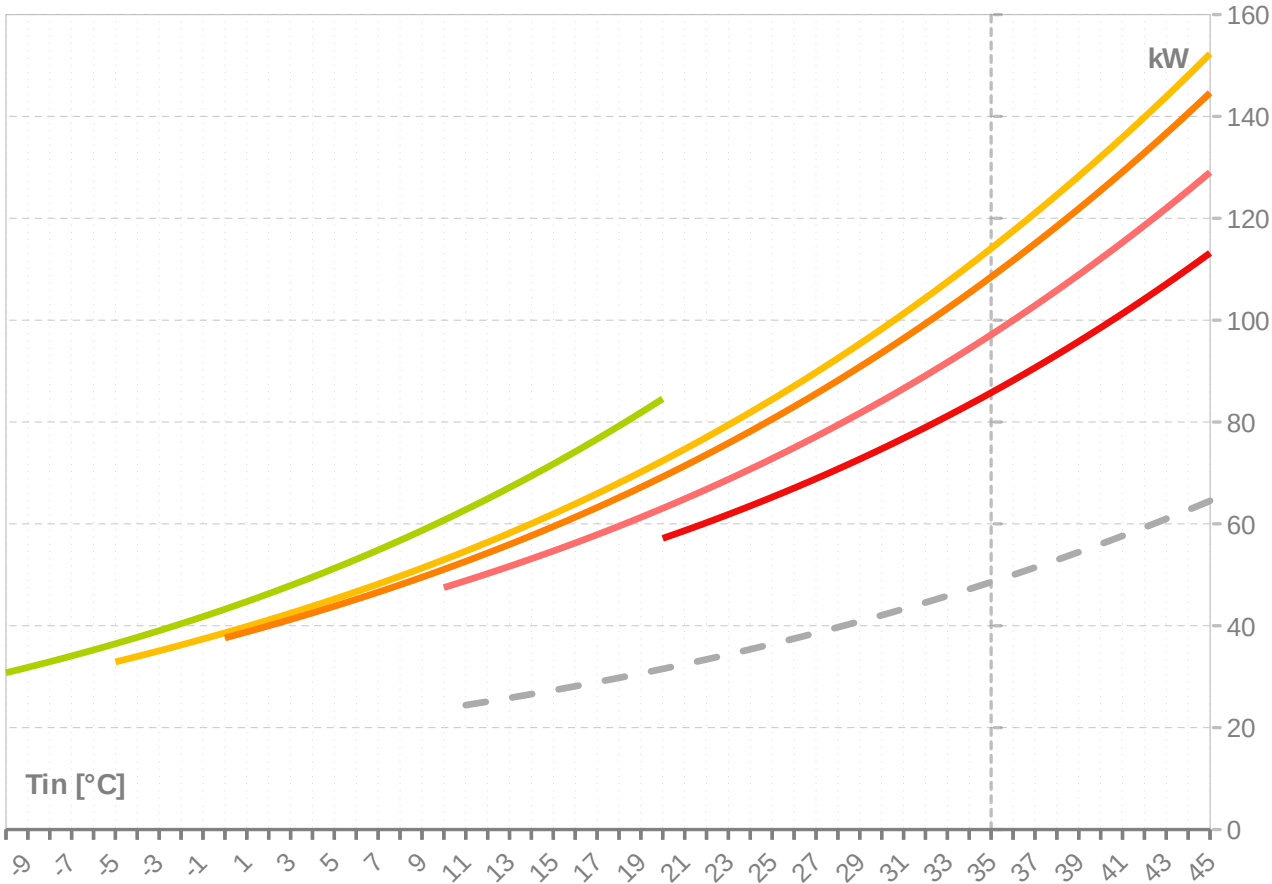
Radiant cooling W 23 / 18°C

Operating conditions		Qc	P	EER
A	W50-xx / W23-18	36.2	16.4	2.21
B	W40-xx / W23-18	42.9	13.3	3.23
C	W30-35 / W23-18	48.9	10.9	4.49
D	W26-xx / W23-18	51.2	10.1	5.06

SEER DATA EN 14825:2018 [W 23 / 18°C]	
SEERon	5.48
SEER	5.30
Qc [kWh]	17940
η [%]	212.07

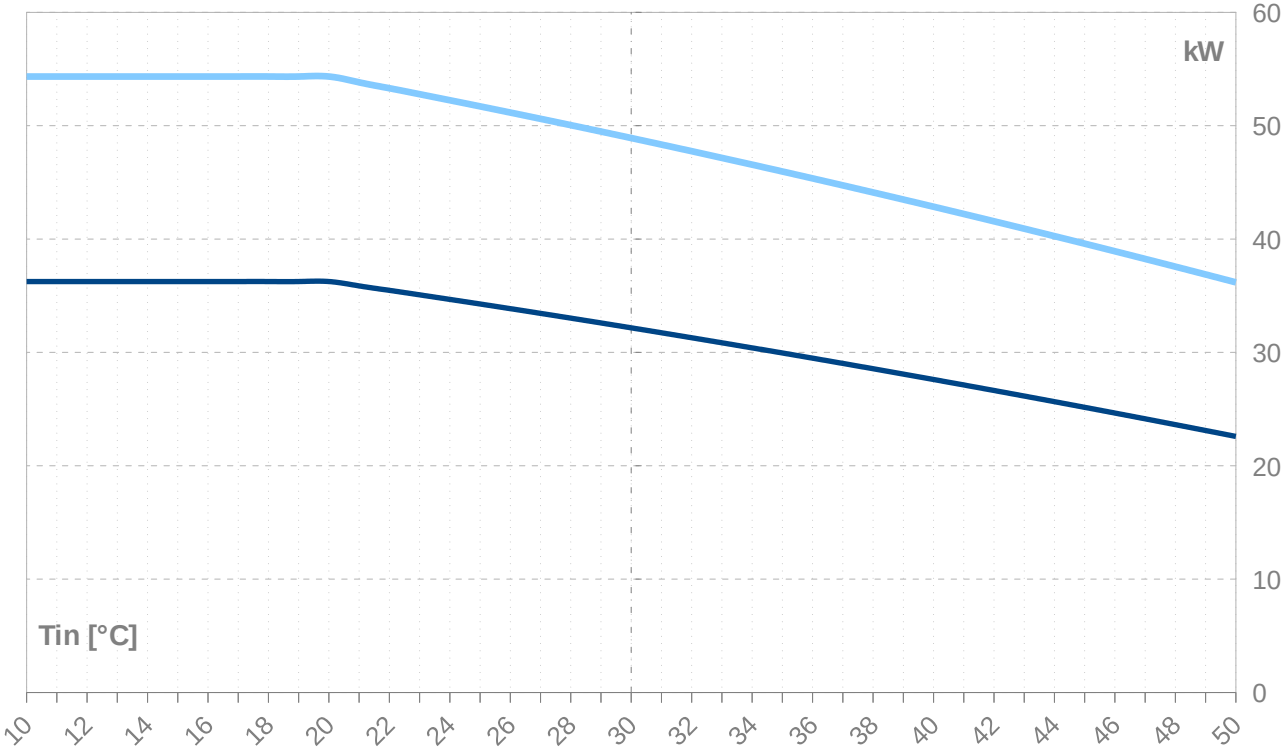
Performance lines - heating

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	152.3	76.1	152.3	16.3	8.0	16.3	9.32	137.1	68.6	137.1	29.3
44	148.0	74.0	148.0	16.3	8.0	16.3	9.09	132.9	66.5	132.9	29.3
43	143.9	71.9	143.9	16.2	8.0	16.2	8.86	128.8	64.4	128.8	29.2
42	139.8	69.9	139.8	16.2	8.0	16.2	8.64	124.8	62.4	124.8	29.1
41	135.9	67.9	135.9	16.1	7.9	16.1	8.42	120.9	60.5	120.9	29.1
40	132.0	66.0	132.0	16.1	7.9	16.1	8.21	117.1	58.6	117.1	29.0
39	128.3	64.1	128.3	16.0	7.9	16.0	8.00	113.4	56.7	113.4	29.0
38	124.6	62.3	124.6	16.0	7.9	16.0	7.79	109.8	54.9	109.8	28.9
37	121.0	60.5	121.0	15.9	7.8	15.9	7.59	106.2	53.1	106.2	28.8
36	117.5	58.7	117.5	15.9	7.8	15.9	7.39	102.8	51.4	102.8	28.8
35	114.1	57.0	114.1	15.9	7.8	15.9	7.20	99.4	49.7	99.4	28.7
34	110.8	55.4	110.8	15.8	7.8	15.8	7.00	96.1	48.0	96.1	28.7
33	107.5	53.8	107.5	15.8	7.8	15.8	6.82	92.9	46.4	92.9	28.6
32	104.4	52.2	104.4	15.7	7.7	15.7	6.63	89.8	44.9	89.8	28.6
31	101.3	50.6	101.3	15.7	7.7	15.7	6.45	86.7	43.4	86.7	28.5
30	98.3	49.1	98.3	15.7	7.7	15.7	6.28	83.8	41.9	83.8	28.5
29	95.4	47.7	95.4	15.6	7.7	15.6	6.11	80.9	40.4	80.9	28.5
28	92.5	46.3	92.5	15.6	7.7	15.6	5.94	78.1	39.0	78.1	28.4
27	89.8	44.9	89.8	15.5	7.6	15.5	5.77	75.3	37.7	75.3	28.4
26	87.1	43.5	87.1	15.5	7.6	15.5	5.61	72.7	36.3	72.7	28.3
25	84.4	42.2	84.4	15.5	7.6	15.5	5.45	70.1	35.0	70.1	28.3
24	81.9	40.9	81.9	15.4	7.6	15.4	5.30	67.6	33.8	67.6	28.3
23	79.4	39.7	79.4	15.4	7.6	15.4	5.15	65.1	32.6	65.1	28.2
22	77.0	38.5	77.0	15.4	7.6	15.4	5.00	62.7	31.4	62.7	28.2
21	74.7	37.3	74.7	15.4	7.6	15.4	4.86	60.4	30.2	60.4	28.2
20	72.4	36.2	72.4	15.3	7.5	15.3	4.72	58.2	29.1	58.2	28.1
19	70.2	35.1	70.2	15.3	7.5	15.3	4.58	56.0	28.0	56.0	28.1
18	68.0	34.0	68.0	15.3	7.5	15.3	4.45	53.9	26.9	53.9	28.1
17	65.9	33.0	65.9	15.3	7.5	15.3	4.32	51.8	25.9	51.8	28.0
16	63.9	32.0	63.9	15.2	7.5	15.2	4.19	49.8	24.9	49.8	28.0
15	62.0	31.0	62.0	15.2	7.5	15.2	4.07	47.8	23.9	47.8	28.0
14	60.0	30.0	60.0	15.2	7.5	15.2	3.95	45.9	23.0	45.9	28.0
13	58.2	29.1	58.2	15.2	7.5	15.2	3.83	44.1	22.1	44.1	27.9
12	56.4	28.2	56.4	15.2	7.5	15.2	3.72	42.3	21.2	42.3	27.9
11	54.7	27.3	54.7	15.2	7.4	15.2	3.61	40.6	20.3	40.6	27.9
10	53.0	26.5	53.0	15.1	7.4	15.1	3.50	38.9	19.5	38.9	27.9
9	51.3	25.7	51.3	15.1	7.4	15.1	3.39	37.3	18.6	37.3	27.9
8	49.7	24.9	49.7	15.1	7.4	15.1	3.29	35.7	17.9	35.7	27.9
7	48.2	24.1	48.2	15.1	7.4	15.1	3.19	34.2	17.1	34.2	27.9
6	46.7	23.3	46.7	15.1	7.4	15.1	3.09	32.7	16.3	32.7	27.8
5	45.2	22.6	45.2	15.1	7.4	15.1	3.00	31.3	15.6	31.3	27.8
4	43.8	21.9	43.8	15.1	7.4	15.1	2.91	29.9	14.9	29.9	27.8
3	42.5	21.2	42.5	15.1	7.4	15.1	2.82	28.5	14.2	28.5	27.8
2	41.1	20.6	41.1	15.1	7.4	15.1	2.73	27.2	13.6	27.2	27.8
1	39.9	19.9	39.9	15.1	7.4	15.1	2.65	25.9	12.9	25.9	27.8
0	38.6	19.3	38.6	15.1	7.4	15.1	2.57	24.6	12.3	24.6	27.8
-1	37.4	18.7	37.4	15.0	7.4	15.0	2.48	23.4	11.7	23.4	27.8
-2	36.2	18.1	36.2	15.0	7.4	15.0	2.41	22.3	11.1	22.3	27.8
-3	35.1	17.5	35.1	15.0	7.4	15.0	2.33	21.1	10.6	21.1	27.8
-4	34.0	17.0	34.0	15.1	7.4	15.1	2.26	20.0	10.0	20.0	27.8
-5	32.9	16.4	32.9	15.1	7.4	15.1	2.19	18.9	9.5	18.9	27.8

-- attention: operating limits not reflected in performance table

ZR144KRE-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	144.6	72.3	144.6	17.7	8.7	17.7	8.16	128.2	64.1	128.2	31.0
44	140.6	70.3	140.6	17.7	8.7	17.7	7.95	124.2	62.1	124.2	31.0
43	136.7	68.3	136.7	17.6	8.7	17.6	7.75	120.3	60.2	120.3	30.9
42	132.8	66.4	132.8	17.6	8.6	17.6	7.55	116.5	58.3	116.5	30.8
41	129.1	64.6	129.1	17.6	8.6	17.6	7.36	112.8	56.4	112.8	30.8
40	125.5	62.7	125.5	17.5	8.6	17.5	7.16	109.2	54.6	109.2	30.7
39	121.9	60.9	121.9	17.5	8.6	17.5	6.98	105.7	52.8	105.7	30.7
38	118.4	59.2	118.4	17.4	8.6	17.4	6.79	102.2	51.1	102.2	30.7
37	115.0	57.5	115.0	17.4	8.6	17.4	6.61	98.9	49.4	98.9	30.6
36	111.7	55.9	111.7	17.4	8.5	17.4	6.44	95.6	47.8	95.6	30.6
35	108.5	54.2	108.5	17.3	8.5	17.3	6.26	92.4	46.2	92.4	30.5
34	105.4	52.7	105.4	17.3	8.5	17.3	6.09	89.3	44.7	89.3	30.5
33	102.3	51.1	102.3	17.3	8.5	17.3	5.93	86.3	43.1	86.3	30.4
32	99.3	49.7	99.3	17.2	8.5	17.2	5.77	83.3	41.7	83.3	30.4
31	96.4	48.2	96.4	17.2	8.5	17.2	5.61	80.5	40.2	80.5	30.4
30	93.6	46.8	93.6	17.2	8.4	17.2	5.45	77.7	38.8	77.7	30.3
29	90.8	45.4	90.8	17.1	8.4	17.1	5.30	74.9	37.5	74.9	30.3
28	88.2	44.1	88.2	17.1	8.4	17.1	5.15	72.3	36.1	72.3	30.3
27	85.6	42.8	85.6	17.1	8.4	17.1	5.01	69.7	34.9	69.7	30.2
26	83.0	41.5	83.0	17.1	8.4	17.1	4.87	67.2	33.6	67.2	30.2
25	80.6	40.3	80.6	17.0	8.4	17.0	4.73	64.8	32.4	64.8	30.2
24	78.2	39.1	78.2	17.0	8.4	17.0	4.60	62.4	31.2	62.4	30.1
23	75.8	37.9	75.8	17.0	8.3	17.0	4.47	60.1	30.0	60.1	30.1
22	73.6	36.8	73.6	17.0	8.3	17.0	4.34	57.9	28.9	57.9	30.1
21	71.4	35.7	71.4	16.9	8.3	16.9	4.21	55.7	27.8	55.7	30.1
20	69.3	34.6	69.3	16.9	8.3	16.9	4.09	53.6	26.8	53.6	30.0
19	67.2	33.6	67.2	16.9	8.3	16.9	3.97	51.5	25.7	51.5	30.0
18	65.2	32.6	65.2	16.9	8.3	16.9	3.86	49.5	24.8	49.5	30.0
17	63.2	31.6	63.2	16.9	8.3	16.9	3.75	47.6	23.8	47.6	30.0
16	61.3	30.7	61.3	16.9	8.3	16.9	3.64	45.7	22.8	45.7	30.0
15	59.5	29.7	59.5	16.8	8.3	16.8	3.53	43.9	21.9	43.9	30.0
14	57.7	28.8	57.7	16.8	8.3	16.8	3.43	42.1	21.0	42.1	29.9
13	56.0	28.0	56.0	16.8	8.3	16.8	3.33	40.4	20.2	40.4	29.9
12	54.3	27.1	54.3	16.8	8.3	16.8	3.23	38.7	19.3	38.7	29.9
11	52.6	26.3	52.6	16.8	8.3	16.8	3.13	37.1	18.5	37.1	29.9
10	51.1	25.5	51.1	16.8	8.3	16.8	3.04	35.5	17.7	35.5	29.9
9	49.5	24.8	49.5	16.8	8.3	16.8	2.95	34.0	17.0	34.0	29.9
8	48.0	24.0	48.0	16.8	8.2	16.8	2.86	32.5	16.2	32.5	29.9
7	46.6	23.3	46.6	16.8	8.2	16.8	2.78	31.0	15.5	31.0	29.9
6	45.2	22.6	45.2	16.8	8.2	16.8	2.69	29.6	14.8	29.6	29.9
5	43.8	21.9	43.8	16.8	8.2	16.8	2.61	28.3	14.1	28.3	29.9
4	42.5	21.3	42.5	16.8	8.2	16.8	2.54	27.0	13.5	27.0	29.9
3	41.2	20.6	41.2	16.8	8.2	16.8	2.46	25.7	12.8	25.7	29.9
2	40.0	20.0	40.0	16.8	8.2	16.8	2.39	24.4	12.2	24.4	29.9
1	38.8	19.4	38.8	16.8	8.2	16.8	2.31	23.2	11.6	23.2	29.9
0	37.6	18.8	37.6	16.8	8.2	16.8	2.24	22.1	11.0	22.1	29.9
-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	129.0	64.5	129.0	21.0	10.3	21.0	6.13	109.5	54.8	109.5	35.3
44	125.5	62.7	125.5	21.0	10.3	21.0	5.97	106.0	53.0	106.0	35.2
43	122.0	61.0	122.0	21.0	10.3	21.0	5.81	102.5	51.3	102.5	35.2
42	118.6	59.3	118.6	21.0	10.3	21.0	5.65	99.1	49.6	99.1	35.2
41	115.3	57.6	115.3	21.0	10.3	21.0	5.50	95.8	47.9	95.8	35.2
40	112.1	56.0	112.1	20.9	10.3	20.9	5.35	92.6	46.3	92.6	35.1
39	108.9	54.5	108.9	20.9	10.3	20.9	5.20	89.5	44.7	89.5	35.1
38	105.9	52.9	105.9	20.9	10.3	20.9	5.06	86.4	43.2	86.4	35.1
37	102.9	51.4	102.9	20.9	10.3	20.9	4.92	83.5	41.7	83.5	35.1
36	100.0	50.0	100.0	20.9	10.3	20.9	4.79	80.6	40.3	80.6	35.1
35	97.1	48.6	97.1	20.9	10.3	20.9	4.65	77.8	38.9	77.8	35.0
34	94.4	47.2	94.4	20.9	10.3	20.9	4.52	75.0	37.5	75.0	35.0
33	91.7	45.9	91.7	20.9	10.2	20.9	4.40	72.4	36.2	72.4	35.0
32	89.1	44.6	89.1	20.8	10.2	20.8	4.28	69.8	34.9	69.8	35.0
31	86.6	43.3	86.6	20.8	10.2	20.8	4.16	67.3	33.6	67.3	35.0
30	84.1	42.1	84.1	20.8	10.2	20.8	4.04	64.8	32.4	64.8	35.0
29	81.7	40.9	81.7	20.8	10.2	20.8	3.93	62.4	31.2	62.4	35.0
28	79.4	39.7	79.4	20.8	10.2	20.8	3.82	60.1	30.1	60.1	35.0
27	77.1	38.6	77.1	20.8	10.2	20.8	3.71	57.9	28.9	57.9	34.9
26	74.9	37.5	74.9	20.8	10.2	20.8	3.60	55.7	27.8	55.7	34.9
25	72.8	36.4	72.8	20.8	10.2	20.8	3.50	53.5	26.8	53.5	34.9
24	70.7	35.4	70.7	20.8	10.2	20.8	3.40	51.5	25.7	51.5	34.9
23	68.7	34.4	68.7	20.8	10.2	20.8	3.31	49.5	24.7	49.5	34.9
22	66.8	33.4	66.8	20.8	10.2	20.8	3.21	47.5	23.8	47.5	34.9
21	64.9	32.4	64.9	20.8	10.2	20.8	3.12	45.6	22.8	45.6	34.9
20	63.1	31.5	63.1	20.8	10.2	20.8	3.03	43.8	21.9	43.8	34.9
19	61.3	30.6	61.3	20.8	10.2	20.8	2.95	42.0	21.0	42.0	34.9
18	59.6	29.8	59.6	20.8	10.2	20.8	2.87	40.3	20.1	40.3	34.9
17	57.9	28.9	57.9	20.8	10.2	20.8	2.78	38.6	19.3	38.6	34.9
16	56.3	28.1	56.3	20.8	10.2	20.8	2.71	37.0	18.5	37.0	35.0
15	54.7	27.3	54.7	20.8	10.2	20.8	2.63	35.4	17.7	35.4	35.0
14	53.2	26.6	53.2	20.8	10.2	20.8	2.55	33.9	16.9	33.9	35.0
13	51.7	25.8	51.7	20.8	10.2	20.8	2.48	32.4	16.2	32.4	35.0
12	50.2	25.1	50.2	20.8	10.2	20.8	2.41	30.9	15.5	30.9	35.0
11	48.8	24.4	48.8	20.8	10.2	20.8	2.35	29.5	14.8	29.5	35.0
10	47.5	23.7	47.5	20.8	10.2	20.8	2.28	28.2	14.1	28.2	35.0
9											
8											
7											
6											
5											

-- 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	113.2	56.6	113.2	25.3	12.4	25.3	4.47	89.7	44.9	89.7	41.0
44	110.1	55.1	110.1	25.3	12.4	25.3	4.35	86.6	43.3	86.6	41.0
43	107.1	53.5	107.1	25.3	12.4	25.3	4.23	83.6	41.8	83.6	41.0
42	104.2	52.1	104.2	25.3	12.5	25.3	4.11	80.7	40.3	80.7	41.0
41	101.3	50.7	101.3	25.3	12.5	25.3	4.00	77.8	38.9	77.8	41.0
40	98.5	49.3	98.5	25.4	12.5	25.4	3.89	75.0	37.5	75.0	41.0
39	95.8	47.9	95.8	25.4	12.5	25.4	3.78	72.3	36.2	72.3	41.1
38	93.2	46.6	93.2	25.4	12.5	25.4	3.67	69.7	34.8	69.7	41.1
37	90.6	45.3	90.6	25.4	12.5	25.4	3.57	67.1	33.6	67.1	41.1
36	88.2	44.1	88.2	25.4	12.5	25.4	3.47	64.6	32.3	64.6	41.1
35	85.8	42.9	85.8	25.4	12.5	25.4	3.37	62.2	31.1	62.2	41.1
34	83.4	41.7	83.4	25.4	12.5	25.4	3.28	59.8	29.9	59.8	41.1
33	81.1	40.6	81.1	25.4	12.5	25.4	3.19	57.5	28.8	57.5	41.2
32	78.9	39.5	78.9	25.5	12.5	25.5	3.10	55.3	27.7	55.3	41.2
31	76.8	38.4	76.8	25.5	12.5	25.5	3.01	53.2	26.6	53.2	41.2
30	74.7	37.4	74.7	25.5	12.5	25.5	2.93	51.1	25.5	51.1	41.2
29	72.7	36.4	72.7	25.5	12.5	25.5	2.85	49.0	24.5	49.0	41.2
28	70.8	35.4	70.8	25.5	12.6	25.5	2.77	47.1	23.5	47.1	41.3
27	68.9	34.4	68.9	25.6	12.6	25.6	2.69	45.2	22.6	45.2	41.3
26	67.0	33.5	67.0	25.6	12.6	25.6	2.62	43.3	21.7	43.3	41.3
25	65.2	32.6	65.2	25.6	12.6	25.6	2.55	41.5	20.8	41.5	41.3
24	63.5	31.8	63.5	25.6	12.6	25.6	2.48	39.8	19.9	39.8	41.4
23	61.9	30.9	61.9	25.6	12.6	25.6	2.41	38.1	19.0	38.1	41.4
22	60.2	30.1	60.2	25.7	12.6	25.7	2.35	36.4	18.2	36.4	41.4
21	58.7	29.3	58.7	25.7	12.6	25.7	2.28	34.8	17.4	34.8	41.5
20	57.2	28.6	57.2	25.7	12.6	25.7	2.22	33.3	16.6	33.3	41.5
19											
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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	27.6	13.8	27.6	13.3	6.5	13.3	2.08	39.9	20.0	39.9	25.7
39	28.1	14.0	28.1	13.0	6.4	13.0	2.16	40.1	20.1	40.1	25.4
38	28.6	14.3	28.6	12.7	6.3	12.7	2.24	40.4	20.2	40.4	25.1
37	29.0	14.5	29.0	12.5	6.1	12.5	2.32	40.6	20.3	40.6	24.9
36	29.5	14.7	29.5	12.2	6.0	12.2	2.41	40.8	20.4	40.8	24.6
35	29.9	15.0	29.9	12.0	5.9	12.0	2.49	41.1	20.5	41.1	24.3
34	30.4	15.2	30.4	11.8	5.8	11.8	2.58	41.3	20.7	41.3	24.1
33	30.8	15.4	30.8	11.5	5.7	11.5	2.67	41.6	20.8	41.6	23.8
32	31.3	15.6	31.3	11.3	5.6	11.3	2.76	41.8	20.9	41.8	23.6
31	31.7	15.9	31.7	11.1	5.5	11.1	2.86	42.0	21.0	42.0	23.4
30	32.2	16.1	32.2	10.9	5.4	10.9	2.95	42.3	21.1	42.3	23.2
29	32.6	16.3	32.6	10.7	5.3	10.7	3.05	42.5	21.3	42.5	23.0
28	33.0	16.5	33.0	10.5	5.2	10.5	3.15	42.8	21.4	42.8	22.8
27	33.4	16.7	33.4	10.3	5.1	10.3	3.25	43.0	21.5	43.0	22.6
26	33.9	16.9	33.9	10.1	5.0	10.1	3.35	43.2	21.6	43.2	22.4
25	34.3	17.1	34.3	9.9	4.9	9.9	3.45	43.5	21.7	43.5	22.2
24	34.7	17.3	34.7	9.8	4.8	9.8	3.56	43.7	21.9	43.7	22.0
23	35.1	17.5	35.1	9.6	4.7	9.6	3.66	44.0	22.0	44.0	21.9
22	35.5	17.7	35.5	9.4	4.6	9.4	3.77	44.2	22.1	44.2	21.7
21	35.9	17.9	35.9	9.2	4.5	9.2	3.88	44.4	22.2	44.4	21.6
20	36.3	18.1	36.3	9.1	4.5	9.1	4.00	44.7	22.3	44.7	21.4

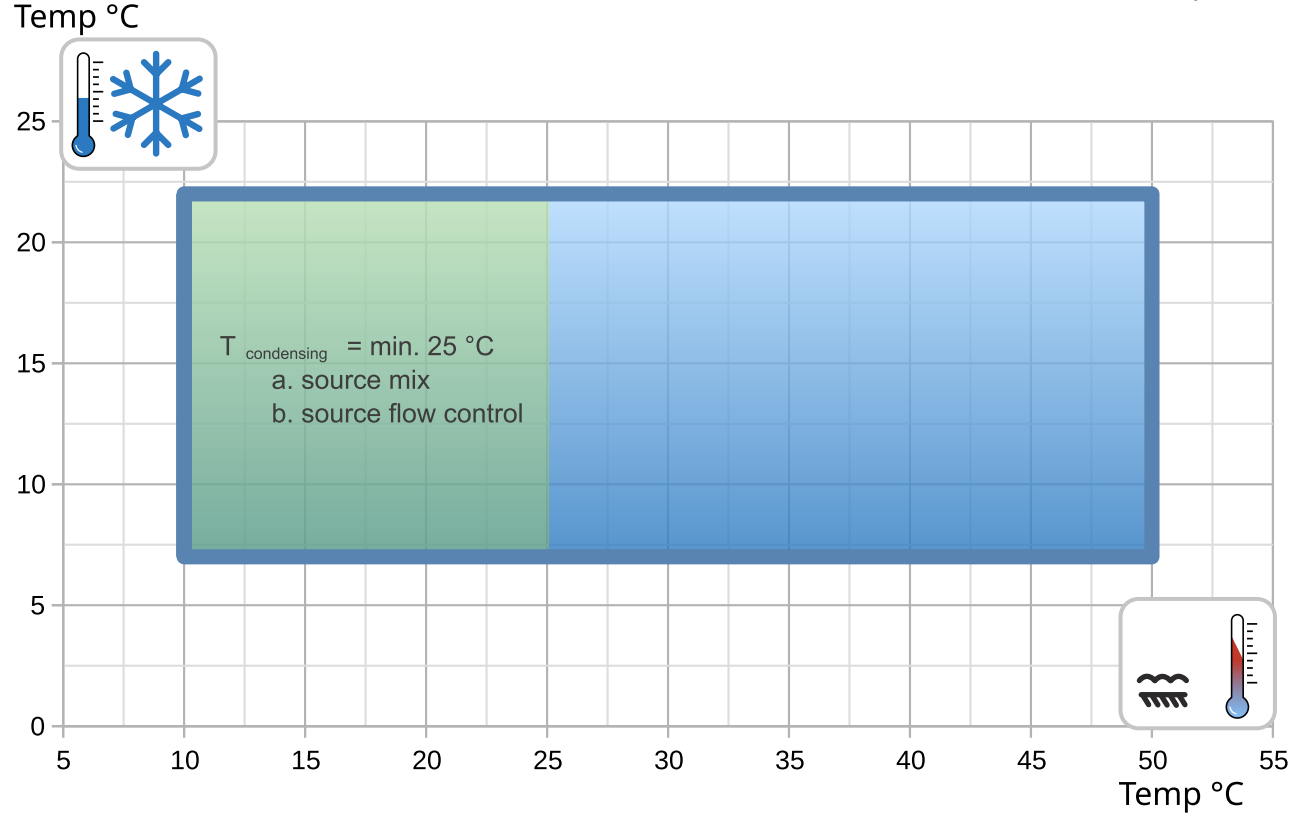
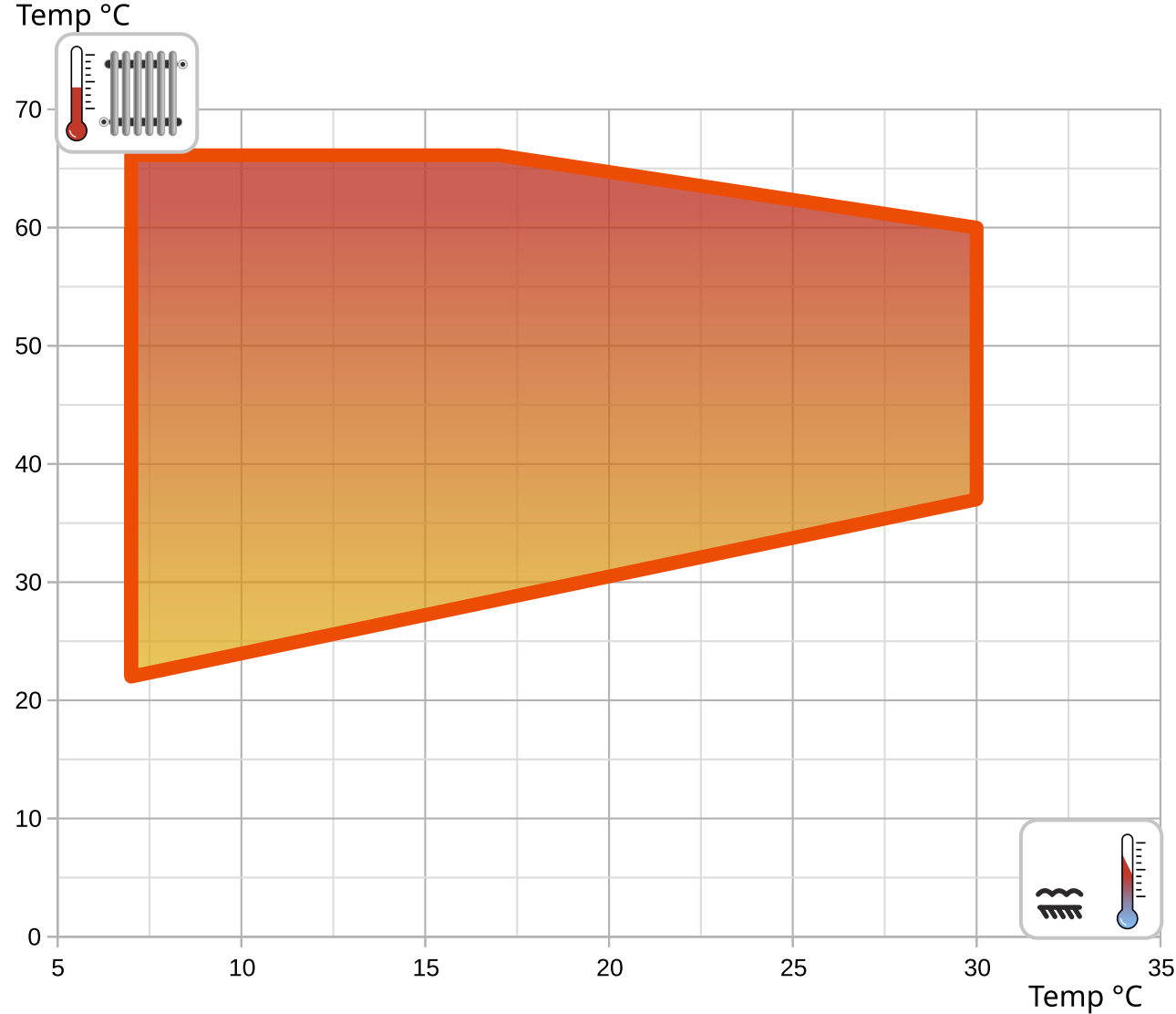
Tc [°C]		W 23 / 18 °C									
0	Qc nom	Qc min	Qc max	Pin nom	Pin min	Pin max	EER	Qh nom	Qh min	Qh max	I nom
[°C]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	kW / kW	[kW]	[kW]	[kW]	[A]
40	42.9	21.4	42.9	13.3	6.5	13.3	3.23	55.3	27.6	51.4	25.9
39	43.5	21.7	43.5	13.0	6.4	13.0	3.34	55.7	27.8	51.8	25.6
38	44.1	22.1	44.1	12.7	6.3	12.7	3.46	56.1	28.0	52.2	25.3
37	44.7	22.4	44.7	12.5	6.1	12.5	3.58	56.5	28.2	52.6	25.0
36	45.4	22.7	45.4	12.2	6.0	12.2	3.70	56.9	28.4	53.0	24.8
35	46.0	23.0	46.0	12.0	5.9	12.0	3.83	57.3	28.6	53.3	24.5
34	46.6	23.3	46.6	11.8	5.8	11.8	3.95	57.6	28.8	53.7	24.3
33	47.2	23.6	47.2	11.5	5.7	11.5	4.08	58.0	29.0	54.1	24.0
32	47.7	23.9	47.7	11.3	5.6	11.3	4.22	58.4	29.2	54.5	23.8
31	48.3	24.2	48.3	11.1	5.5	11.1	4.35	58.8	29.4	54.9	23.6
30	48.9	24.5	48.9	10.9	5.4	10.9	4.49	59.2	29.6	55.3	23.4
29	49.5	24.7	49.5	10.7	5.3	10.7	4.63	59.6	29.8	55.7	23.2
28	50.0	25.0	50.0	10.5	5.2	10.5	4.77	60.0	30.0	56.1	23.0
27	50.6	25.3	50.6	10.3	5.1	10.3	4.91	60.3	30.2	56.5	22.8
26	51.2	25.6	51.2	10.1	5.0	10.1	5.06	60.7	30.4	56.9	22.6
25	51.7	25.9	51.7	9.9	4.9	9.9	5.21	61.1	30.5	57.3	22.4
24	52.2	26.1	52.2	9.8	4.8	9.8	5.36	61.5	30.7	57.6	22.2
23	52.8	26.4	52.8	9.6	4.7	9.6	5.51	61.8	30.9	58.0	22.0
22	53.3	26.7	53.3	9.4	4.6	9.4	5.67	62.2	31.1	58.4	21.9
21	53.8	26.9	53.8	9.2	4.5	9.2	5.83	62.6	31.3	58.8	21.7
20	54.3	27.2	54.3	9.1	4.5	9.1	5.99	62.9	31.5	59.2	21.6

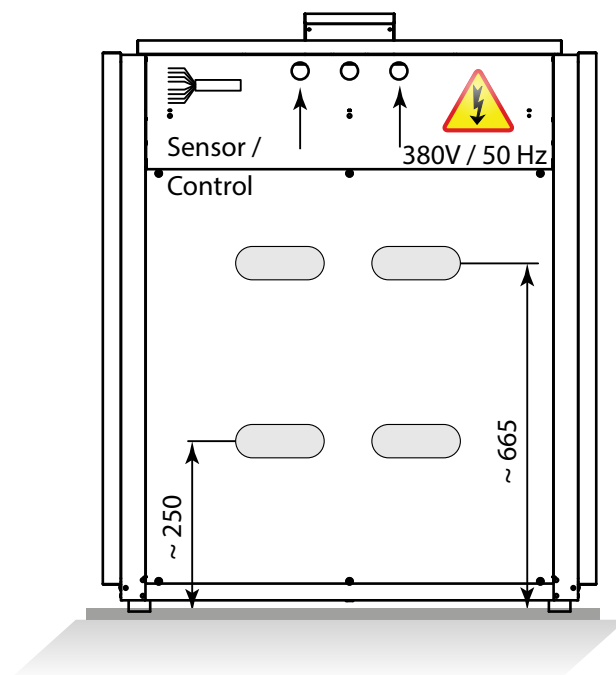
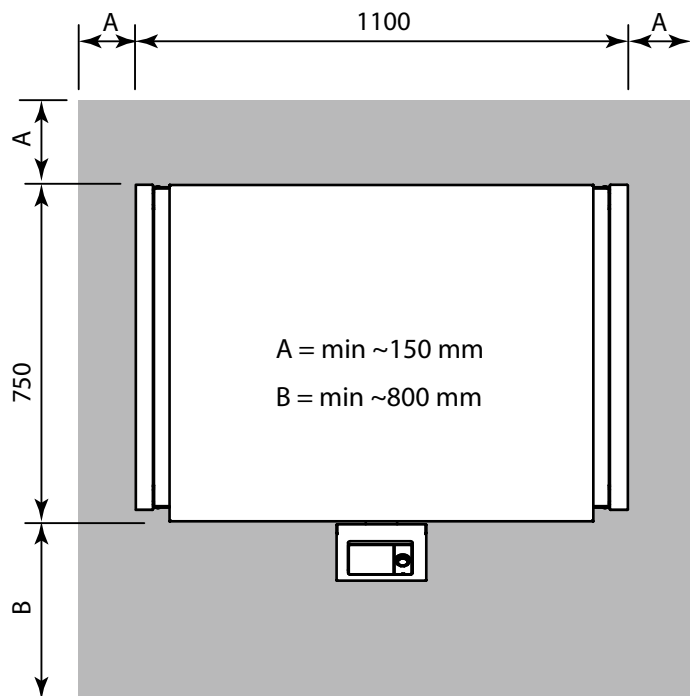
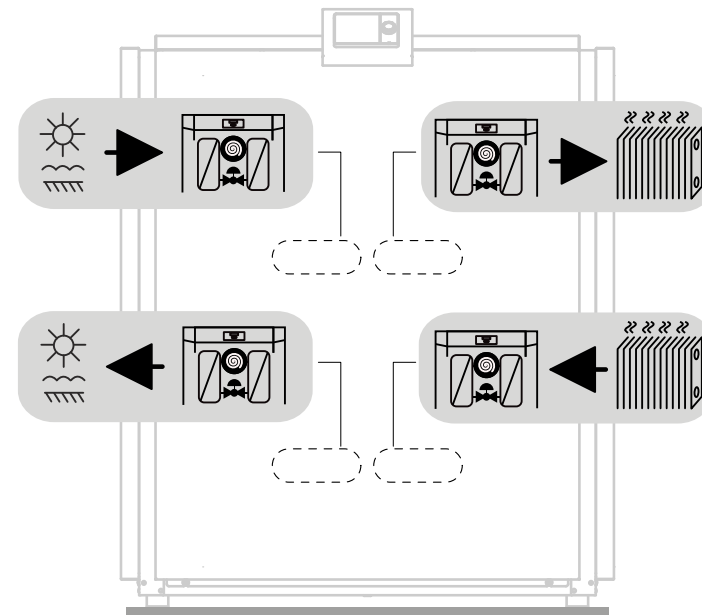
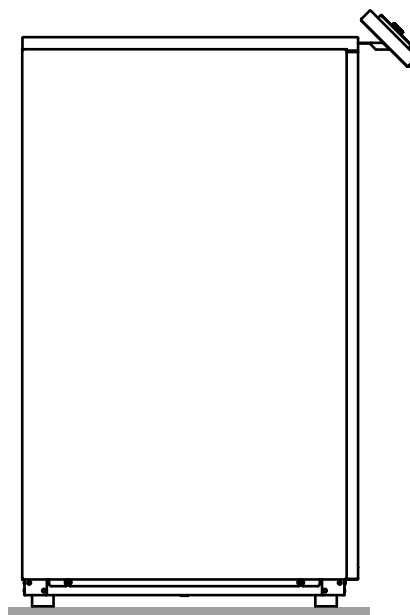
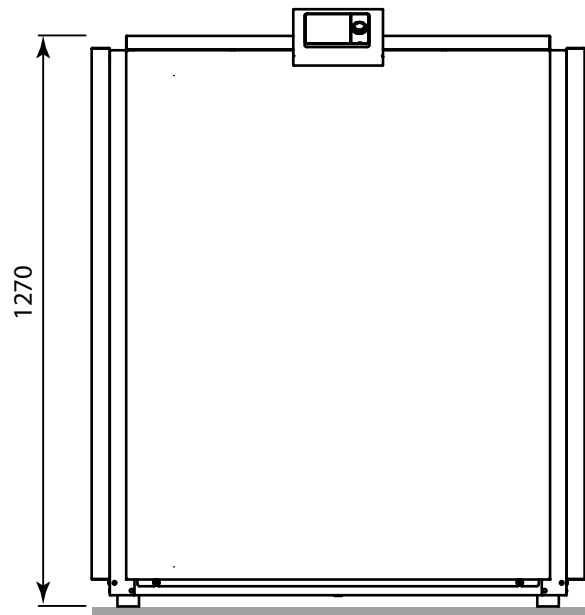
-- attention: operating limits not reflected in performance table

LEGEND:

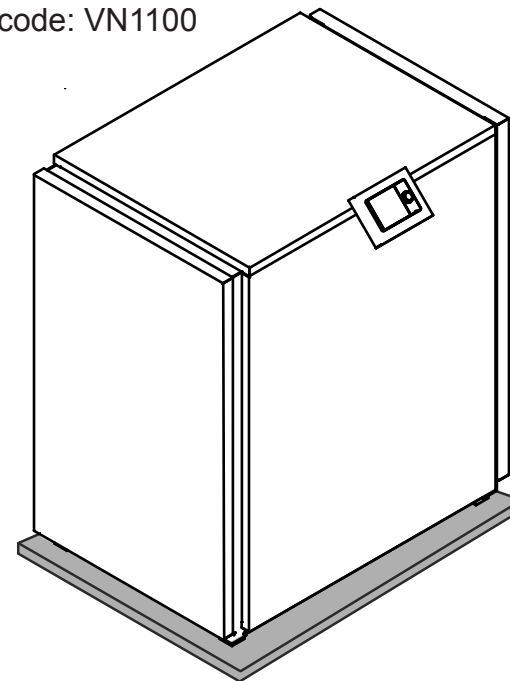
Ts-IN: Temperature renewable source - inlet [°C]
Th-OU: Temperature heating - outlet (flow) [°C]
Tc-OU: Temperature cooling - outlet (flow) [°C]
Qh nom: Heating capacity nominal
Qh min: Heating capacity minimal
Qh max: Heating capacity maximal
Pin nom: Power input at nominal heating capacity
Pin min: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

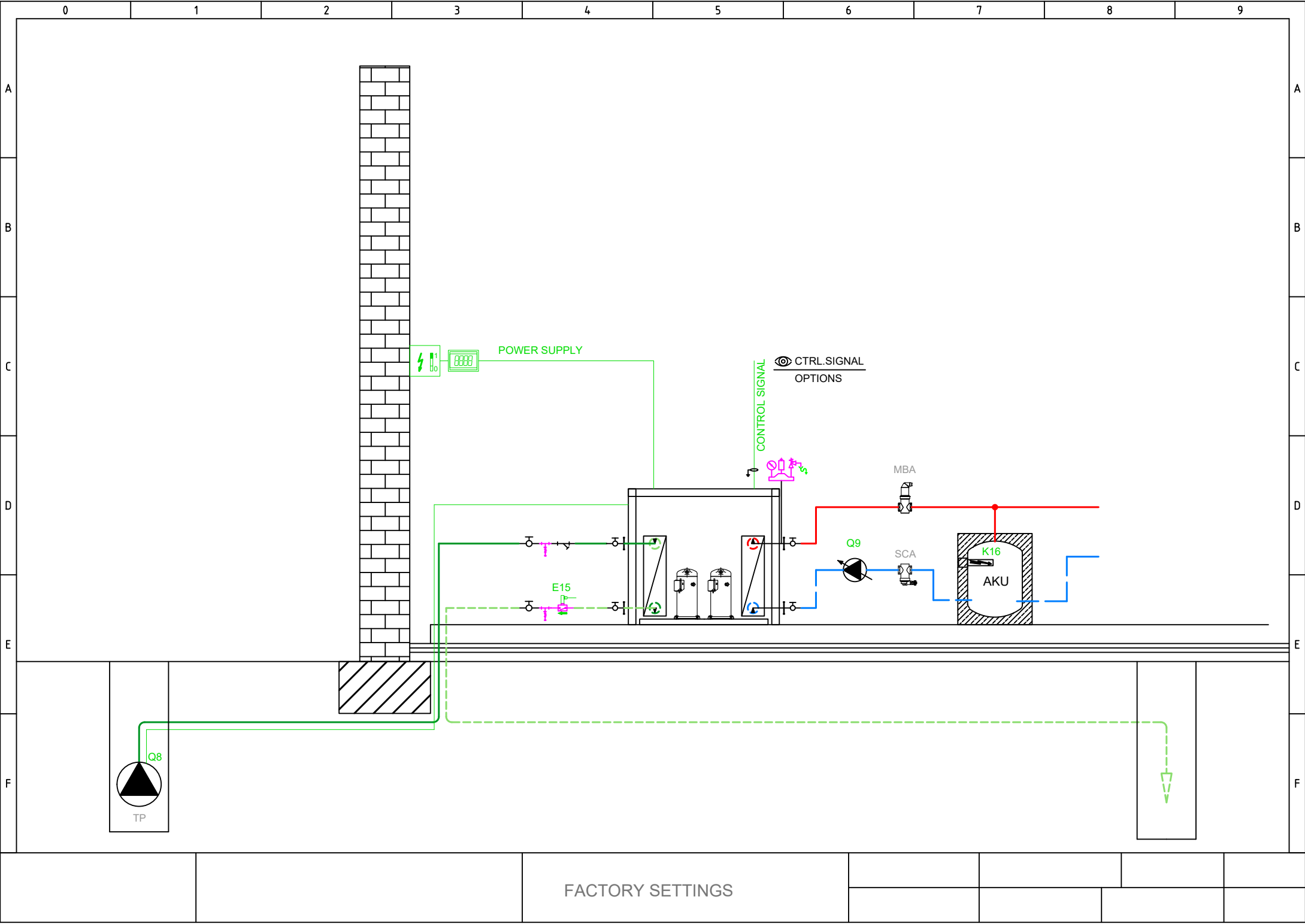
Operating limits



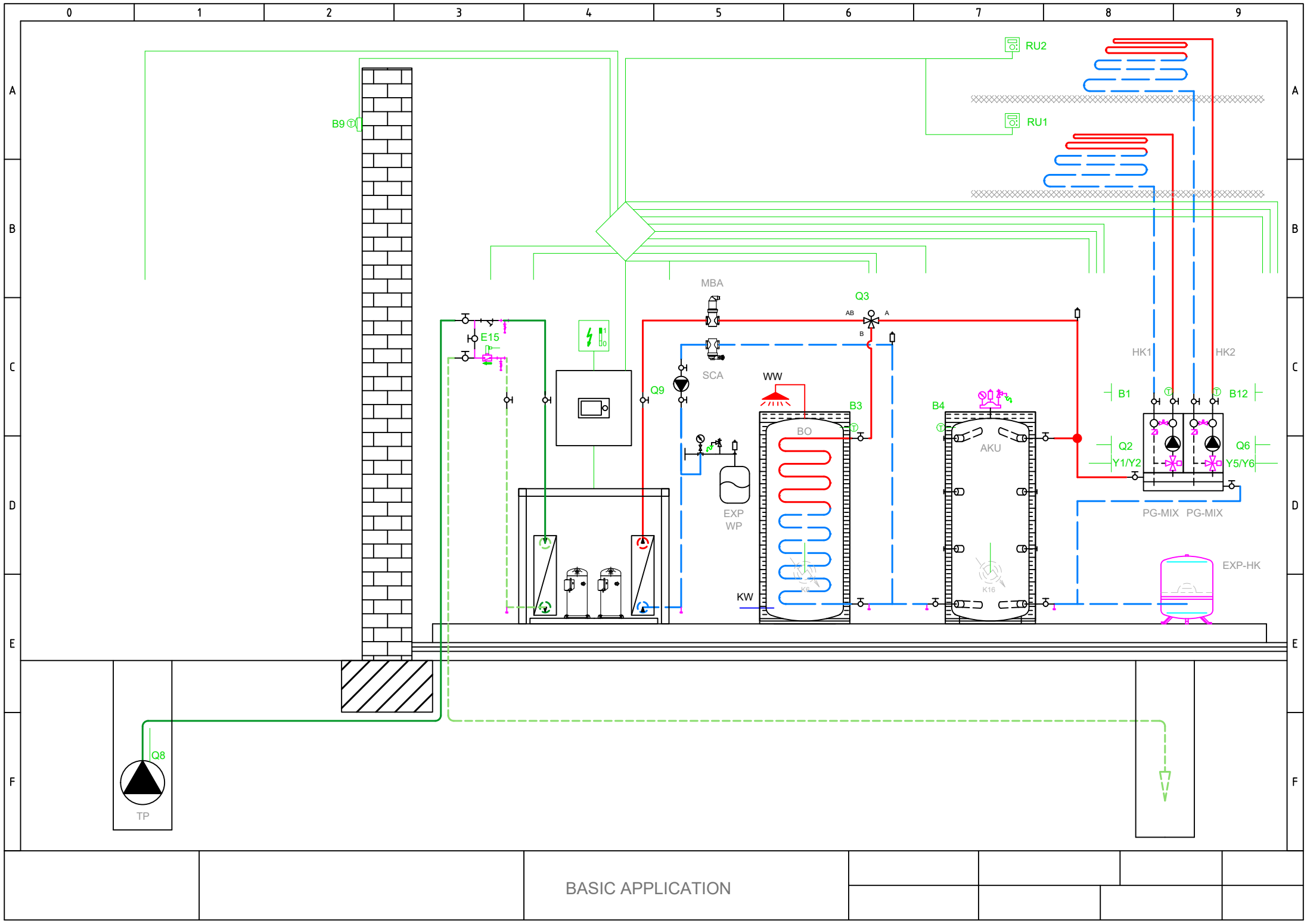


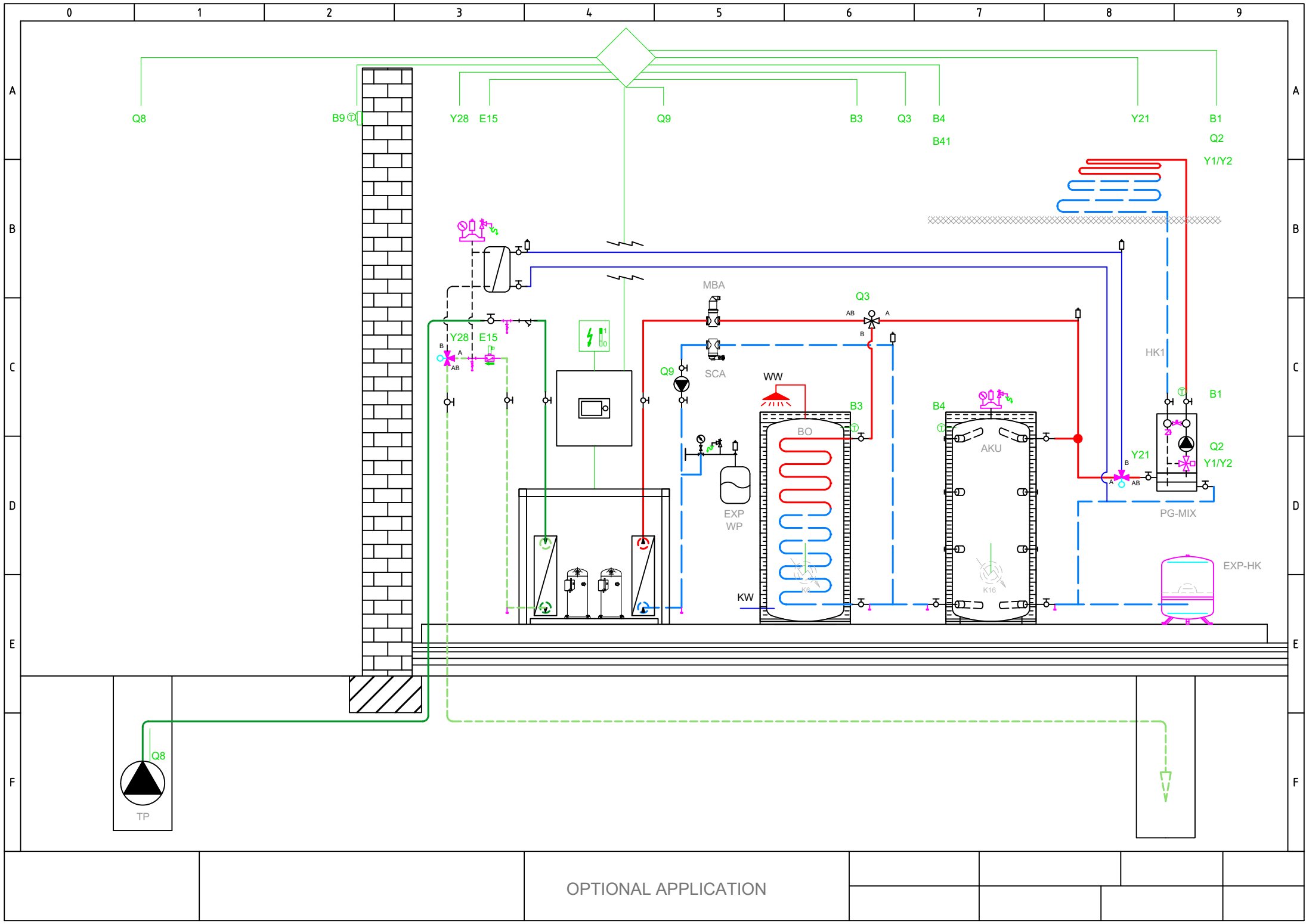
int. code: VN1100





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

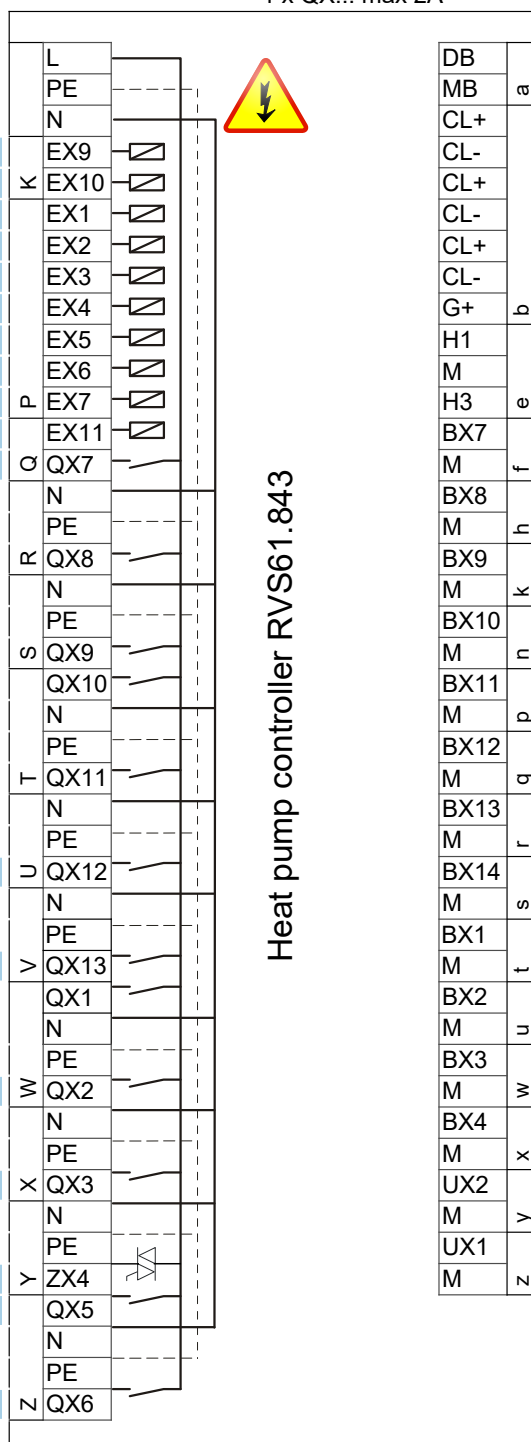
K10 Alarm output K10

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

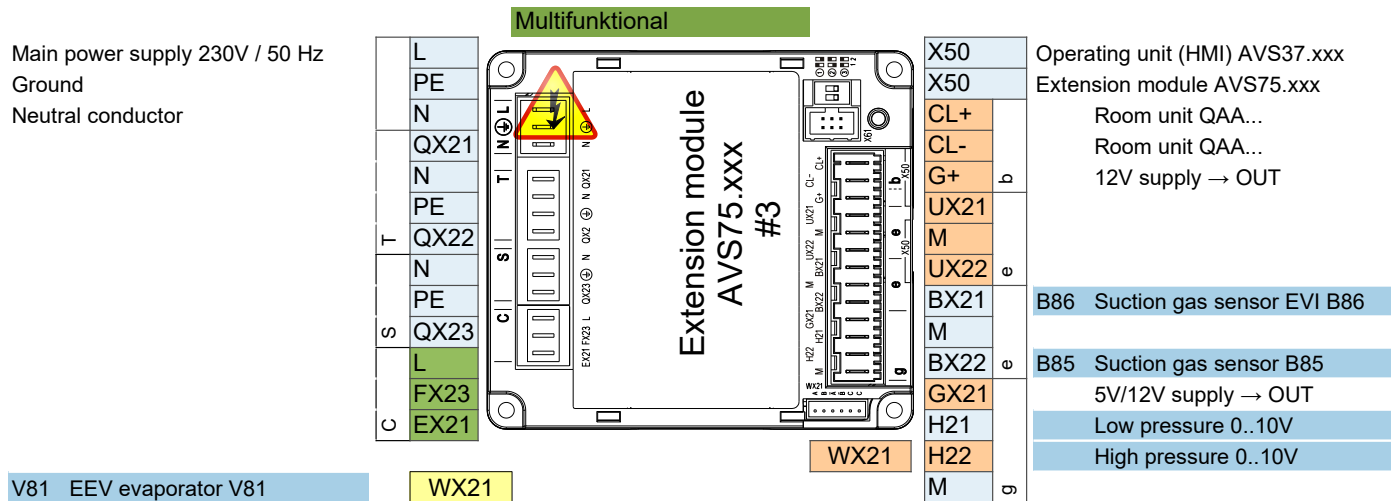
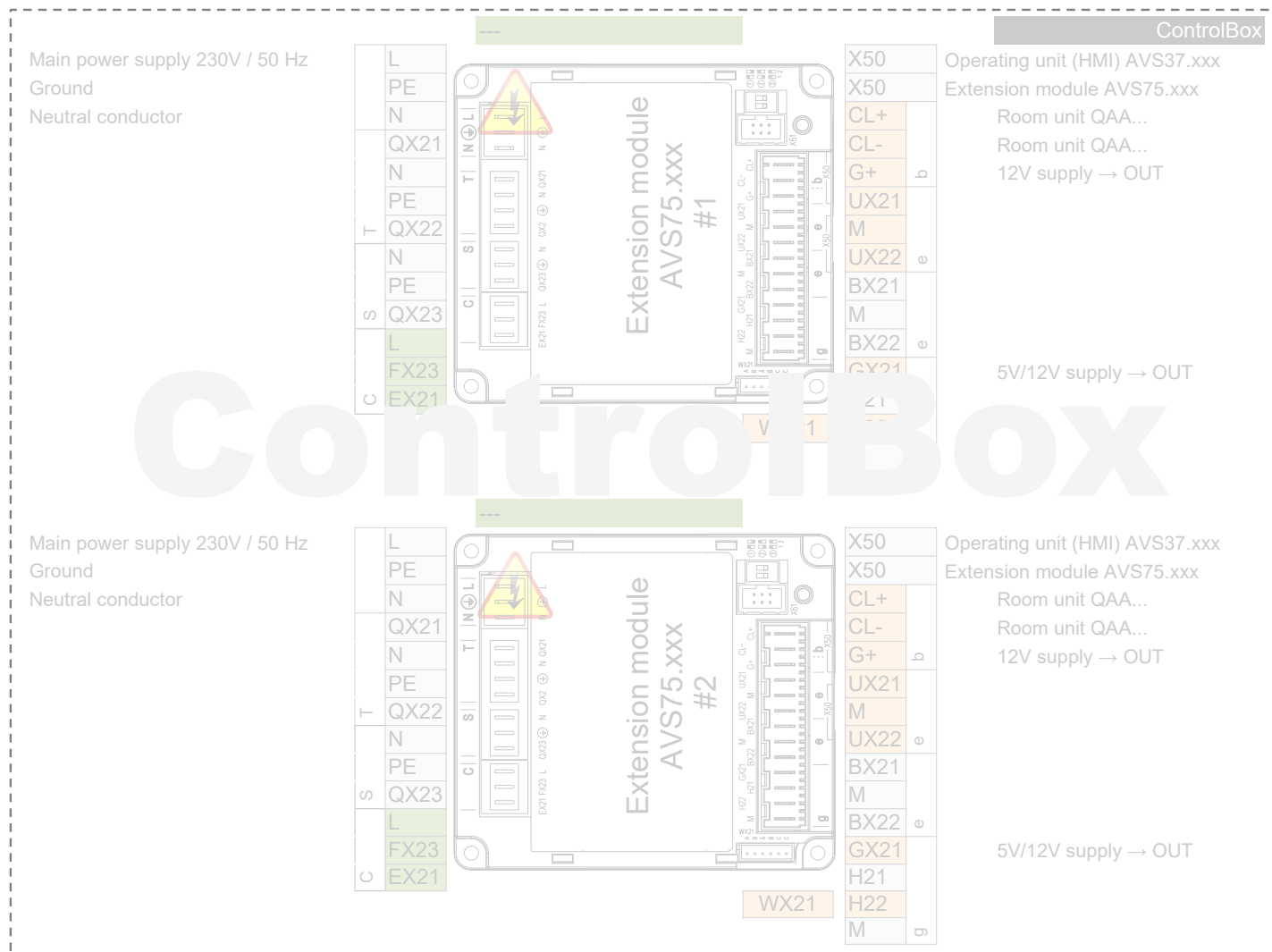
Condenser pump Q9

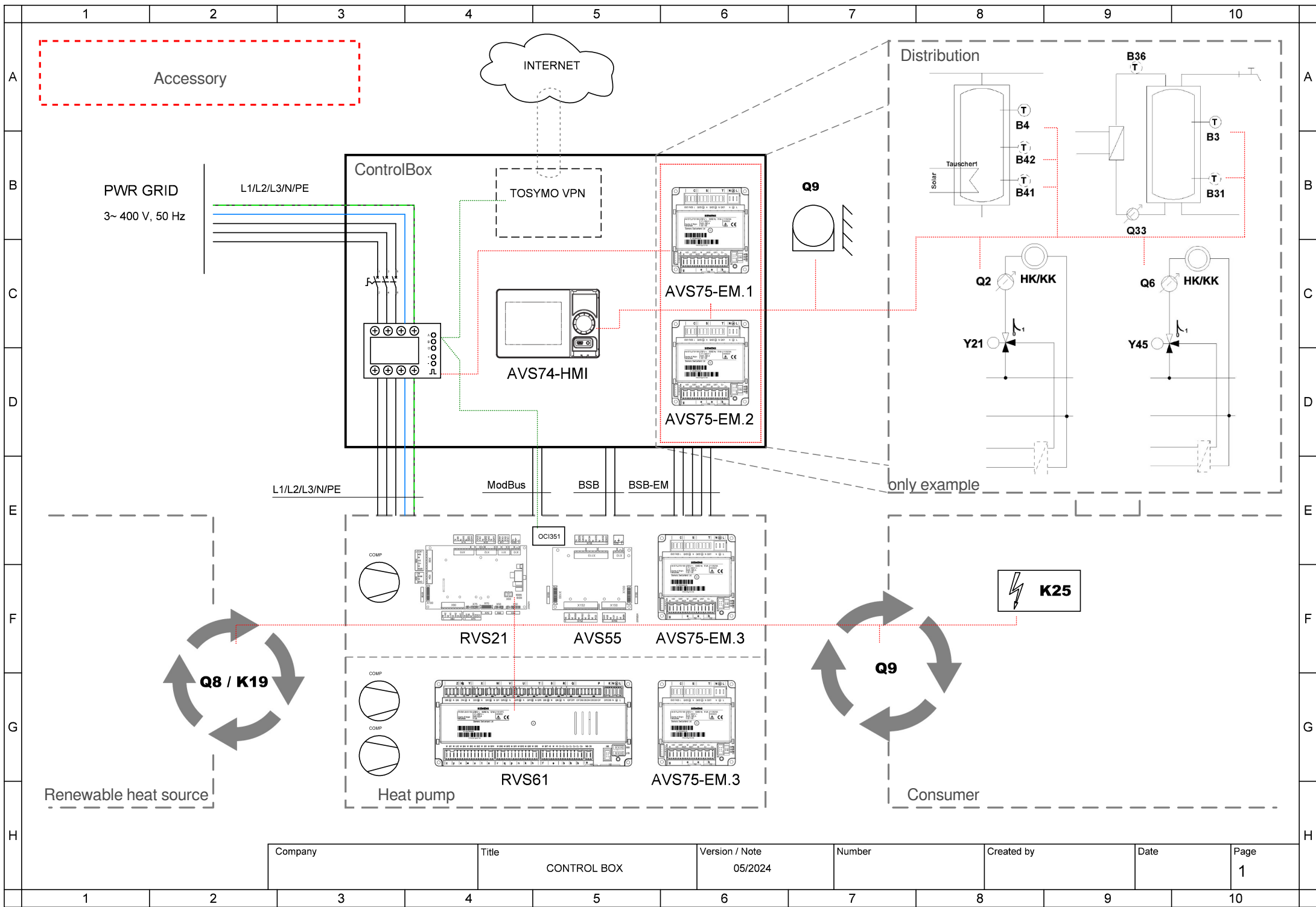
0..10 V Signal

Source pump Q8

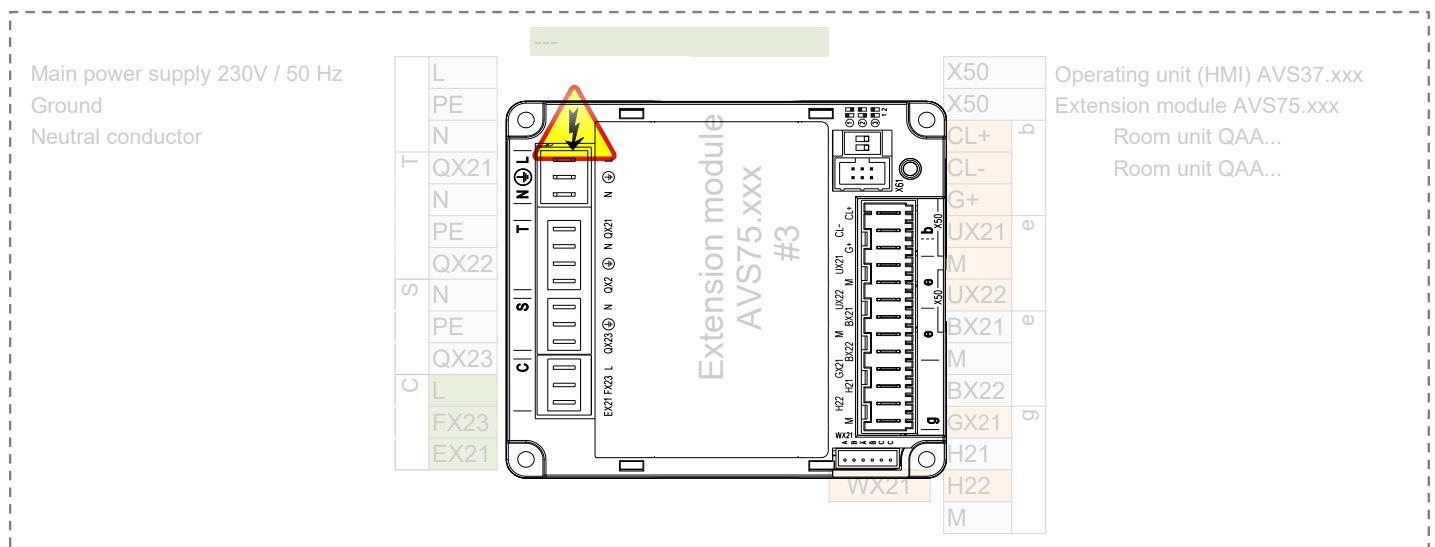
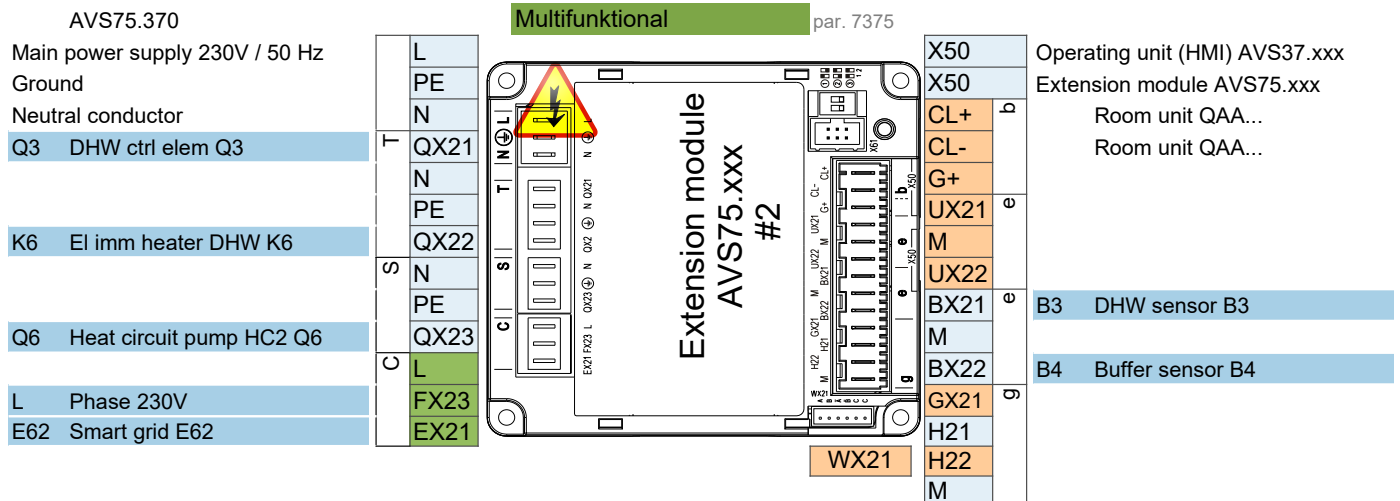
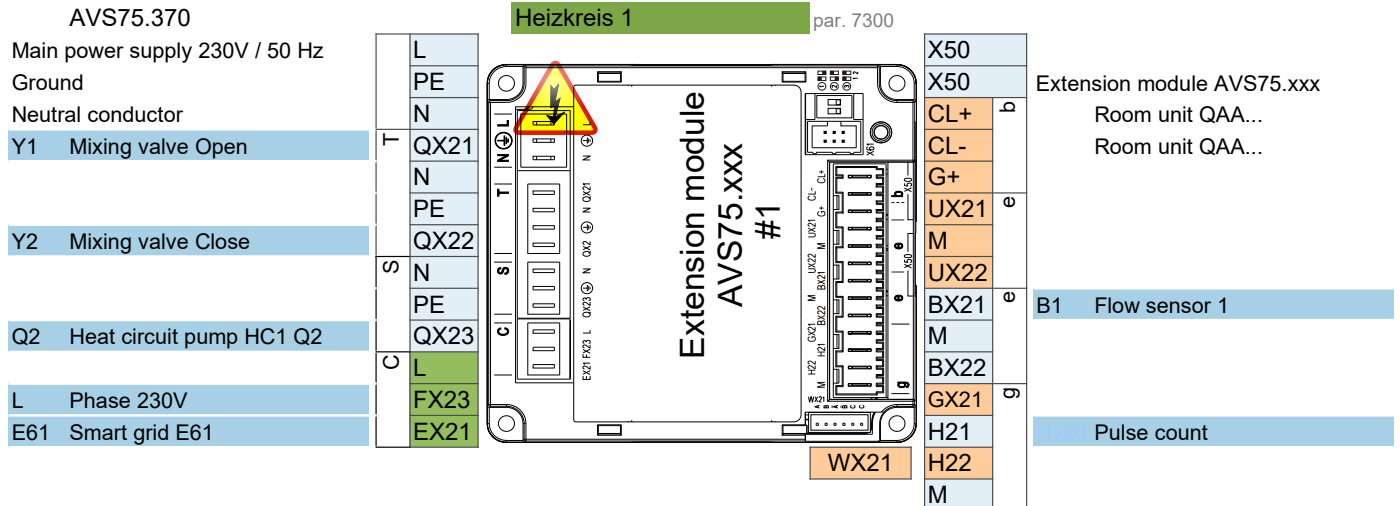
0..10 V Signal

	AVS75.390
	AVS75.391
	AVS75.370





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	CONTROL BOX		05/2024					1



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