

Daikin Altherma mid temperature split  
Technical Data  
ETSH12E / ETSHB12E / ETSX12E / ETSXB12E





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## ETSH12E / ETSHB12E / ETSX12E / ETSXB12E

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# 1 Features

## 1 - 1 ETSX12E, ETSXB12E

**1**

- › Integrated solar unit, offering top comfort in heating, hot water and cooling
- › Maintenance-free tank: no corrosion, anode, scale or lime deposits, and no loss of water through safety valve
- › Maximum use of renewable energy: uses heat pump technology for heating and solar support for space heating and domestic hot water production
- › Fresh water principle: hygienic water, with no need for thermal legionella disinfection
- › Quick configuration in 9 steps in a high resolution colour interface wizard



Fresh hot water



Solar ready



Onecta app (optional)

# 1 Features

## 1 - 2 ETSHB12E, ETSH12E

- › Integrated solar unit, offering top comfort in heating and hot water
- › Maintenance-free tank: no corrosion, anode, scale or lime deposits, and no loss of water through safety valve
- › Maximum use of renewable energy: uses heat pump technology for heating and solar support for space heating and domestic hot water production
- › Fresh water principle: hygienic water, with no need for thermal legionella disinfection
- › Quick configuration in 9 steps in a high resolution colour interface wizard

1



Fresh hot water



Solar ready



Onecta app (optional)

## 2 Specifications

### 2 - 1 Specifications

Technical specifications				ETSH12P30E		ETSH12P50E	
Outdoor unit				EPRA08EAV3 / EPRA08EAW1 / EPRA10EAV3 / EPRA10EAW1 / EPRA12EAV3 / EPRA12EAW1			
Casing		Colour	Traffic white (RAL9016) / Traffic black (RAL9017)				
		Material	Impact resistant polypropylene				
Dimensions	Unit	Height	mm	1,891		1,910	
		Width	mm	594		792	
		Depth	mm	644		817	
	Packed unit	Height	mm	2,050			
		Width	mm	800			
		Depth	mm	850			
Weight	Unit	kg	75		98		
	Packed unit	kg	86		109		
Packing	Material	Plastic foil / Wood (pallet) / Corrugated board					
	Weight	kg	11				
Pump	Type	Grundfos UPM4L K 20-75 CHBL 3 RT					
	Nr of speeds	PWM					
	IP class	IPX4D					
	Power input	W	75				
Water side Heat exchanger	Insulation material		EPP				
Tank	Storage volume	V	m <sup>3</sup>	0.294		0.477	
	Water volume		l	294		477	
	Material	Polypropylen					
	Maximum water temperature		°C	85			
	Insulation	Material	HFC-free Polyurethane foam				
			Heat loss	kWh/24h	1.5 (1)		1.7 (1)
	Standing heat loss	S	W	64		72	
	Specific heat loss	U Asb, S, a	W/K	1.43		1.59	
	Storage volume	V	l	294		477	
	Energy efficiency class	B					
	Vbu (Solar, BUH)	Volume of the non-solar storage tank	l	290		464	
Heat exchanger	Quantity	2					
	Charging	Quantity	1				
		Tube material	Stainless steel (1.4404)				
	Domestic hot water	Face area	m <sup>2</sup>	3.26		3.40	
		Internal coil volume	l	16.0		16.4	
		Operating pressure	bar	3.0			
	Heat exchanger	Domestic hot water	Internal coil volume	l	27.3		36.2
Operating pressure			bar	10.0			
General		Quantity	1				
		Tube material	Stainless steel (1.4404)				
Supplier/Manufacturer details	Name or trademark	Daikin Europe N.V.					
	Name and address	Daikin Europe N.V. - Zandvoordestraat 300, 8400 Oostende, Belgium					
Water circuit	Piping connections diameter	inch	G 1" (male)				
	Piping material	Brass (CW614N/CW617N)					
	Safety valve	bar	3.0				
	Manometer	Digital					
	Drain valve / fill valve	Yes					
	Shut off valve	Yes					
	flowswitch	Yes					
	Air purge valve	Yes					
	Pressure Heating Max.	bar	3				
	Water circuit - space heating side (main zone)	Air purge valve	Yes				
Drain valve / fill valve		Yes					
Manometer		Yes					
Piping connections diameter		inch	G 1 (MALE)				
Safety valve		bar	3				
Shut off valve		Yes					
Water circuit - Domestic hot water side	Piping material	Brass(CW617N)					
	Piping connections	Cold water in / Hot water out	inch	G 1" (male)			
Sound power level	Nom.	dBA	47.3				
Sound pressure level	Nom.	dBA	38.6				

## 2 Specifications

### 2 - 1 Specifications

Technical specifications					ETSH12P30E	ETSH12P50E
Operation range	Heating	Ambient	Min.	°CDB	0 (2)	
			Max.	°CDB	0 (2)	
		Water side	Min.	°C	0 (2)	
			Max.	°C	0 (2)	
	Indoor installation	Ambient	Min.	°CDB	5	
			Max.	°CDB	35	
	Cooling	Ambient	Min.	°CDB	0 (2)	
			Max.	°CDB	0 (2)	
		Water side	Min.	°C	0 (2)	
			Max.	°C	0 (2)	
Domestic hot water		Ambient	Min.	°CDB	0 (2)	
			Max.	°CDB	0 (2)	
Operation range	Domestic hot water	Water side	Min.	°C	0 (2)	
			Max.	°C	0 (2)	
Control systems	Class of temperature control				II	
	Contribution to seasonal space heating efficiency				%	
Installation place					Indoor	

Electrical specifications					ETSH12P30E	ETSH12P50E
Power supply	Phase				1~	
	Frequency		Hz		50	
	Voltage		V		230	
	Voltage range	Min.	%		10	
		Max.	%		10	
IP class	IP				IPX0	

(1)Heatloss according to EN12897 |

(2)Refer to operation limits drawings

Technical specifications					ETSHB12P30E	ETSHB12P50E	
Outdoor unit					EPRA08EAV3 / EPRA08EAW1 / EPRA10EAV3 / EPRA10EAW1 / EPRA12EAV3 / EPRA12EAW1		
Casing	Colour				Traffic white (RAL9016) / Traffic black (RAL9017)		
	Material				Impact resistant polypropylene		
Dimensions	Unit	Height	mm	1,891	1,910		
		Width	mm	594	792		
		Depth	mm	644	817		
	Packed unit	Height	mm	2,050			
		Width	mm	800			
		Depth	mm	850			
Weight	Unit	kg		76	100		
	Packed unit	kg		87	111		
Packing	Material				Plastic foil / Wood (pallet) / Corrugated board		
	Weight		kg		11		
Pump	Type				Grundfos UPM4L K 20-75 CHBL 3 RT		
	Nr of speeds				PWM		
	IP class				IPX4D		
	Power input		W		75		
Water side Heat exchanger	Insulation material				EPP		
Tank	Storage volume	V	m <sup>3</sup>	0.294	0.477		
		Water volume		l	294	477	
	Material				Polypropylen		
	Maximum water temperature		°C		85		
	Insulation	Material				HFC-free Polyurethane foam	
		Heat loss	kWh/24h		1.5 (1)	1.7 (1)	
	Standing heat loss	S	W		64	72	
	Specific heat loss	U Asb, S, a	W/K		1.43	1.59	
	Storage volume	V	l		294	477	
	Energy efficiency class				B		
	Vbu (Solar, BUH)	Volume of the non-solar storage tank	l		290	464	
	Heat exchanger	Quantity				3	
		Charging	Quantity				1
Tube material					Stainless steel (1.4404)		
Face area		m <sup>2</sup>		3.26	3.40		
Internal coil volume		l		16.0	16.4		
Operating pressure		bar		3.0			
Domestic hot water		Face area		m <sup>2</sup>		5.60	7.50

## 2 Specifications

### 2 - 1 Specifications

2

Technical specifications				ETSHB12P30E	ETSHB12P50E	
Heat exchanger	Domestic hot water	Internal coil volume	l	27.3	36.2	
		Operating pressure	bar		10.0	
		Quantity			1	
	Pressurised solar	Tube material			Stainless steel (1.4404)	
		Face area	m <sup>2</sup>	0.74		1.83
		Internal coil volume	l	3.9		9.1
		Operating pressure	bar		6.0	
Quantity				1		
Tube material				Stainless steel (1.4404)		
General	Supplier/Manufacturer details	Name or trademark		Daikin Europe N.V.		
		Name and address		Daikin Europe N.V. - Zandvoordestraat 300, 8400 Oostende, Belgium		
Water circuit	Piping connections diameter	inch		G1" (male)		
	Piping material			Brass (CW614N/CW617N)		
	Safety valve	bar		3.0		
	Manometer			Digital		
	Drain valve / fill valve			Yes		
	Shut off valve			Yes		
	flowswitch			Yes		
	Air purge valve			Yes		
	Pressure Heating Max.	bar		3		
	Water circuit - space heating side (main zone)	Air purge valve			Yes	
Drain valve / fill valve				Yes		
Manometer				Yes		
Piping connections diameter		inch		G 1 (MALE)		
Safety valve		bar		3		
Shut off valve				Yes		
Water circuit - Domestic hot water side	Piping material			Brass(CW617N)		
	Piping Cold water in / Hot water out connections	inch		G1" (male)		
Piping connections	Pressurised solar heat exchanger	inch		G1" (male)		
Sound power level	Nom.	dBA		47.3		
Sound pressure level	Nom.	dBA		38.6		
Operation range	Heating	Ambient	Min.	°CDB	0 (2)	
			Max.	°CDB	0 (2)	
		Water side	Min.	°C	0 (2)	
			Max.	°C	0 (2)	
	Indoor installation	Ambient	Min.	°CDB	5	
			Max.	°CDB	35	
		Cooling	Ambient	Min.	°CDB	0 (2)
				Max.	°CDB	0 (2)
Water side	Min.		°C	0 (2)		
	Max.		°C	0 (2)		
Domestic hot water	Ambient	Min.	°CDB	0 (2)		
		Max.	°CDB	0 (2)		
	Water side	Min.	°C	0 (2)		
		Max.	°C	0 (2)		
Control systems	Class of temperature control			II		
	Contribution to seasonal space heating efficiency	%		2.0		
Installation place				Indoor		

Electrical specifications				ETSHB12P30E	ETSHB12P50E	
Power supply	Phase			1~		
	Frequency	Hz		50		
	Voltage	V		230		
	Voltage range	Min.	%		10	
		Max.	%		10	
IP class	IP			IPX0		

(1)Heatloss according to EN12897 |  
 (2)Refer to operation limits drawings

Technical specifications				ETSX12P30E	ETSX12P50E	
Outdoor unit				EPRA08EAV3 / EPRA08EAW1 / EPRA10EAV3 / EPRA10EAW1 / EPRA12EAV3 / EPRA12EAW1		
Casing	Colour			Traffic white (RAL9016) / Traffic black (RAL9017)		
	Material			Impact resistant polypropylene		
Dimensions	Unit	Height	mm	1,891	1,910	
		Width	mm	594	792	
		Depth	mm	644	817	
	Packed unit	Height	mm		2,050	
		Width	mm		800	
		Depth	mm		850	
Weight	Unit	kg		75	98	
	Packed unit	kg		86	109	

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## 2 Specifications

### 2 - 1 Specifications

Technical specifications				ETSX12P30E	ETSX12P50E	
Packing	Material	Plastic foil / Wood (pallet) / Corrugated board				
	Weight	kg	11			
Pump	Type	Grundfos UPM4L K 20-75 CHBL 3 RT				
	Nr of speeds	PWM				
	IP class	IPX4D				
	Power input	W	75			
Water side Heat exchanger	Insulation material	EPP				
Tank	Storage volume	V	m <sup>3</sup>	0.294	0.477	
	Water volume		l	294	477	
	Material	Polypropylen				
	Maximum water temperature		°C	85		
	Insulation	Material	HFC-free Polyurethane foam			
		Heat loss	kWh/24h	1.5 (1)	1.7 (1)	
	Standing heat loss	S	W	64	72	
	Specific heat loss	U Asb, S, a	W/K	1.43	1.59	
	Storage volume	V	l	294	477	
	Energy efficiency class	B				
Vbu (Solar, BUH)	Volume of the non-solar storage tank	l	290	464		
Heat exchanger	Quantity	2				
	Charging	Quantity	1			
		Tube material	Stainless steel (1.4404)			
		Face area	m <sup>2</sup>	3.26	3.40	
		Internal coil volume	l	16.0	16.4	
	Operating pressure	bar	3.0			
Domestic hot water	Face area	m <sup>2</sup>	5.60	7.50		
Heat exchanger	Domestic hot water	Internal coil volume	l	27.3	36.2	
		Operating pressure	bar	10.0		
		Quantity	1			
		Tube material	Stainless steel (1.4404)			
General	Supplier/Manufacturer details	Name or trademark	Daikin Europe N.V.			
		Name and address	Daikin Europe N.V. - Zandvoordestraat 300, 8400 Oostende, Belgium			
Water circuit	Piping connections diameter	inch				
	Piping material	G 1" (male)				
	Safety valve	Brass (CW614N/CW617N)				
	Manometer	bar	3.0			
	Drain valve / fill valve	Digital				
	Shut off valve	Yes				
	flowswitch	Yes				
	Air purge valve	Yes				
Water circuit - space heating side (main zone)	Pressure	Heating	Max.	bar	3	
		Air purge valve	Yes			
	Drain valve / fill valve	Yes				
	Manometer	Yes				
	Piping connections diameter	inch				
	Safety valve	bar				
	Shut off valve	Yes				
Water circuit - Domestic hot water side	Piping material	Brass(CW617N)				
	Piping connections	Cold water in / Hot water out	inch	G 1" (male)		
Sound power level	Nom.	dBA			47.3	
Sound pressure level	Nom.	dBA			38.6	
Operation range	Heating	Ambient	Min.	°CDB	0 (2)	
			Max.	°CDB	0 (2)	
		Water side	Min.	°C	0 (2)	
			Max.	°C	0 (2)	
	Indoor installation	Ambient	Min.	°CDB	5	
		Max.	°CDB	35		
	Cooling	Ambient	Min.	°CDB	0 (2)	
			Max.	°CDB	0 (2)	
		Water side	Min.	°C	0 (2)	
			Max.	°C	0 (2)	
	Domestic hot water	Ambient	Min.	°CDB	0 (2)	
		Max.	°CDB	0 (2)		
	Operation range	Domestic hot water	Water side	Min.	°C	0 (2)
			Max.	°C	0 (2)	

## 2 Specifications

### 2 - 1 Specifications

2

Technical specifications			ETSX12P30E	ETSX12P50E
Control systems	Class of temperature control		II	
	Contribution to seasonal space heating efficiency %		2.0	
Installation place			Indoor	

Electrical specifications			ETSX12P30E	ETSX12P50E
Power supply	Phase		1~	
	Frequency	Hz	50	
	Voltage		230	
	Voltage range	Min. %	10	
		Max. %	10	
IP class	IP		IPX0	

(1)Heatloss according to EN12897 |

(2)Refer to operation limits drawings

Technical specifications			ETSXB12P30E	ETSXB12P50E	
Outdoor unit			EPRA08EAV3 / EPRA08EAW1 / EPRA10EAV3 / EPRA10EAW1 / EPRA12EAV3 / EPRA12EAW1		
Casing	Colour		Traffic white (RAL9016) / Traffic black (RAL9017)		
	Material		Impact resistant polypropylene		
Dimensions	Unit	Height	mm	1,891	1,910
		Width	mm	594	792
		Depth	mm	644	817
	Packed unit	Height	mm	2,050	
		Width	mm	800	
		Depth	mm	850	
Weight	Unit	kg	76	100	
	Packed unit	kg	87	111	
Packing	Material		Plastic foil / Wood (pallet) / Corrugated board		
	Weight		kg		
Pump	Type		Grundfos UPM4L K 20-75 CHBL 3 RT		
	Nr of speeds		PWM		
	IP class		IPX4D		
	Power input		W	75	
Water side Heat exchanger	Insulation material		EPP		
Tank	Storage volume	V	m <sup>3</sup>	0.294	0.477
	Water volume			294	477
	Material		Polypropylen		
	Maximum water temperature		°C		
	Insulation Material		HFC-free Polyurethane foam		
		Heat loss	kWh/24h	1.5 (1)	1.7 (1)
	Standing heat loss	S	W	64	72
	Specific heat loss	U Asb, S, a	W/K	1.43	1.59
	Storage volume	V	l	294	477
	Energy efficiency class		B		
	Vbu (Solar, BUH)	Volume of the non-solar storage tank	l	290	464
	Heat exchanger	Quantity		3	
		Charging	Quantity		1
Tube material			Stainless steel (1.4404)		
Face area			m <sup>2</sup>	3.26	3.40
Internal coil volume			l	16.0	16.4
Operating pressure			bar	3.0	
Domestic hot water		Face area	m <sup>2</sup>	5.60	7.50
Heat exchanger	Domestic hot water	Internal coil volume	l	27.3	36.2
		Operating pressure	bar	10.0	
	Pressurised solar	Quantity		1	
		Tube material		Stainless steel (1.4404)	
		Face area	m <sup>2</sup>	0.74	1.83
		Internal coil volume	l	3.9	9.1
		Operating pressure	bar	6.0	
		Quantity		1	
	Tube material		Stainless steel (1.4404)		
	General	Supplier/ Manufacturer details	Name or trademark		Daikin Europe N.V.
		Name and address		Daikin Europe N.V. - Zandvoordestraat 300, 8400 Oostende, Belgium	

## 2 Specifications

### 2 - 1 Specifications

Technical specifications				ETSXB12P30E	ETSXB12P50E	
Water circuit	Piping connections diameter	inch		G 1" (male)		
	Piping material			Brass (CW614N/CW617N)		
	Safety valve	bar		3.0		
	Manometer			Digital		
	Drain valve / fill valve			Yes		
	Shut off valve			Yes		
	flowswitch			Yes		
	Air purge valve			Yes		
Pressure	Heating	Max.	bar	3		
Water circuit - space heating side (main zone)	Air purge valve			Yes		
	Drain valve / fill valve			Yes		
	Manometer			Yes		
	Piping connections diameter	inch		G 1 (MALE)		
	Safety valve	bar		3		
Shut off valve				Yes		
Water circuit - Domestic hot water side	Piping material			Brass(CW617N)		
	Piping Cold water in / Hot water out connections	inch		G 1" (male)		
Piping connections	Pressurised solar heat exchanger	inch		G 1" (male)		
Sound power level	Nom.	dB(A)		47.3		
Sound pressure level	Nom.	dB(A)		38.6		
Operation range	Heating	Ambient	Min.	°CDB	0 (2)	
			Max.	°CDB	0 (2)	
		Water side	Min.	°C	0 (2)	
			Max.	°C	0 (2)	
	Indoor installation	Ambient	Min.	°CDB	5	
		Max.	°CDB	35		
	Cooling	Ambient	Min.	°CDB	0 (2)	
			Max.	°CDB	0 (2)	
			Water side	Min.	°C	0 (2)
				Max.	°C	0 (2)
Domestic hot water		Ambient	Min.	°CDB	0 (2)	
		Max.	°CDB	0 (2)		
		Water side	Min.	°C	0 (2)	
			Max.	°C	0 (2)	
Control systems	Class of temperature control			II		
	Contribution to seasonal space heating efficiency	%		2.0		
Installation place				Indoor		
Electrical specifications				ETSXB12P30E	ETSXB12P50E	
Power supply	Phase			1~		
	Frequency	Hz		50		
	Voltage	V		230		
	Voltage range	Min.	%		10	
		Max.	%		10	
IP class	IP			IPX0		

(1)Heatloss according to EN12897 |  
 (2)Refer to operation limits drawings

# 3 Electrical data

## 3 - 1 Electrical Data

3

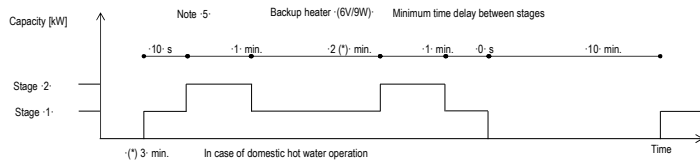
ETSH12E  
ETSHB12E  
ETSX12E  
ETAXB12E

Electrical specifications of the backup heaters and booster heaters

Type	EKECBU*3V			EKECBU*6V				EKECBU*9W						
	1	1-2	1-2-3	2-4	2-6	2-4 (in case of emergency: 2-6)	3-6	3-9	3-6 (in case of emergency: 3-9)	3-9	3-6 (in case of emergency: 3-9)			
Capacity setting	[kW]			2	2	2	2	2	2	2	2			
Capacity stage -1	(4)			2	2	2	2	3	3	3	3			
Capacity stage -2				4	6	4	6	6	9	6	9			
Minimum time delay between stages	-			Note 5				Note 5						
Power supply (1)	Phase			1~				3~						
	Frequency			50										
	Voltage			230 +10%				400 +10%						
	Nominal running current	A		4.4	8.7	13.1	17.4	26.1	17.4	26.1	8.7	13	8.7	13
Current	Zmax (backup heater) (2)	Ω		-				-						
		Complex		-				0.22						
	Minimum Ssc value	kVA		-				(3)						

Notes	
(1)	The above-mentioned power supply of the hydrobox is for the backup heater only. The optional domestic hot water tank has a separate power supply.
(2)	In accordance with EN/IEC 61000-3-11, it may be necessary to consult the distribution network operator to ensure that the equipment is connected only to a supply with Zsys ≤ Zmax.
(3)	The equipment complies with EN/IEC 61000-3-12.
(4)	For the 3V model, the system variably chooses from 3 available capacity steps the adequate capacity for the given operating conditions.
EN/IEC 61000-3-11	European/International Technical Standard setting the limits for voltage changes, voltage fluctuations and flicker in public low-voltage supply systems for equipment with rated current ≤ 75 A.
EN/IEC 61000-3-12	European/International Technical Standard setting the limits for harmonic currents produced by equipment connected to public low-voltage systems with input current > 16 A and ≤ 75 A per phase.
Zsys	System impedance



3D136052

# 3 Electrical data

## 3 - 1 Electrical Data

ETSH12E  
 ETSHB12E  
 ETSX12E  
 ETSXB12E

### \* Electrical meter specification

- Pulse meter type/voltage-free contact for 5 V DC detection by PCB.
- Possible number of pulses
  - 0.1· pulse/kWh
  - 1· pulse/kWh
  - 10· pulse/kWh
  - 100· pulse/kWh
  - 1000· pulse/kWh
- Pulse duration
  - minimum On time: ·40ms·
  - Minimum OFF time: ·100ms·
- Measurement type (depending on installation)
  - Single-phase AC meter
  - Three-phase AC meter
  - Three-phase AC meter
    - Balanced loads
    - Unbalanced loads

### \* Electrical meter installation guideline

- It is the responsibility of the installer to cover the complete power consumption with electrical meters (combination of estimation and metering is not allowed).
- Required number of electrical meters

Outdoor unit type		EPRA(08/10/12)EA*		
Indoor unit type		ETS*12*(F/G)		
	Backup heater type (optional)	EKECBU*3V	EKECBU*6V	EKECBU*9W
	Backup heater power supply	1~ 230V	1~ 230V	3~ 400V
	Backup heater configuration	1/2/3 kW	2 / 4 / 6 kW	3 / 6 / 9 kW
<b>Normal kWh rate power supply</b>				
Electrical meter type	1~	1	1	-
	3~ balanced	-	-	-
	3~ unbalanced	-	-	1
<b>Preferential kWh rate power supply</b>				
Electrical meter type	1~	2	2	1
	3~ balanced	-	-	-
	3~ unbalanced	-	-	1

4D136059C

# 4 Combination table

## 4 - 1 Combination Table

4

### ETSH12E / ETSHB12E ETSX12E / ETSXB12E

Factory-mounted equipment for -ETS(H/X)\*12P\*E\* and -ETS(H/X)\*16P\*E\*.

Description	ETS(H/X)*12P30E*	ETS(H/X)*12P50E*
Domestic hot water tank -300l integrated-	o	-
Domestic hot water tank -500l integrated-	-	o

Description	ETS(H/X)*16P30E*	ETS(H/X)*16P50E*
Domestic hot water tank -300l integrated-	o	-
Domestic hot water tank -500l integrated-	-	o

Outdoor combination table for -ETS(H/X)\*12P\*E\* and -ETS(H/X)\*16P\*E\*.

		EPRAD8EA(V3/W1)	EPRAD10EA(V3/W1)	EPRAD12EA(V3/W1)
ETSH12P(30/50)E*	Heating only indoor unit, Std	o	o	o
ETSHB12P(30/50)E*	Heating only indoor unit, bivalent	o	o	o
ETSX12P(30/50)E*	Reversible indoor unit, Std	o	o	o
ETSX12P(30/50)E*	Reversible indoor unit, bivalent	o	o	o

		EPRAD14(16/18)D*W1*	EPRAD14(16/18)DAV3*
ETSH16P(30/50)E*	Heating only indoor unit, Std	o	o
ETSHB16P(30/50)E*	Heating only indoor unit, bivalent	o	o
ETSX16P(30/50)E*	Reversible indoor unit, Std	o	o
ETSX16P(30/50)E*	Reversible indoor unit, bivalent	o	o

Kit availability for indoor units

Reference	Description	ETS(H/X)12P*E* ETS(H/X)16P*E*	ETS(H/X)B12P*E* ETS(H/X)B16P*E*
EKECBUAF3V	Inline backup heater 3kW *(16)	Mandatory	o *(17)
EKECBUAF6V	Inline backup heater 6kW *(16)	Mandatory	o *(17)
EKECBUAF9V	Inline backup heater 9kW *(16)	Mandatory	o *(17)
EKECBUCO1AF	Inline BUH connection kit TGS/TGL	Mandatory	o *(17)
EKRPIH8AA	Digital I/O PCB	*(1) (3)	-
EKRPIAHTA	Demand PCB	*(3)	o
BR1CHDA*	HCI (Human Comfort Interface)	o	o
EKPCAB4	PC cable	*(4)	o
KRCS01-1	Remote indoor sensor	*(5)	o
EKRSCA1	Remote sensor for outdoor	*(5)	o
EKCCB-W	Universal centralised user interface	o	o
DCOM-LT/O	DCOM gateway	-	-
DCOM-LT/MB	DCOM gateway	-	-
EKCCB-W	Cascade control	o	o
EKHVCONV4	Conversion kit: heating only to reversible.	-	-
FWXV10-15-20ATV3	Heat pump convector	*(6)	o
FWWT10-15-20ATV3	Heat pump convector	*(6)	o
FWWM10-15-20ATV3	Heat pump convector	*(6)	o
EKWKPC	Heat pump convector valve kit	o	o
EKRRTWA	Wired room thermostat	o	o
EKRTR1, EKTRTB	Wireless room thermostat	o	o
EKRTE5	External sensor room thermostat	*(7)	o
EKWUPTA1V3	Multi-zoning base unit 230 V	*(9)	-
EKWCTRA1V3	Digital thermostat 230 V	*(9)	-
EKWCTRA1V3	Analogue thermostat 230 V	*(9)	-
EKWCVATRA1V3	Actuator 230 V	*(9)	-
EKRELSG	Relay for Smart Grid	o	o
BRPO69A61	LAN adapter with solar connectivity	o	o
BRPO69A62	LAN adapter	o	o
BRPO69A71	WLAN module	*(10)	o
EKLHWG3D	-G3- kit	-	-
AFVALVE1	Freeze protection valve	o	o
ESAE04A01*	Daikin Residential Controller	-	-
156021	dirt separator	o	o
EKECBUCO1AF	Blv Connector Kit	o *(18)	o *(18)
EKECBUCO1AF	DB connector kit	o	o
EKSRS4A8	Drain back solar control pump station	o	o

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### ETSH12E / ETSHB12E ETSX12E / ETSXB12E

Reference	Description	ETS(H/X)*12P*E* ETS(H/X)*16P*E*
EKMIKPOAF	Mixing kit – PCB only	o
EKMIKPHAF	Mixing kit – PCB with hydraulics	o
EKMIKHMAF	Hydraulics – mixed pump group	*(12) o
EKMIKHUAF	Hydraulics – unmixed pump group	*(12) o
EKMIKBVAF	Balancing vessel	o
EKMIKDIAF	Distributor for balancing vessel	*(13) o

Notes

- PCB that provides additional output connections:
  - Control external heat source (bivalent operation).
  - Output remote ON/OFF signal space heating/cooling
  - Remote alarm output
- Additional relays to allow bivalent control in combination with an external room thermostat are field-supplied.
- PCB to receive up to -4- digital inputs for power limitation
- Data cable for connection with PC.
- Only 1 remote sensor can be connected: indoor OR outdoor sensor.
- The valve kit is mandatory if a heat pump convector is installed on a reversible model (not mandatory for heating only models).
- EKRTETS- can only be used in combination with -EKRTR1-
- The backup heater capacity depends on a user interface setting.
- Multi-zoning wired controls
- The WLAN cartridge is supplied in the accessory bag of the unit and is meant to be plugged into the SD card slot on the MMI-2. In case of bad signal reception, the WLAN cartridge can be removed and replaced by the WLAN module.
- This kit is mandatory for the UK models.
- Only possible in combination with -EKMIKPOAF-
- Only possible in combination with -EKMIKBVAF- and -EKMIKPHAF- or -EKMIKHUAF-
- Only possible in combination with -HBKIT\*-
- Only possible in combination with -ETVZ\*-
- Only 1 Backup heater can be connected on one unit: 3 or 6\* or 9 kW (\*No 6T1-model applicable). EKECBUCO\*AF is needed to connect the backup heater to the main unit
- Mandatory for installations without a bivalent heat source (oil or gas)
- Only for ETS\*(12/16)P30E\*

Remark

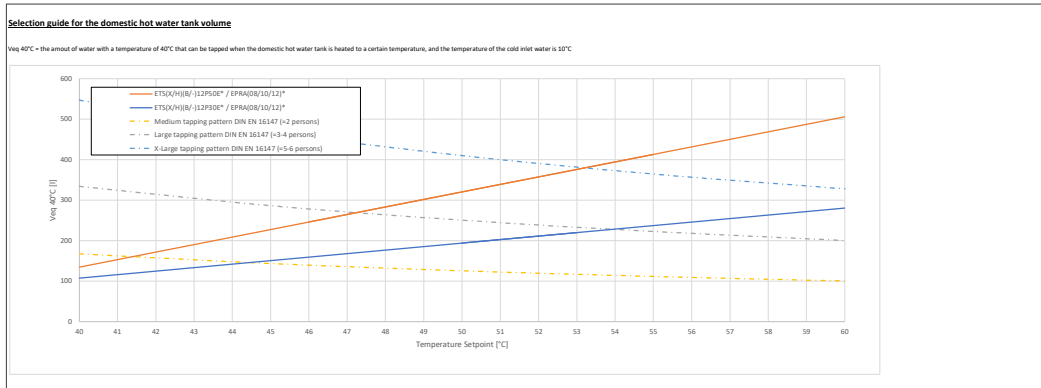
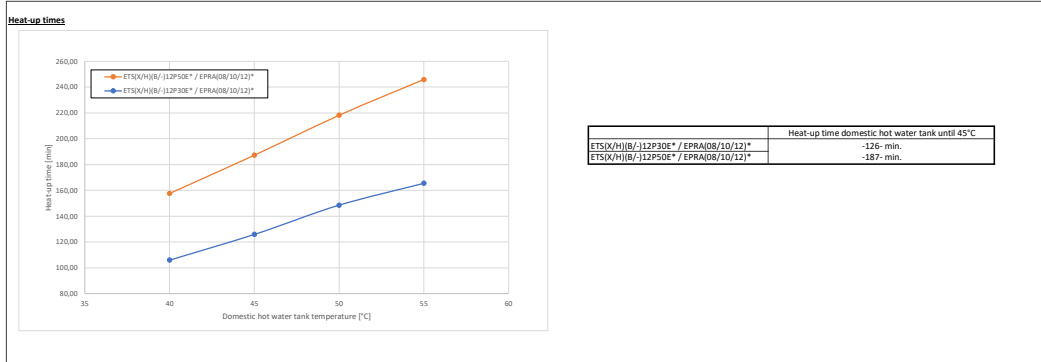
Other combinations than mentioned in this combination table are prohibited.

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# 5 Capacity tables

## 5 - 1 Domestic Hot Water performance

ETSH12E  
 ETSHB12E  
 ETSX12E  
 ETSXB12E



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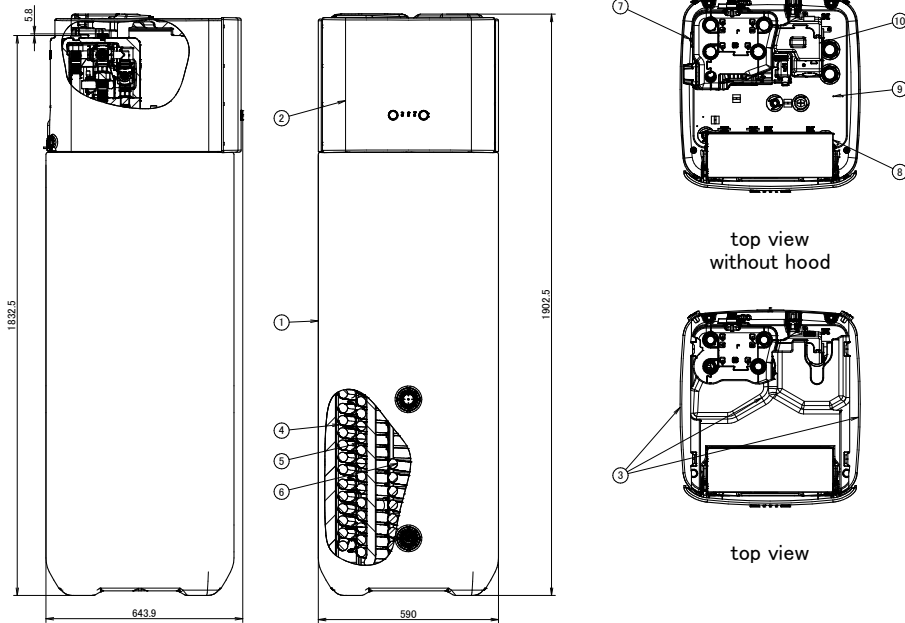
# 6 Dimensional drawings

## 6 - 1 Dimensional Drawings

6

ETSH12P30E  
 ETSHB12P30E  
 ETSX12P30E  
 ETSXB12P30E

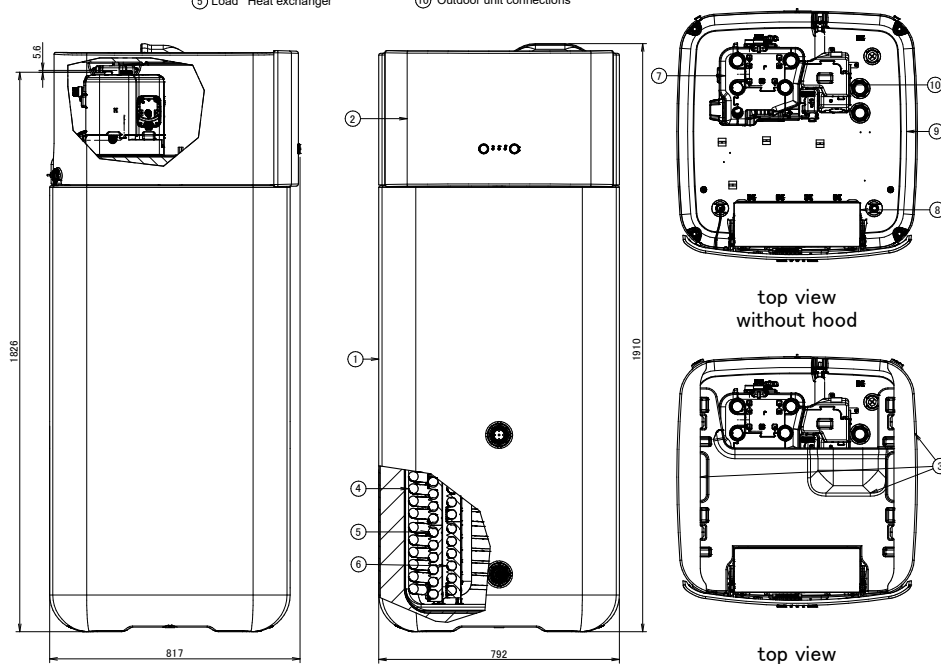
- ① -3XX- tank
- ② -3XX- front panel
- ③ -3XX- hood
- ④ DHW Heat exchanger
- ⑤ Load Heat exchanger
- ⑥ BIV Heat exchanger
- ⑦ Hydraulics – unmixed pump group
- ⑧ Switch box
- ⑨ -3XX- tank lid
- ⑩ Outdoor unit connections



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ETSH12P50E  
 ETSHB12P50E  
 ETSX12P50E  
 ETSXB12P50E

- ① -500-l tank
- ② 5xx Front panel
- ③ 5xx Hood
- ④ DHW Heat exchanger
- ⑤ Load Heat exchanger
- ⑥ BIV Heat exchanger
- ⑦ Hydraulics – mixed pump group
- ⑧ Switch box
- ⑨ 5xx Tank lid
- ⑩ Outdoor unit connections



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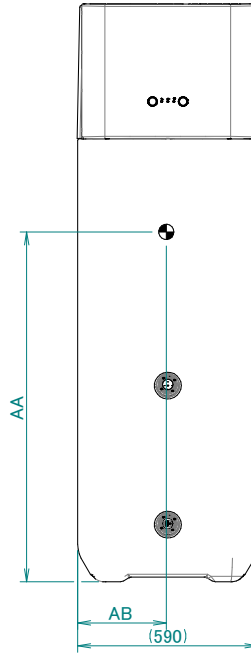
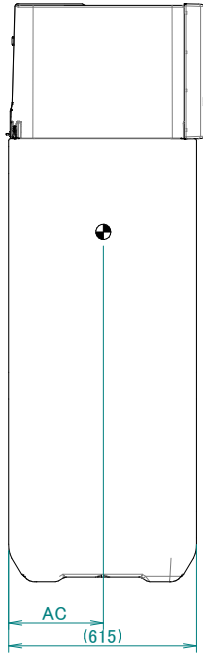
# 7 Centre of gravity

7 - 1 Centre of Gravity

7

ETSH12P30E  
 ETSHB12P30E  
 ETSX12P30E  
 ETSXB12P30E

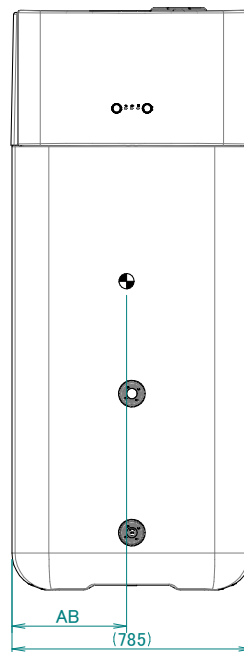
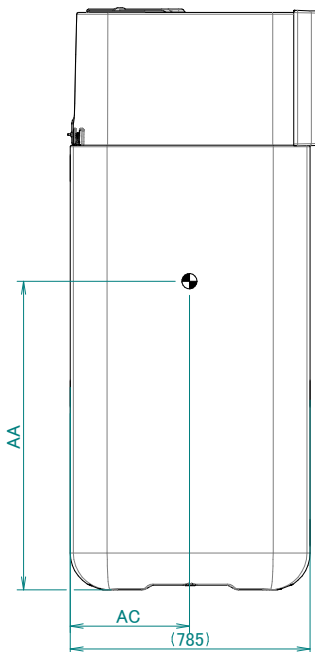
PART	REVISION	AA	AB	AC	JUDGE	CLASSIFY
1		1145	290	310	2	G1



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ETSH12P50E  
 ETSHB12P50E  
 ETSX12P50E  
 ETSXB12P50E

PART	REVISION	AA	AB	AC	JUDGE	CLASSIFY
1		1010	375	390	2	G1



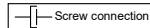
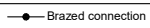
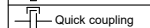
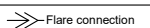
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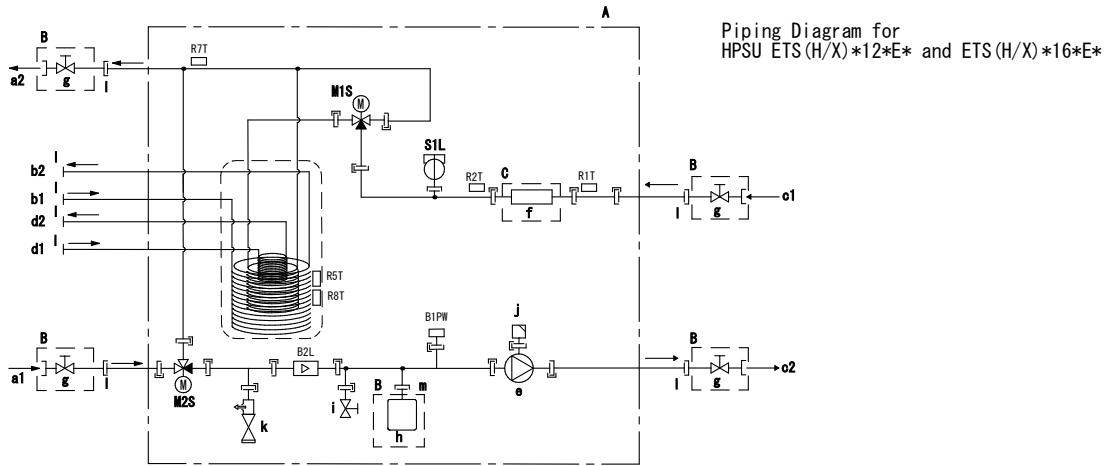
# 8 Piping diagrams

## 8 - 1 Piping Diagrams

ETSH12E  
 ETSHB12E  
 ETSX12E  
 ETSXB12E

- A Indoor unit
- B Field installed
- C Optional
- a1 Space heating/cooling water IN
- a2 Space heating/cooling water OUT
- b1 Domestic hot water: cold water in
- b2 Domestic hot water: hot water out
- c1 Water inlet
- c2 Water outlet
- d1 Water in connection -BIV-
- d2 Water out connection -BIV-
- e Pump
- f Backup heater
- g Shut-off valve
- h Expansion vessel
- i Drain valve
- j Automatic air purge valve
- k Safety valve
- l Screw connection -external 1"-
- m Screw connection -external 3/4"-
- B2L Flow sensor
- B1PW Space heating water pressure sensor
- M1S 3-way mixing valve
- M2S 3-way bypass valve
- R1T Outlet water heat exchanger thermistor
- R2T Outlet water backup heater thermistor
- R5T,R8T Tank thermistor
- R7T Water outlet thermistor (main/mixed zone)
- S1L Flow switch

	Screw connection		Brazed connection
	Quick coupling		Flare connection



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# 9 Wiring diagrams

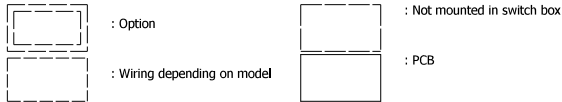
## 9 - 1 Notes & Legend

9

### ETSH12E / ETSHB12E ETSX12E / ETSXB12E

#### NOTES to go through before starting the unit

- X1M : Main terminal
- X6M : BUH power supply terminal
- X12M : Field wiring terminal for AC
- X15M : Field wiring terminal for DC
- : Earth wiring
- - - - - : Field supply
- ① : Several wiring possibilities



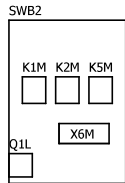
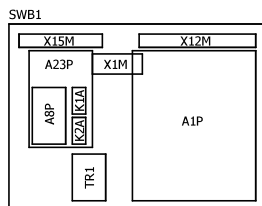
- Backup heater power supply:
- 3V (1N~, 230V, 3kW)
  - 6V3 (1N~, 230V, 6kW)
  - 6WN/9WN (3N~, 400V, 6/9kW)

- User installed options:
- Backup heater
  - LAN adapter
  - Remote user interface
  - Ext. indoor thermostat
  - Ext. outdoor thermostat
  - Demand PCB
  - Smartgrid kit
  - WLAN adapter module
  - WLAN cartridge
  - BZ mixing kit

- Main LWT:
- On/OFF thermostat (wired)
  - On/OFF thermostat (wireless)
  - Ext. thermostat
  - Heat pump convactor

- Add LWT:
- On/OFF thermostat (wired)
  - On/OFF thermostat (wireless)
  - Ext. thermostat
  - Heat pump convactor

#### POSITION IN SWITCH BOX



#### LEGEND



Translation can be found in the installation manual.

\* : optional  
# : field supply

Part n°	Description
A1P	main PCB
A2P	* On/OFF thermostat (PC=power circuit)
A3P	* heat pump convactor
A8P	* demand PCB
A9P	* status indicator
A11P	* MMI PCB
A13P	* LAN adapter
A14P	* user interface PCB
A15P	* receiver PCB (wireless On/OFF thermostat)
A20P	* WLAN module
A23P	* hydro extension PCB
A30P	* BZ mixing kit PCB
B2L	flow sensor
B1PW	water pressure sensor
DS1 (A8P)	* dipswitch
E1H	* backup heater element (1 kW)
E2H	* backup heater element (2 kW)
E*P (A9P)	* indication LED
F1B	* overcurrent fuse backup heater
F1T	* thermal fuse backup heater
F2B	* overcurrent fuse main
FU1 (A1P)	fuse (T 5 A 250 V for PCB)
FU1 (A23P)	fuse (3,15 A 250 V for PCB)
K1A, K2A	* high voltage smartgrid relay
K1M, K2M	* contactor backup heater
K5M	* safety contactor BUH
K* (A23P)	relay on PCB
K*R (A*P)	relay on PCB
M1P	main supply pump
M1S	DHW tank mixing 3 way valve
M2P	# domestic hot water pump
M2S	# bypass mixing 3 way valve
M4S	# shut-off valve

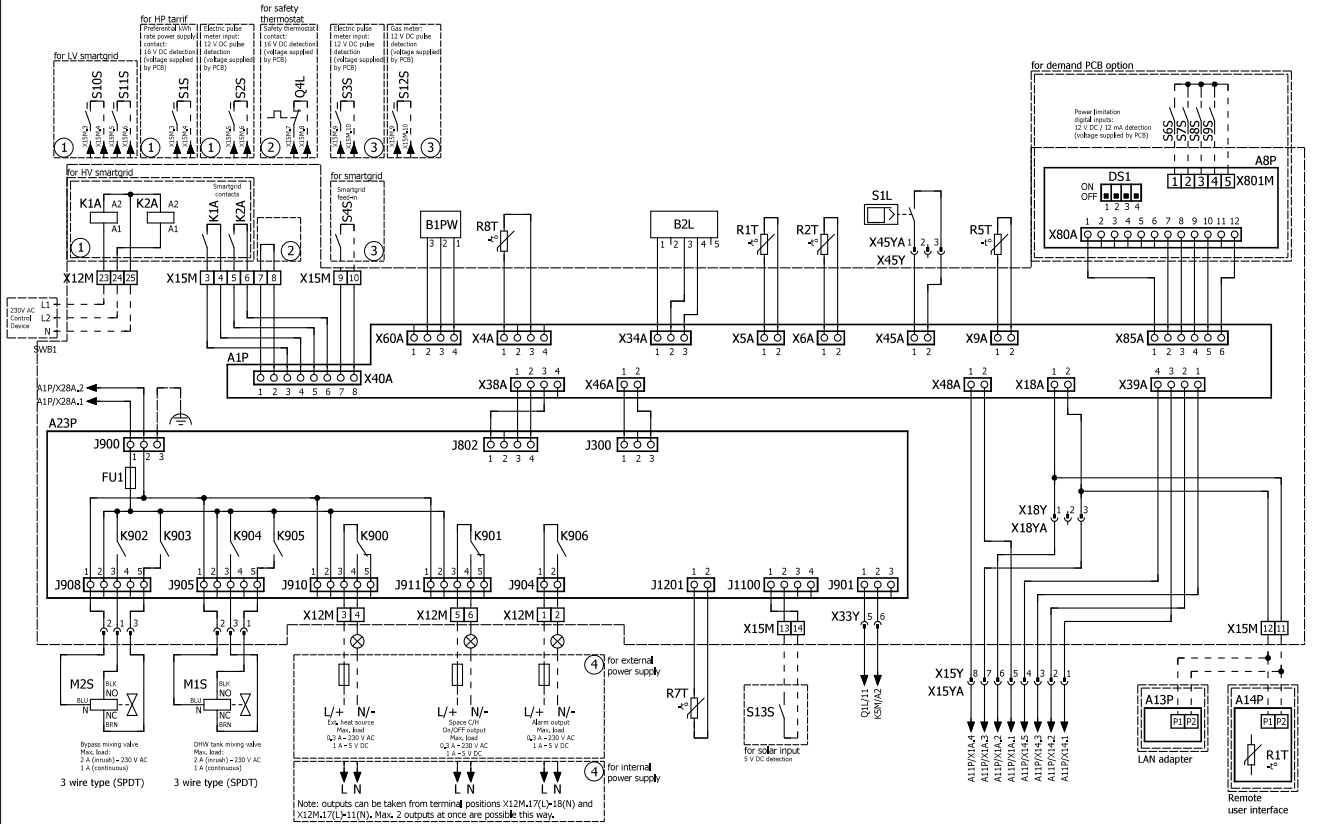
P1M	MMI display
PC (A15P)	* power circuit
Q1L	* thermal protector backup heater
Q4L	# safety thermostat
Q*DI	# earth leakage circuit breaker
R1H (A2P)	* humidity sensor
R1T (A1P)	outlet water heat exchanger thermostat
R1T (A2P)	* ambient sensor On/OFF thermostat
R1T (A14P)	* ambient sensor user interface
R2T (A1P)	outlet backup heater thermostat
R2T (A2P)	* external sensor (floor or ambient)
R5T, R8T	domestic hot water thermostat
R6T	* external indoor or outdoor ambient thermostat
R7T	mixed leaving water thermostat
S1L	flow switch
S1S	# preferential kWh rate PS contact
S2S	# electrical meter pulse input 1
S3S	# electrical meter pulse input 2
S4S	# smart grid feed-in contact
S6S-S9S	* digital power limitation inputs
S10S-S11S	# low voltage smartgrid contact
S12S	# gas meter input
S13S	# solar input
SW1~2 (A11P)	turn buttons
SW3~5 (A11P)	push button
TR1	power supply transformer
X*, X*A, X*H*, X*Y	connector
X*M	terminal strip

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# 9 Wiring diagrams

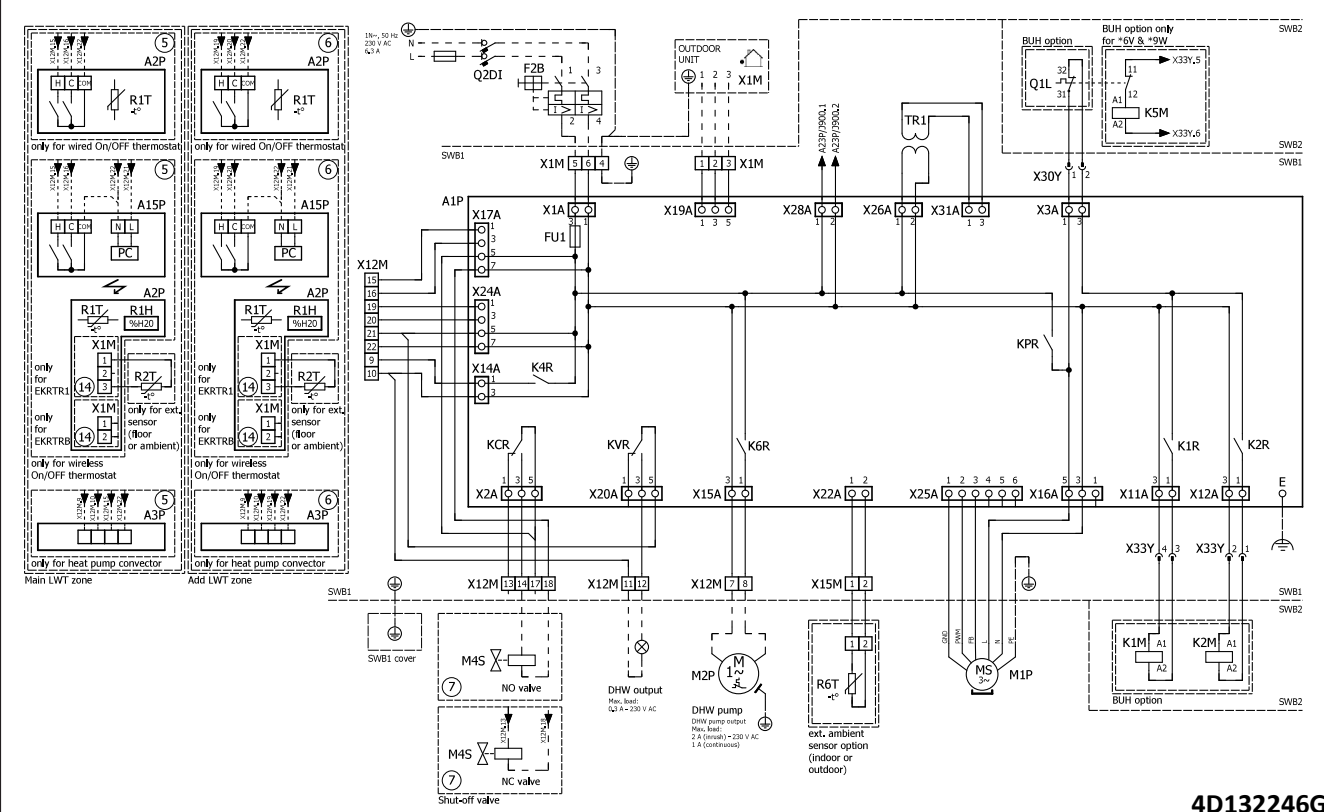
## 9 - 2 Control Circuit

### ETSH12E / ETSHB12E / ETSX12E / ETSXB12E



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### ETSH12E / ETSHB12E ETSX12E / ETSXB12E



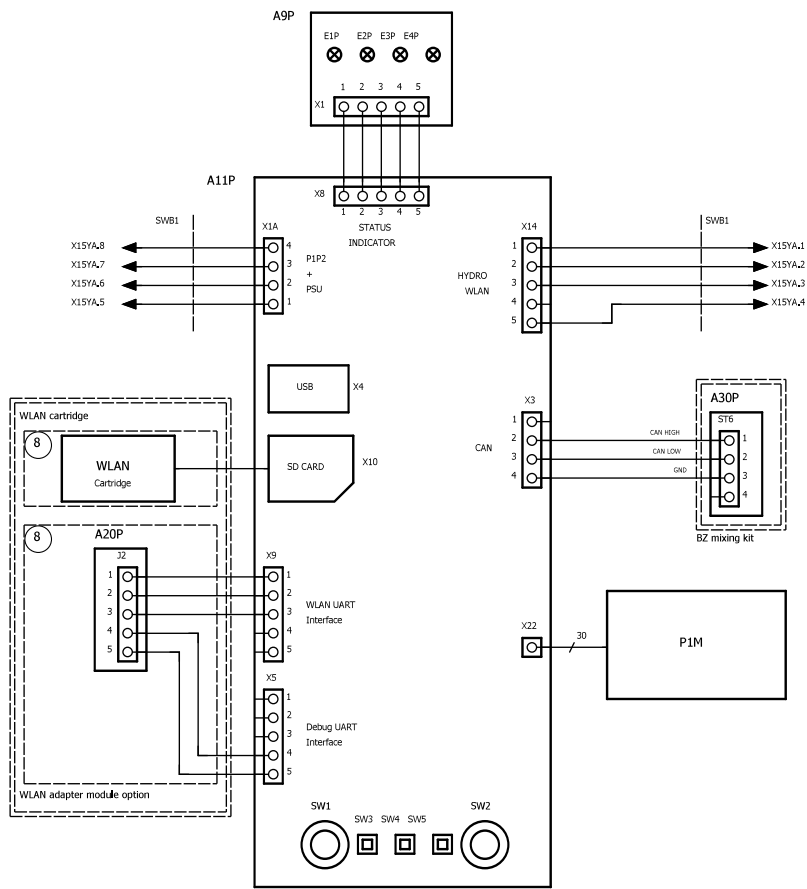
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# 9 Wiring diagrams

## 9 - 2 Control Circuit

9

ETSH12E / ETSHB12E  
ETSX12E / ETSXB12E

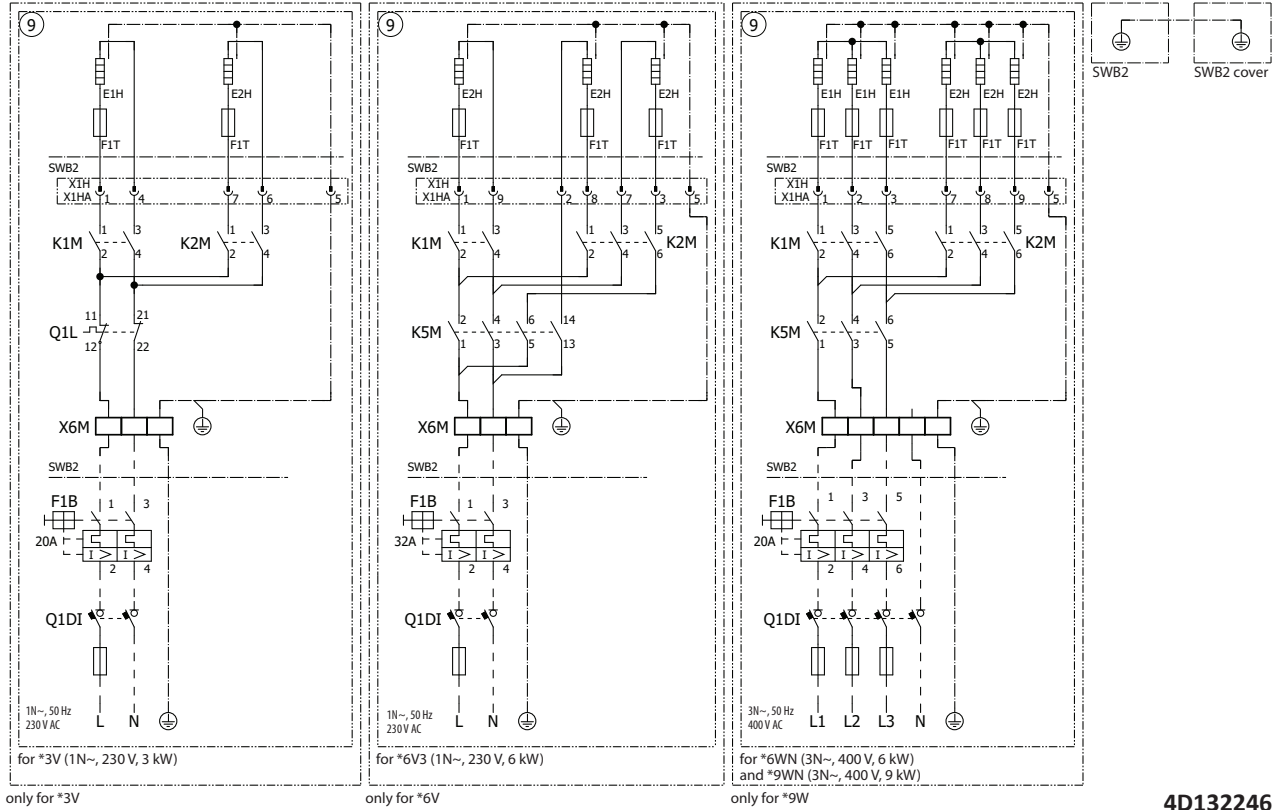


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# 9 Wiring diagrams

## 9 - 3 Power Supply, Back-up Heater

ETSH12E / ETSHB12E  
ETSX12E / ETSXB12E



# 10 External connection diagrams

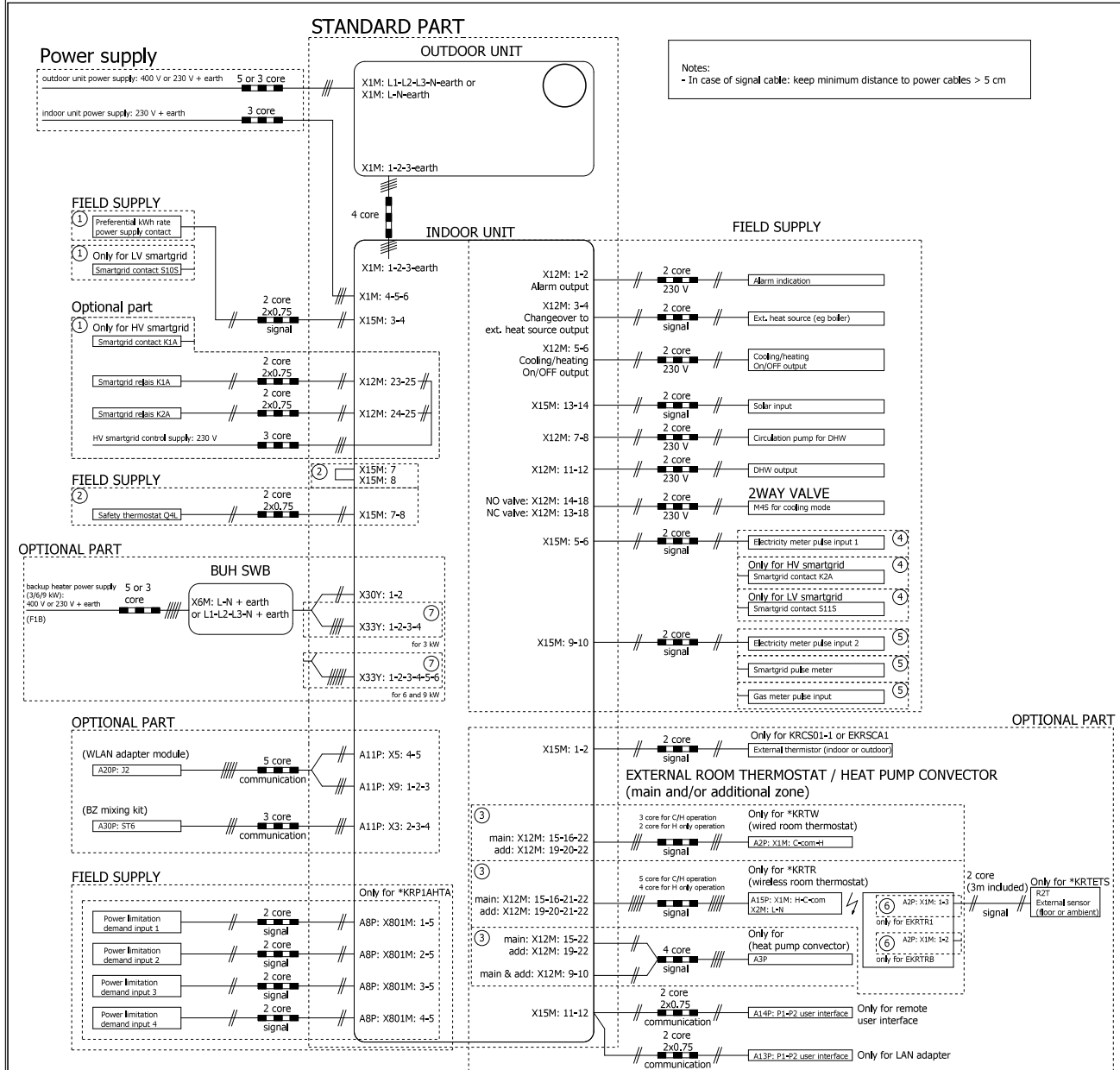
## 10 - 1 External Connection Diagrams

10

ETSH12E / ETSHB12E / ETSX12E / ETSXB12E

Electrical connection diagram HPSU Top Grade / TBM

For more details please check unit wiring



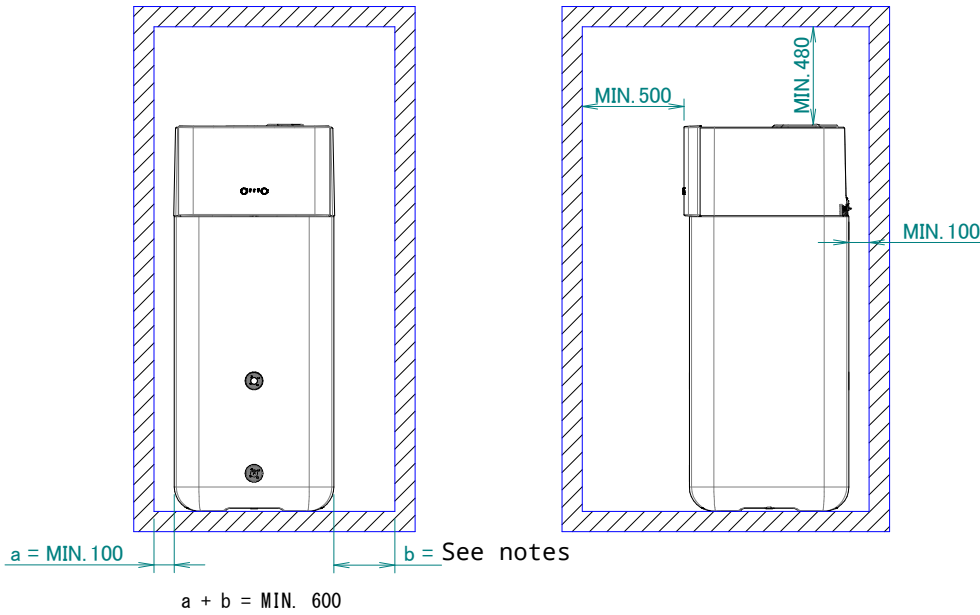
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# 11 Installation

## 11 - 1 Installation Method

ETSH12E  
 ETSHB12E  
 ETSX12E  
 ETSXB12E

Notes  
 HPSU ·3XX· with BUH: ·min. 300·  
 HPSU ·3XX· without BUH: ·min. 100·  
 HPSU ·5XX· with/without BUH: ·min. 100·

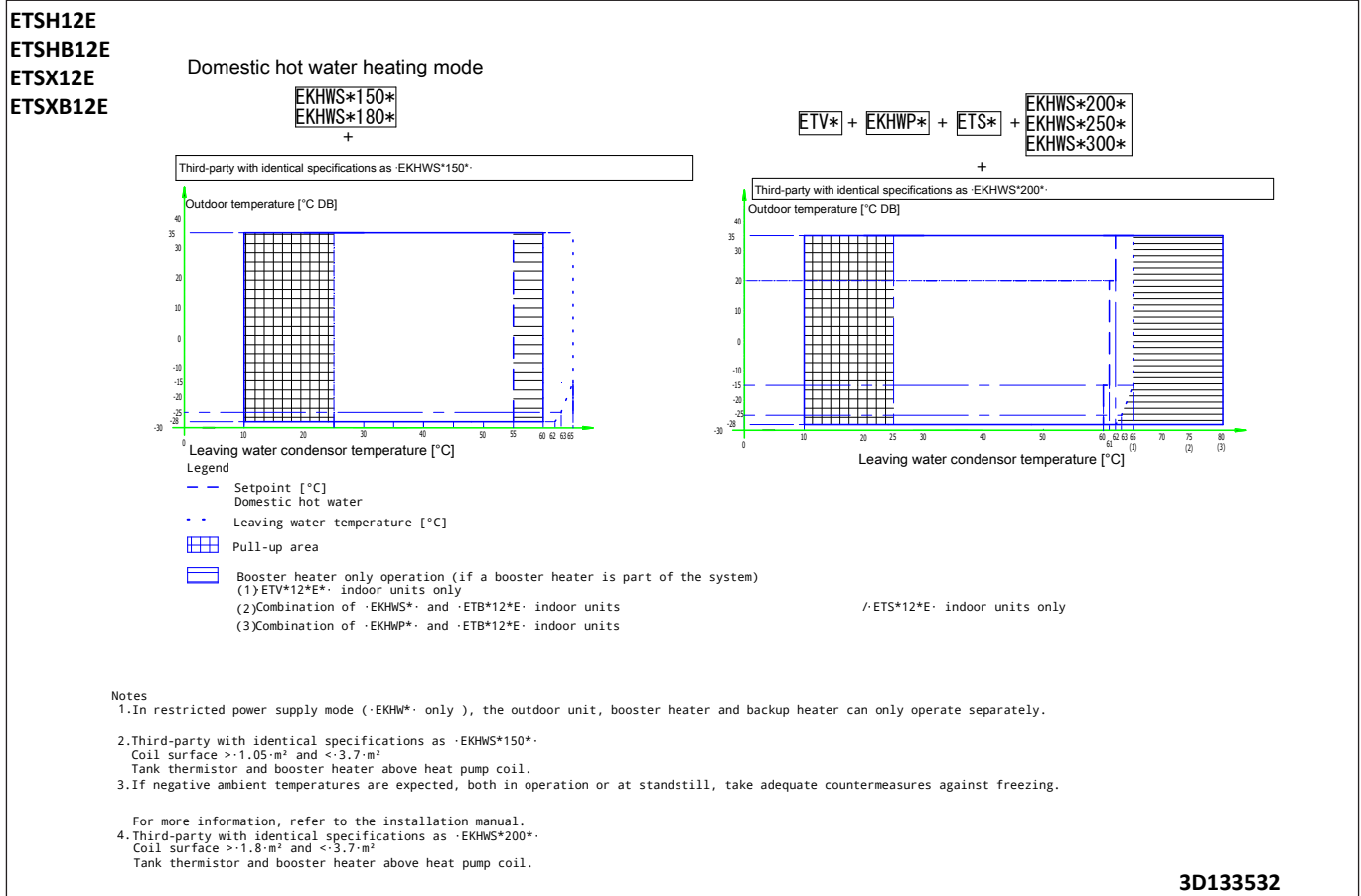
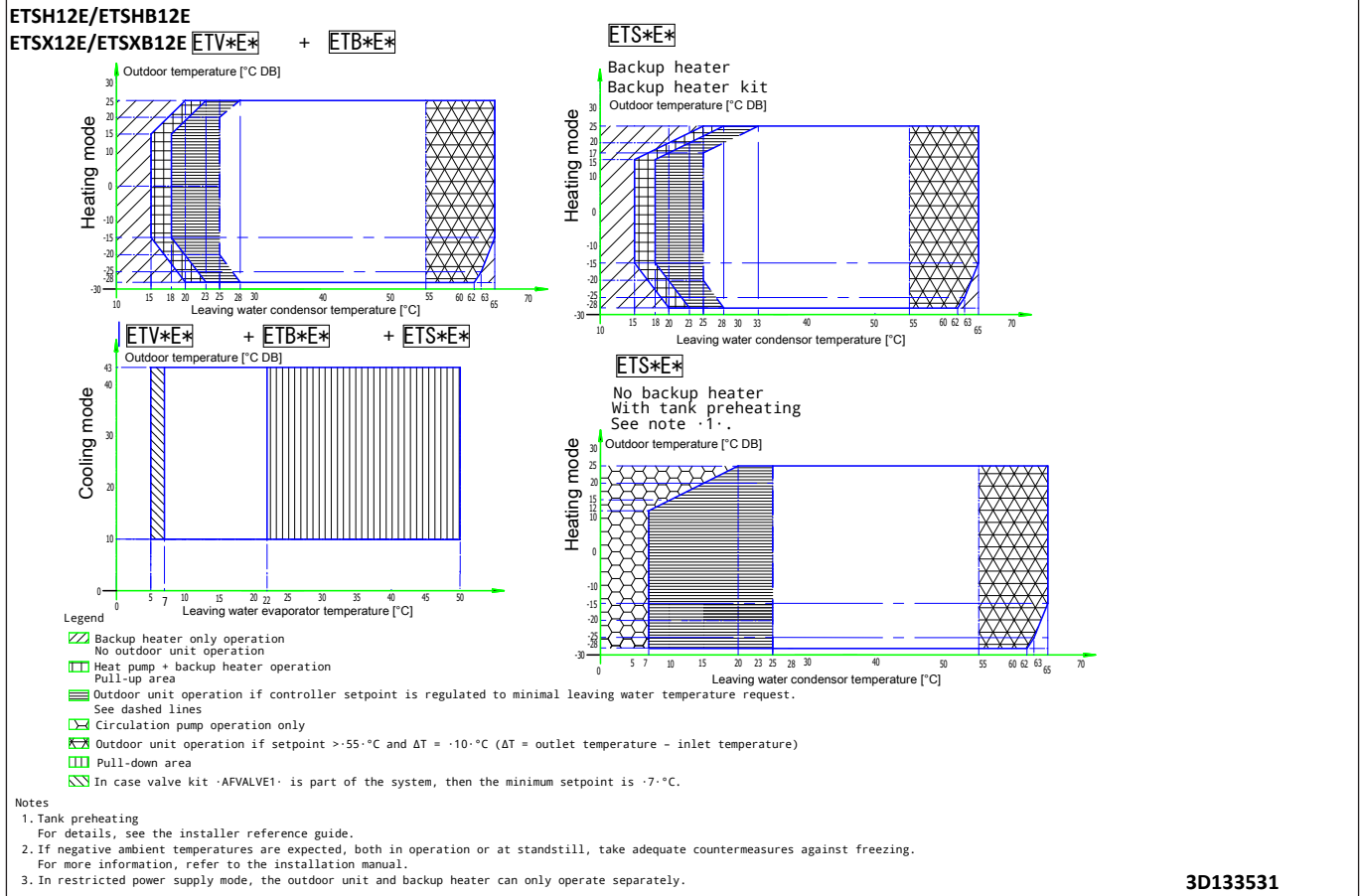


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# 12 Operation range

## 12 - 1 Operation Range

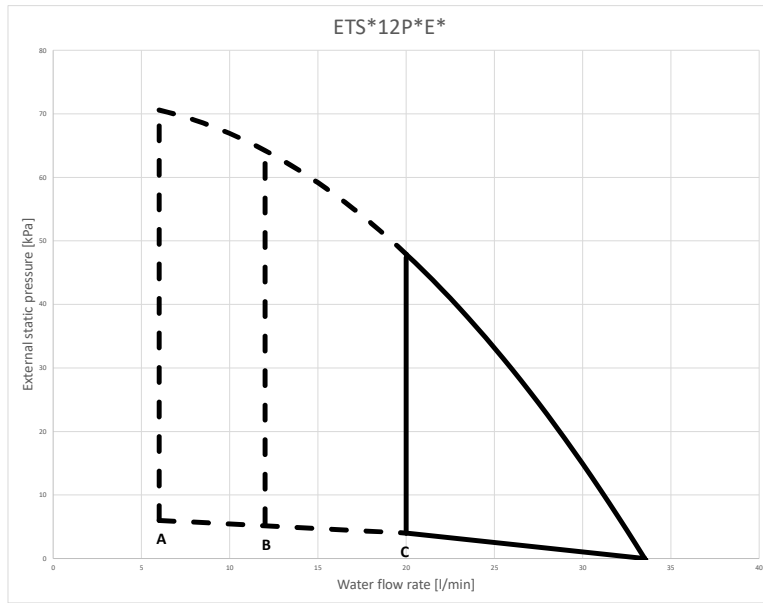
12



# 13 Hydraulic performance

## 13 - 1 Static Pressure Drop Unit

ETSH12E  
 ETSHB12E  
 ETSX12E  
 ETSXB12E



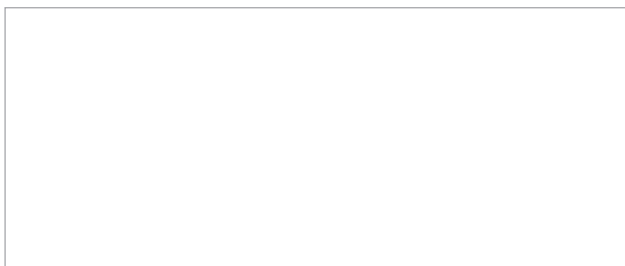
- A Minimum water flow rate during normal operation
- B Minimum water flow rate during backup heater operation
- C Minimum water flow rate during defrost operation

Operation area is extended to lower flow rates only in case the unit operates with heat pump only.  
 See dashed lines

**Notes**

1. Selection of a flow outside the operating area can damage the unit or cause the unit to malfunction. See also the minimum and maximum allowed water flow range in the technical specifications.
2. Water quality must be according to EU directive 98/83 EC.

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