Daikin Altherma mid temperature split Technical Data ELSH-E / ELSHB-E / ELSX-E / ELSXB-E

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ELSH-E / ELSHB-E / ELSX-E / ELSXB-E

1 Features

1 - 1 ELSH-E, ELSX-E, ELSHB-E, ELSXB-E

Floor standing air to water heat pump for heating and hot water with thermal solar support

- 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
- Quick configuration in 9 steps in a high resolution colour interface wizard
- 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

Fresh hot water

Solar ready

Onecta app

2 Specifications

2 - 1 Specifications

Technical specifications					ELSH12P30E	ELSH12P50E
Casing	Colour				Traffic white (RAL9016) / Traffic black (RAL9017)	
	Material				Impact resistant polypropylene	
Dimensions	Unit	Height		mm	1,893	1,910
		Width		mm	594	792
		Depth		mm	680	817
	Packed unit	Height		mm	2,029	2,046
		Width		mm	800	
		Depth		mm	900	
Weight	Unit			kg	76.0	91.0
	Packed unit			kg	89	112
Packing	Material				Plastic foil / Wood (pallet) / Corrugated board / PP (Straps)	
	Weight			kg	13	21
PED	Category				Category II	
	Most critical part	Name			Plate heat exchanger	
		Ps*V		Bar*l	60	
Refrigerant side heat exchanger	Type				Plate heat exchanger	
	Quantity				1	
	Plates	Quantity			66	
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	Type				Plate heat exchanger	
	Model				ACH43-66AH-F	
	Quantity				1	
	Plates	Quantity			66	
	Water volume			l	1.58	
	Water flow rate	Min.		l/min	20.0 (1)	
	Insulation material				EPDM type	
Water filter Main Zone	Diameter perforations			mm	290.0	464.0
Tank	Water volume			l	294	477
	Material				Polypropylen	
	Maximum water temperature			°C	85.0	
	Insulation	Material			HFC-free Polyurethane foam	
		Heat loss		kWh/24h	1.5 (2)	1.7 (2)
	Standing heat loss	S		W	64	72
Tank	Specific heat loss	U Asb, S, a		W/K	1.4	1.6
	Storage volume	V		l	294	477
	Energy efficiency class				B	
Heat exchanger	Quantity				2	
	Charging	Quantity			1	
		Tube material			Stainless steel (1.4404)	
		Face area		m^2	3.26	3.40
		Internal coil volume		l	16	
		Operating pressure		bar	3	
	Domestic hot water	Face area		m^2	5.60	7.50
		Internal coil volume		l	27.3	36.2
		Operating pressure		bar	10	
		Quantity			1	
		Tube material			Stainless steel (1.4404)	
General	Supplier/	Name or trademark			Daikin Europe N.V.	
	Manufacturer details	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	
	Manometer				Digital	
	Drain valve / fill valve				Yes	
	Shut off valve				Yes	
	flowswitch				No	
	Air purge valve				Yes	
	Pressure	Heating	Max.	bar	3	
	Heating water system	Water volume	Min.	l	4	

2 Specifications

2 - 1 Specifications

Technical specifications					ELSH12P30E	ELSH12P50E
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)	
Refrigerant	Type				R-32	
Refrigerant circuit	Gas side diameter			mm	15.9	
	Liquid side diameter			mm	6.35	
Refrigerant circuit	High pressure side	Design pressure		bar	46	
Sound power level	Nom.			dBA	44.7	
Sound pressure level	Nom.			dBA	36.8	
Operation range	Heating	Ambient	Min.	°C	-25 (3)	
			Max.	°C	25 (3)	
		Water side	Min.	°C	15 (3)	
			Max.	°C	65 (3)	
	Indoor installation	Ambient	Min.	°CDB	5	
			Max.	°CDB	35	
	Cooling	Ambient	Min.	°CDB	10 (3)	
			Max.	°CDB	43 (3)	
		Water side	Min.	°C	5 (3)	
			Max.	°C	22 (3)	
	Domestic hot water	Ambient	Min.	°CDB	-25 (3)	
			Max.	°CDB	35 (3)	
		Water side	Min.	°C	25 (3)	
			Max.	°C	62 (3)	
Installation place					Indoor	

Electrical specifications				ELSH12P30E	ELSH12P50E
Power supply	Phase			1~	
	Frequency		Hz	50	
	Voltage		V	230	
	Voltage range	Min.	%	-10	
		Max.	%	10	
IP class	IP			IPX4	

(1)Operation area is extended to lower flow rates depending on operation mode - refer to ESP curve. |
(2)Heatloss according to EN12897 |
(3)For more details, see operation range drawing

Technical specifications				ELSHB12P30E	ELSHB12P50E
Casing	Colour			Traffic white (RAL9016) / Traffic black (RAL9017)	
	Material			Impact resistant polypropylene	
Dimensions	Unit	Height	mm	1,893	1,910
		Width	mm	594	792
		Depth	mm	680	817
	Packed unit	Height	mm	2,029	2,046
		Width	mm	800	
		Depth	mm	900	
Weight	Unit		kg	76.0	91.0
	Packed unit		kg	89	112
Packing	Material			Plastic foil / Wood (pallet) / Corrugated board / PP (Straps)	
	Weight		kg	13	21
PED	Category			Category II	
	Most critical part	Name		Plate heat exchanger	
		Ps*V	Bar*l	60	
Refrigerant side heat exchanger	Type			Plate heat exchanger	
	Quantity			1	
	Plates	Quantity		66	
Pump	Type			Grundfos UPM4L K 20-75 CHBL 3 RT	
	Nr of speeds			PWM	
	IP class			IPX4D	
	Power input		W	75	

2 Specifications

2 - 1 Specifications

Technical specifications				ELSHB12P30E	ELSHB12P50E
Water side Heat exchanger	Type			Plate heat exchanger	
	Model			ACH43-66AH-F	
	Quantity			1	
	Plates	Quantity		66	
	Water volume		l	1.58	
	Water flow rate	Min.	l/min	20.0 (1)	
	Insulation material			EPDM type	
Water filter Main Zone	Diameter perforations		mm	290.0	464.0
Tank	Water volume		l	294	477
	Material			Polypropylen	
	Maximum water temperature		°C	85.0	
	Insulation	Material		HFC-free Polyurethane foam	
		Heat loss	kWh/24h	1.5 (2)	1.7 (2)
	Standing heat loss	S	W	64	72
Tank	Specific heat loss	U Asb, S, a	W/K	1.4	1.6
	Storage volume	V	l	294	477
	Energy efficiency class			B	
Heat exchanger	Quantity			3	
	Charging	Quantity		1	
		Tube material		Stainless steel (1.4404)	
		Face area	m^2	3.26	3.40
		Internal coil volume	l	16	
		Operating pressure	bar	3	
	Domestic hot water	Face area	m^2	5.60	7.50
		Internal coil volume	l	27.3	36.2
		Operating pressure	bar	10	
		Quantity		1	
		Tube material		Stainless steel (1.4404)	
	Pressurised solar	Face area	m^2	0.74	1.83
		Internal coil volume	l	3.90	9.07
		Operating pressure	bar	6.00	
		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	G 1" (male)	
	Piping material			Brass (CW614N/CW617N)	
	Safety valve		bar	3	
	Manometer			Digital	
	Drain valve / fill valve			Yes	
	Shut off valve			Yes	
	flowswitch			No	
	Air purge valve			Yes	
	Pressure	Heating Max.	bar	3	
	Heating water system	Water volume Min.	l	4	
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)	
Piping connections	Pressurised solar heat exchanger		inch	G 1" (male)	
Refrigerant	Type			R-32	
Refrigerant circuit	Gas side diameter		mm	15.9	
	Liquid side diameter		mm	6.35	
	High pressure side	Design pressure	bar	46	
Sound power level	Nom.		dBA	44.7	
Sound pressure level	Nom.		dBA	36.8	

2 Specifications

2 - 1 Specifications

Technical specifications					ELSHB12P30E	ELSHB12P50E
Operation range	Heating	Ambient	Min.	°C	-25 (3)	
			Max.	°C	25 (3)	
		Water side	Min.	°C	15 (3)	
			Max.	°C	65 (3)	
	Indoor installation	Ambient	Min.	°CDB	5	
			Max.	°CDB	35	
	Cooling	Ambient	Min.	°CDB	10 (3)	
			Max.	°CDB	43 (3)	
		Water side	Min.	°C	5 (3)	
			Max.	°C	22 (3)	
	Domestic hot water	Ambient	Min.	°CDB	-25 (3)	
			Max.	°CDB	35 (3)	
		Water side	Min.	°C	25 (3)	
			Max.	°C	62 (3)	
Installation place					Indoor	

Electrical specifications				ELSHB12P30E	ELSHB12P50E
Power supply	Phase			1~	
	Frequency		Hz	50	
	Voltage		V	230	
	Voltage range	Min.	%	-10	
		Max.	%	10	
IP class	IP			IPX4	

(1)Operation area is extended to lower flow rates depending on operation mode - refer to ESP curve. |
(2)Heatloss according to EN12897 |
(3)For more details, see operation range drawing

Technical specifications				ELSX12P30E	ELSX12P50E
Casing	Colour			Traffic white (RAL9016) / Traffic black (RAL9017)	
	Material			Impact resistant polypropylene	
Dimensions	Unit	Height	mm	1,893	1,910
		Width	mm	594	792
		Depth	mm	680	817
	Packed unit	Height	mm	2,029	2,046
		Width	mm	800	
		Depth	mm	900	
Weight	Unit		kg	76.0	91.0
	Packed unit		kg	89	112
Packing	Material			Plastic foil / Wood (pallet) / Corrugated board / PP (Straps)	
	Weight		kg	13	21
PED	Category			Category II	
	Most critical part	Name		Plate heat exchanger	
		Ps*V	Bar*l	60	
Refrigerant side heat exchanger	Type			Plate heat exchanger	
	Quantity			1	
	Plates	Quantity		66	
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	Type			Plate heat exchanger	
	Model			ACH43-66AH-F	
	Quantity			1	
	Plates	Quantity		66	
	Water volume		l	1.58	
	Water flow rate	Min.	l/min	20.0 (1)	
	Insulation material			EPDM type	
Water filter Main Zone	Diameter perforations		mm	290.0	464.0
Tank	Water volume		l	294	477
	Material			Polypropylen	
	Maximum water temperature		°C	85.0	
	Insulation	Material		HFC-free Polyurethane foam	
		Heat loss	kWh/24h	1.5 (2)	1.7 (2)
	Standing heat loss	S	W	64	72
Tank	Specific heat loss	U Asb, S, a	W/K	1.4	1.6
	Storage volume	V	l	294	477
	Energy efficiency class			B	

2 Specifications

2 - 1 Specifications

Technical specifications					ELSX12P30E	ELSX12P50E
Heat exchanger	Quantity				2	
	Charging	Quantity			1	
		Tube material			Stainless steel (1.4404)	
		Face area		m^2	3.26	3.40
		Internal coil volume		l	16	
		Operating pressure		bar	3	
	Domestic hot water	Face area		m^2	5.60	7.50
		Internal coil volume		l	27.3	36.2
		Operating pressure		bar	10	
		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	G 1" (male)	
	Piping material				Brass (CW614N/CW617N)	
	Safety valve			bar	3	
	Manometer				Digital	
	Drain valve / fill valve				Yes	
	Shut off valve				Yes	
	flowswitch				No	
	Air purge valve				Yes	
	Pressure	Heating	Max.	bar	3	
	Heating water system	Water volume	Min.	l	4	
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)	
Refrigerant	Type				R-32	
Refrigerant circuit	Gas side diameter			mm	15.9	
	Liquid side diameter			mm	6.35	
Refrigerant circuit	High pressure side	Design pressure		bar	46	
Sound power level	Nom.			dBA	44.7	
Sound pressure level	Nom.			dBA	36.8	
Operation range	Heating	Ambient	Min.	°C	-25 (3)	
			Max.	°C	25 (3)	
		Water side	Min.	°C	15 (3)	
			Max.	°C	65 (3)	
	Indoor installation	Ambient	Min.	°CDB	5	
			Max.	°CDB	35	
	Cooling	Ambient	Min.	°CDB	10 (3)	
			Max.	°CDB	43 (3)	
		Water side	Min.	°C	5 (3)	
			Max.	°C	22 (3)	
	Domestic hot water	Ambient	Min.	°CDB	-25 (3)	
			Max.	°CDB	35 (3)	
		Water side	Min.	°C	25 (3)	
			Max.	°C	62 (3)	
Installation place					Indoor	

Electrical specifications				ELSX12P30E	ELSX12P50E
Power supply	Phase			1~	
	Frequency		Hz	50	
	Voltage		V	230	
	Voltage range	Min.	%	-10	
		Max.	%	10	
IP class	IP			IPX4	

(1)Operation area is extended to lower flow rates depending on operation mode - refer to ESP curve. |
(2)Heatloss according to EN12897 |
(3)For more details, see operation range drawing

Technical specifications		ELSXB12P30E	ELSXB12P50E
Casing	Colour	Traffic white (RAL9016) / Traffic black (RAL9017)	
	Material	Impact resistant polypropylene	

2 Specifications

2 - 1 Specifications

Technical specifications					ELSXB12P30E	ELSXB12P50E
Dimensions	Unit	Height		mm	1,893	1,910
		Width		mm	594	792
		Depth		mm	680	817
	Packed unit	Height		mm	2,029	2,046
		Width		mm	800	
		Depth		mm	900	
Weight	Unit			kg	76.0	91.0
	Packed unit			kg	89	112
Packing	Material				Plastic foil / Wood (pallet) / Corrugated board / PP (Straps)	
	Weight			kg	13	21
PED	Category				Category II	
	Most critical part	Name			Plate heat exchanger	
		Ps*V		Bar*l	60	
Refrigerant side heat exchanger	Type				Plate heat exchanger	
	Quantity				1	
	Plates	Quantity			66	
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	Type				Plate heat exchanger	
	Model				ACH43-66AH-F	
	Quantity				1	
	Plates	Quantity			66	
	Water volume			l	1.58	
	Water flow rate	Min.		l/min	20.0 (1)	
	Insulation material				EPDM type	
Water filter Main Zone	Diameter perforations			mm	290.0	464.0
Tank	Water volume			l	294	477
	Material				Polypropylen	
	Maximum water temperature			°C	85.0	
	Insulation	Material			HFC-free Polyurethane foam	
		Heat loss		kWh/24h	1.5 (2)	1.7 (2)
	Standing heat loss	S		W	64	72
Tank	Specific heat loss	U Asb, S, a		W/K	1.4	1.6
	Storage volume	V		l	294	477
	Energy efficiency class				B	
Heat exchanger	Quantity				3	
	Charging	Quantity			1	
		Tube material			Stainless steel (1.4404)	
		Face area		m^2	3.26	3.40
		Internal coil volume		l	16	
		Operating pressure		bar	3	
	Domestic hot water	Face area		m^2	5.60	7.50
		Internal coil volume		l	27.3	36.2
		Operating pressure		bar	10	
		Quantity			1	
		Tube material			Stainless steel (1.4404)	
	Pressurised solar	Face area		m^2	0.74	1.83
		Internal coil volume		l	3.90	9.07
		Operating pressure		bar	6.00	
		Quantity			1	
		Tube material			Stainless steel (1.4404)	
General	Supplier/	Name or trademark			Daikin Europe N.V.	
	Manufacturer details	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	
	Manometer				Digital	
	Drain valve / fill valve				Yes	
	Shut off valve				Yes	
	flowswitch				No	
	Air purge valve				Yes	
	Pressure	Heating	Max.	bar	3	
	Heating water system	Water volume	Min.	l	4	

2 Specifications

2 - 1 Specifications

Technical specifications					ELSXB12P30E	ELSXB12P50E
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)	
Piping connections	Pressurised solar heat exchanger			inch	G 1" (male)	
Refrigerant	Type				R-32	
Refrigerant circuit	Gas side diameter			mm	15.9	
	Liquid side diameter			mm	6.35	
	High pressure side	Design pressure		bar	46	
Sound power level	Nom.			dBA	44.7	
Sound pressure level	Nom.			dBA	36.8	
Operation range	Heating	Ambient	Min.	°C	-25 (3)	
			Max.	°C	25 (3)	
		Water side	Min.	°C	15 (3)	
			Max.	°C	65 (3)	
	Indoor installation	Ambient	Min.	°CDB	5	
			Max.	°CDB	35	
	Cooling	Ambient	Min.	°CDB	10 (3)	
			Max.	°CDB	43 (3)	
		Water side	Min.	°C	5 (3)	
			Max.	°C	22 (3)	
	Domestic hot water	Ambient	Min.	°CDB	-25 (3)	
			Max.	°CDB	35 (3)	
		Water side	Min.	°C	25 (3)	
			Max.	°C	62 (3)	
Installation place					Indoor	

Electrical specifications				ELSXB12P30E	ELSXB12P50E
Power supply	Phase			1~	
	Frequency		Hz	50	
	Voltage		V	230	
	Voltage range	Min.	%	-10	
		Max.	%	10	
IP class	IP			IPX4	

(1)Operation area is extended to lower flow rates depending on operation mode - refer to ESP curve. |
(2)Heatloss according to EN12897 |
(3)For more details, see operation range drawing

3 Electrical data

3 - 1 Electrical Data

3

ELBH-E6V
ELBH-E9W
ELBX-E6V
ELBX-E9W
ELSH-E
ELSHB-E
ELSX-E
ELSXB-E
ELVH-E6V
ELVH-E9W
ELVX-E6V
ELVX-E9W
ELVZ-E6V
ELVZ-E9W

* 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·
  - Minim
- Measurement type (depending on installation)
  - Single-phase AC meter
  - Three-phase AC meter
    - Balanced loads
  - Three-phase AC meter
    - 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		ERRA(08/10/12)EA*								
Indoor unit type		ELS(H/X)(B)12P(30/50)EF			ELB(H/X)12EF*			ELV(H/X/Z)12S(18/23)EJ*		
Backup heater type		EKECBU*	EKECBU*	EKECBU*	6V		9W	6V		9W
Backup heater power		1~	1~	3~	1~	3~	3~	1~	3~	3~
Backup heater		1 / 2 / 3	2 / 4 / 6	3 / 6 / 9	2 / 4 / 6	6 kW	3 / 6 / 9	2 / 4 / 6	6 kW	3 / 6 / 9
Normal kWh rate power supply										
Electrical meter type	1~	1	1	-	1	-	-	1	-	-
	3~ balanced	-	-	-	-	-	-	-	-	-
	3~ unbalanced	-	-	1	-	1	1	-	1	1
Preferential kWh rate power supply										
Electrical meter type	1~	2	2	1	2	1	1	2	1	1
	3~ balanced	-	-	-	-	-	-	-	-	-
	3~ unbalanced	-	-	1	-	1	1	-	1	1

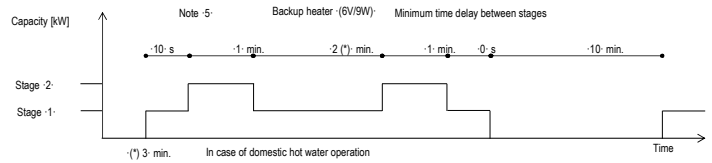
4D142815

ELSH-E
ELSHB-E
ELSX-E
ELSXB-E

Electrical specifications of the backup heaters and booster heaters

					EKECBU*3V			EKECBU*6V				EKECBU*9W			
Backup heater	Capacity setting			[kW]	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·)	
	Capacity stage · ·				(4)			2	2	2	2	2	2	2	2
	Capacity stage ·1·			kW				2	2	2	2	3	3	3	3
	Capacity stage ·2·			kW				4	6	4	6	6	9	6	9
	Minimum time delay between stages				-			Note ·5·				Note ·5·			
	Power supply	Phase			1~							3~			
	(1)	Frequency		Hz	50										
		Voltage		V	230 +-10%							400 +-10%			
	Current	Nominal running current		A	4.4	8.7	13.1	17,4	26,1	17,4	26,1	8,7	13	8,7	13
		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 choses 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



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4 Combination table

4 - 1 Combination Table

ELSH-E
ELSHB-E
ELSX-E
ELSXB-E

Factory-mounted equipment for ·ELS(H/X)*12P*EF·

Description	ELS(H/X)*12P30EF	ELS(H/X)*12P50EF
Domestic hot water tank ·300l integrated·	o	-
Domestic hot water tank ·500l integrated·	-	o

Outdoor combination table for ·ELS(H/X)*12P*EF·

		ERRA08EAV3 / W1	ERRA10EAV3 / W1	ERRA12EAV3 / W1
ELSH*12P(30/50)EF	Heating only indoor unit	o	o	o
ELSX*12P(30/50)EF	Reversible indoor unit	o	o	o

Kit availability for indoor units

Reference	Description		ELS(H/X)12P(30/50)EF	ELS(H/X)B12P(30/50)EF
EKECBUAF3V	Inline backup heater 3kW *(11)		Mandatory	o *(12)
EKECBUAF6V	Inline backup heater 6kW *(11)		Mandatory	o *(12)
EKECBUAF9W	Inline backup heater 9kW *(11)		Mandatory	o *(12)
EKECBUCO2AF	Inline BUH connection kit TBM/TGS RS		Mandatory	o *(12)
EKRP1HBAA	Digital I/O PCB	*(1) (2)	-	-
EKRP1AHTA	Demand PCB	*(3)	o	o
BRC1HHDA*	HCI (Human Comfort Interface)		o	o
EKPCCAB4	PC cable	*(4)	o	o
KRCS01-1	Remote indoor sensor	*(5)	o	o
EKRSCA1	Remote sensor for outdoor	*(5)	o	o
EKCC8-W	Universal centralised user interface		o	o
DCOM-LT/IO	DCOM gateway		-	-
DCOM-LT/MB	DCOM gateway		-	-
EKCC8-W	Cascade control		o	o
EKHVCONV4	Conversion kit: heating only to reversible.		-	-
FWXV10-15-20ATV3	Heat pump convector	*(6)	o	o
FWXT10-15-20ATV3	Heat pump convector	*(6)	o	o
FWXM10-15-20ATV3	Heat pump convector	*(6)	o	o
EKVKHPC	Heat pump convector valve kit		-	-
EKRTWA	Wired room thermostat		o	o
EKRTR1, EKRTRB	Wireless room thermostat		o	o
EKRTETS	External sensor room thermostat	*(7)	o	o
EKWUFHTA1V3	Multi-zoning base unit 230 V	*(8)	o	o
EKWCTRDI1V3	Digital thermostat 230 V	*(8)	-	-
EKWCTRAN1V3	Analogue thermostat 230 V	*(8)	-	-
EKWCVATR1V3	Actuator 230 V	*(8)	-	-
EKRELSG	Relay for Smart Grid		o	o
BRP069A62	LAN adapter		o	o
BRP069A71	WLAN module		o	o
BRP069A78	WLAN Cartridge		o	o
EKECBUAF6V	Inline backup heater 6kW		o	o
EKECBUAF9W	Inline backup heater 9kW		o	o
EKECBUCO2AF	Inline BUH connection kit TBM/TGS RS		o	o
156021	dirt seperator		o	o
EKECBIVCO2AF	Biv Connector Kit		-	o
EKECDBCO2AF	DB connector Kit		o	o
EKSRPS4AB	Drain back solar control pump station		o	o

Reference	Description		ELS*12P(30/50)EF
EKMIKPOAF	Mixing kit – PCB only		o
EKMIKPHAF	Mixing kit – PCB with hydraulics		o
EKMIKHMAF	Hydraulics – mixed pump group	*(9)	o
EKMIKHUAF	Hydraulics – unmixed pump group	*(9)	o
EKMIKBVAF	Balancing vessel		o
EKMIKDIAF	Distributor for balancing vessel	*(10)	o

Notes

(1) PCB that provides additional output connections: · ·
  (a) Control external heat source (bivalent operation).
  (b) Output remote ON/OFF signal space heating/cooling
  (c) Remote alarm output
(2) Additional relays to allow bivalent control in combination with an external room thermostat are field-supplied.
(3) PCB to receive up to ·4· digital inputs for power limitation
(4) Data cable for connection with PC.
(5) Only 1 remote sensor can be connected: indoor OR outdoor sensor.
(6) The valve kit is mandatory if a heat pump convector is installed on a reversible model (not mandatory for heating only models).
(7) ·EKRTETS· can only be used in combination with ·EKRTR1·
(8) Multi-zoning wired controls
(9) Only possible in combination with ·EKMIKPOAF·
(10) Only possible in combination with ·EKMIKBVAF· and ·EKMIKPHAF· or ·EKMIKHUAF·
(11) 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

(12) Mandatory for installations without a bivalent heat source (oil or gas)

Remark

Other combinations than mentioned in this combination table are prohibited.

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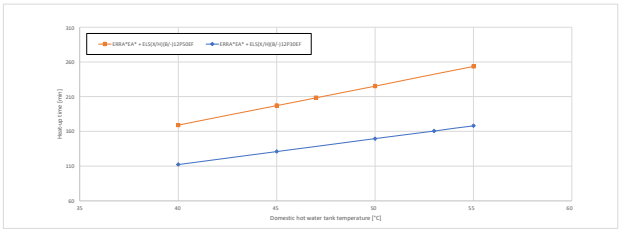
5 Capacity tables

5 - 1 Domestic Hot Water performance

ELSH-E / ELSHB-E / ELSX-E / ELSXB-E

Heat-up times



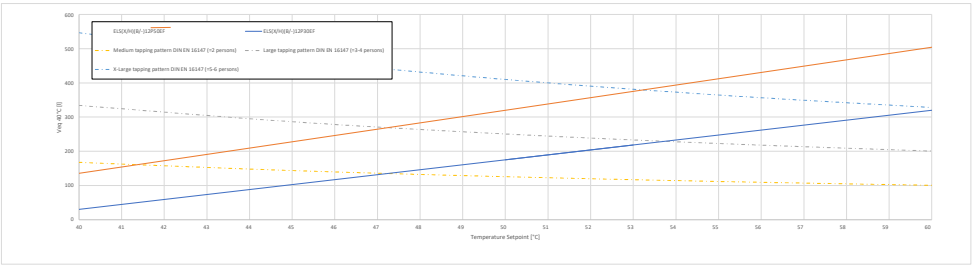
	Heat-up time domestic hot water tank until 45°C
ERRA*EA* + ELS(X/H)(B/-)12P30EF	-131- min.
ERRA*EA* + ELS(X/H)(B/-)12P50EF	-197- min.

Notes

1. Time the indoor unit (**heat pump only operation**) requires to heat up the domestic hot water tank from 10°C to the indicated temperature.
   See the operation range for maximum domestic hot water tank temperature during heat pump only operation.

Selection guide for the domestic hot water tank volume

Veq 40°C = the amount of water with a temperature of 40°C that can be tapped when the domestic hot water tank is heated to a certain temperature, and the temperature of the cold inlet water is 10°C.



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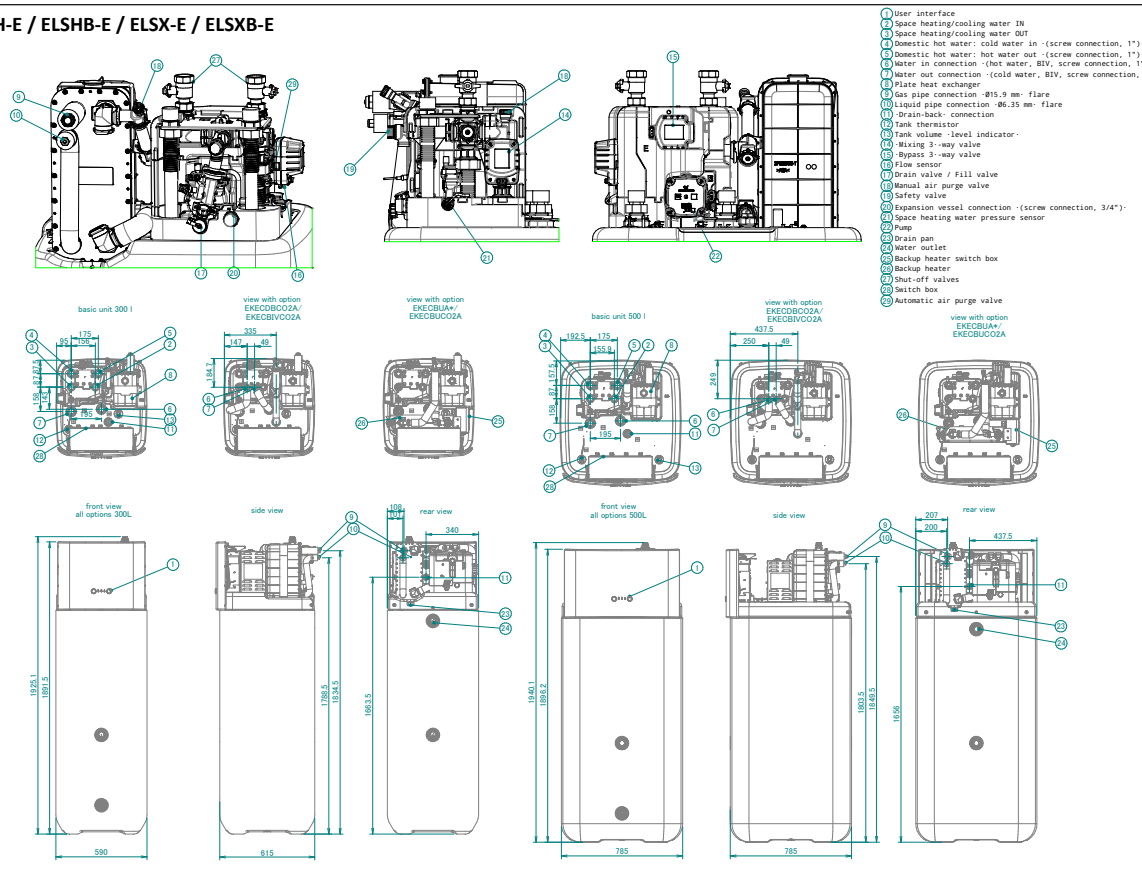
6 Dimensional drawings

6 - 1 Dimensional Drawings

ELSH-E / ELSHB-E / ELSX-E / ELSXB-E



The typical field installation has to be done according to the applicable legislation.
For example, refer to the installer reference guide.

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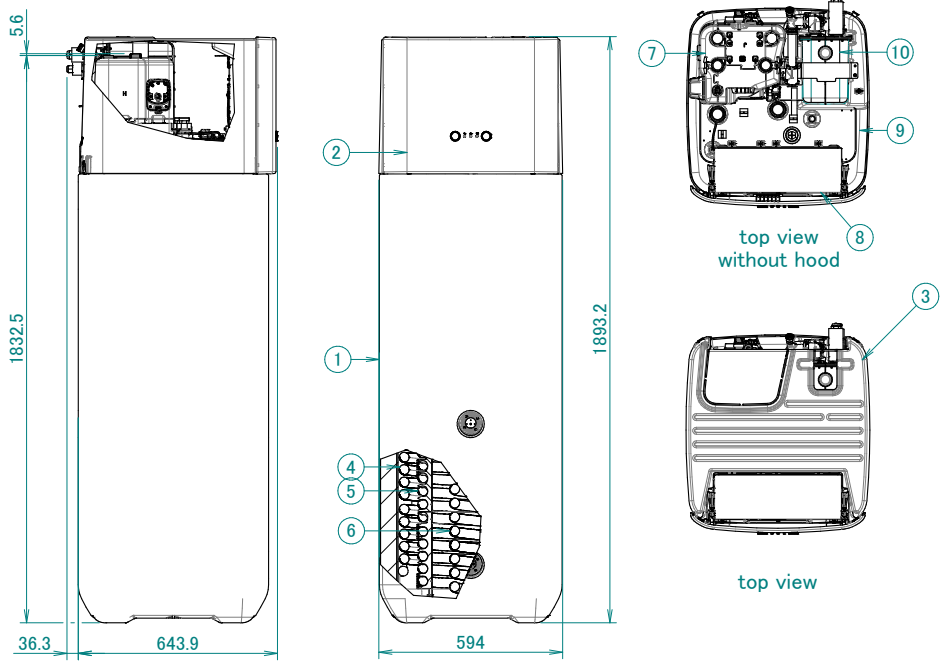
ELSH12P30EF
ELSHB12P30EF
ELSX12P30EF
ELSXB12P30EF

1. 300 l tank
2. 3xx Front panel
3. 3xx Top Casing
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. Plate heat exchanger



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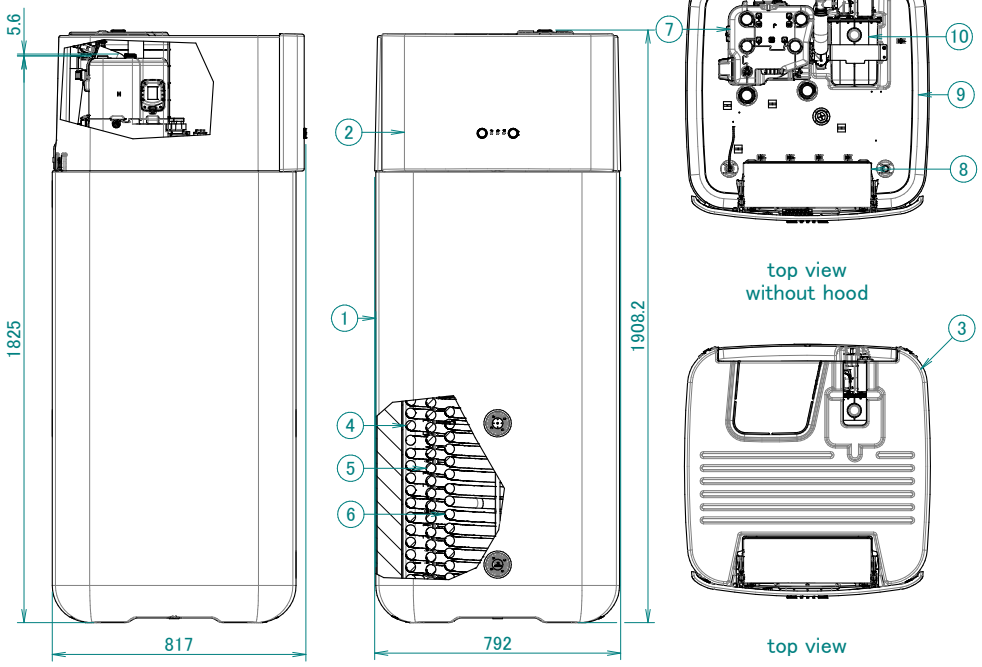
6 Dimensional drawings

6 - 1 Dimensional Drawings

ELSH12P50EF
ELSHB12P50EF
ELSX12P50EF
ELSXB12P50EF

1. 500 l tank
2. 5xx Front panel
3. 5xx Top Casing
4. DHW Heat exchanger
5. Load Heat exchanger
6. BIV Heat exchanger
7. Hydraulics – unmixed pump group
8. Switch box
9. 5xx Tank lid
10. Plate heat exchanger



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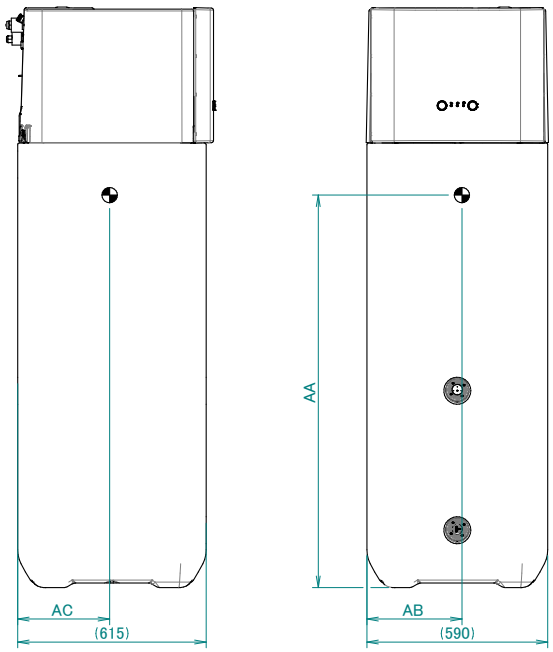
7 Centre of gravity

7 - 1 Centre of Gravity

ELSH12P30EF
ELSHB12P30EF
ELSX12P30EF
ELSXB12P30EF



PART	REVISION	AA	AB	AC	MODEL	JUDGE	CLASSIFY
1		1280	310	300	EBS*	2	G1
2	A	1280	310	300	ELS*	2	G1

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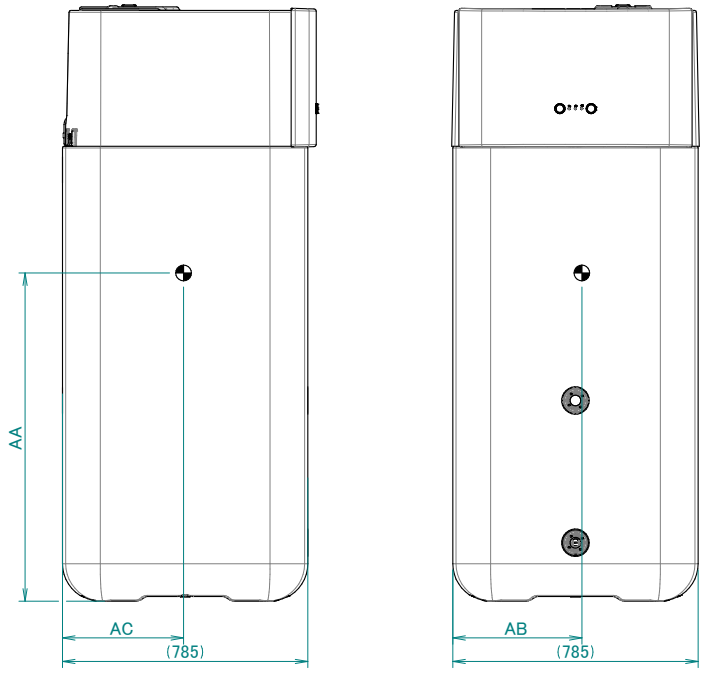
ELSH12P50EF
ELSHB12P50EF
ELSX12P50EF
ELSXB12P50EF



PART	REVISION	AA	AB	AC	MODEL	JUDGE	CLASSIFY
1		1050	412	387	EBS*	2	G1
2	A	1050	412	387	ELS*	2	G1

3D136144A

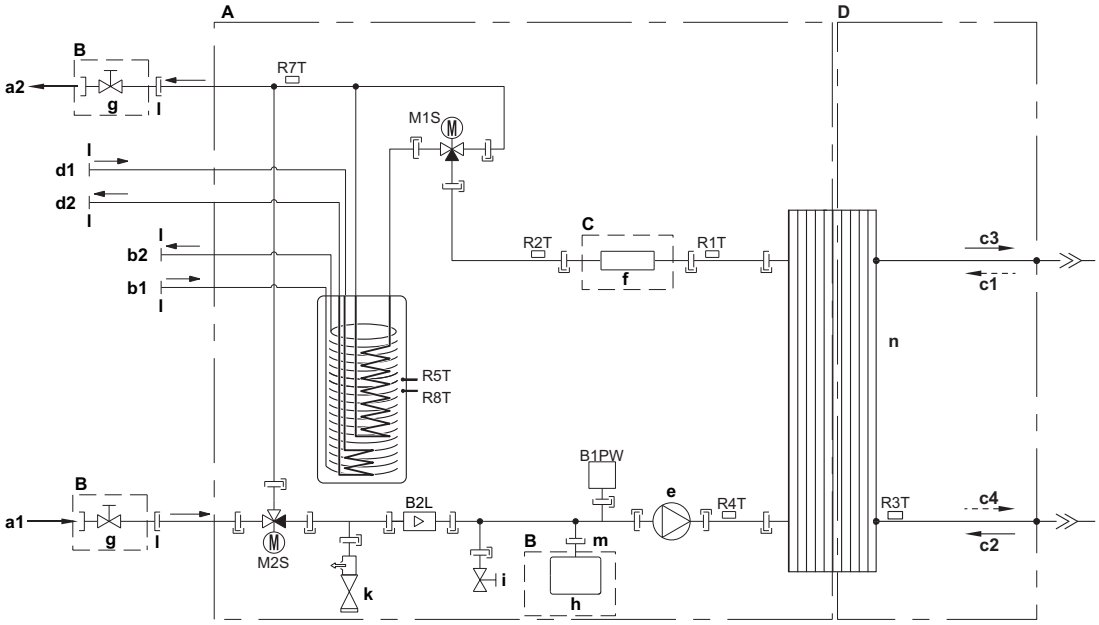
8 Piping diagrams

8 - 1 Piping Diagrams

8

ELSH-E
ELSHB-E
ELSX-E
ELSXB-E

Piping diagram: Indoor unit



A	Indoor unit
B	Field installed
C	Optional
D	Refrigerant side
a1	Space heating/cooling – Water IN (screw connection, 1")
a2	Space heating/cooling – Water OUT (screw connection, 1")
b1	DHW – Cold water IN (screw connection, 1")
b2	DHW – Hot water OUT (screw connection, 1")
c1	Gas refrigerant IN (heating mode; condenser)
c2	Liquid refrigerant IN (cooling mode; evaporator)
c3	Gas refrigerant OUT (cooling mode; evaporator)
c4	Liquid refrigerant OUT (heating mode; condenser)
d1	Water IN from bivalent heat source (screw connection, 1")
d2	Water OUT to bivalent heat source (screw connection, 1")
e	Pump
f	Backup heater
g	Shut-off valve, female-female 1"
h	Expansion vessel
i	Drain valve
k	Safety valve
l	External thread 1"
m	External thread 3/4"
n	Plate heat exchanger
B2L	Flow sensor
B1PW	Space heating water pressure sensor
M1S	Tank valve
M2S	Bypass valve
R1T	Thermistor (plate heat exchanger - water OUT)
R2T	Thermistor (backup heater – water OUT)
R3T	Thermistor (Refrigerant liquid side)
R4T	Thermistor (Inlet water)
R5T, R8T	Thermistor (tank)
R7T	Thermistor (tank - water OUT)
	Screw connection
	Flare connection
	Quick coupling
	Brazed connection

3D142801

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

: Option
: Not mounted in switch box
: Wiring depending on model
: PCB

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 thermistor
- ☐ Ext. outdoor thermistor
- ☐ Demand PCB
- ☐ Smartgrid kit
- ☐ WLAN adapter module
- ☐ WLAN cartridge
- ☐ BZ mixing kit

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

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

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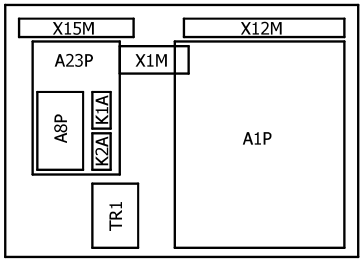
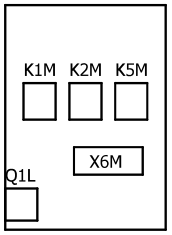
POSITION IN SWITCH BOX

SWB1



SWB2



LEGEND

Translation can be found in the installation manual.

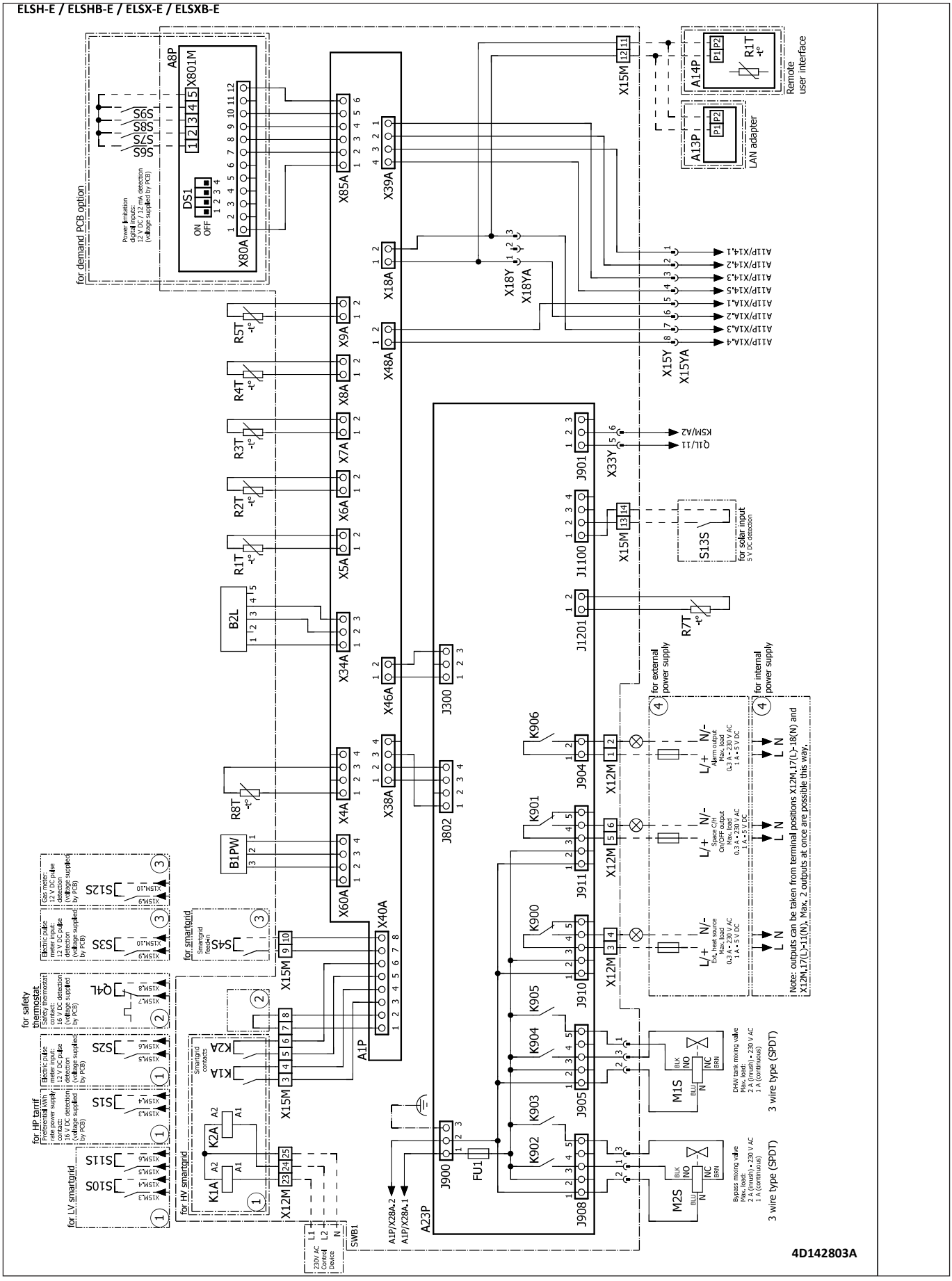
* : optional
\# : field supply

Part n°		Description
A1P		main PCB
A2P	*	On/OFF thermostat (PC=power circuit)
A3P	*	heat pump convector
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 thermistor
R1T (A2P)	*	ambient sensor On/OFF thermostat
R1T (A14P)	*	ambient sensor user interface
R2T (A1P)		outlet backup heater thermistor
R2T (A2P)	*	external sensor (floor or ambient)
R3T		refrigerant liquid side thermistor
R4T		inlet water thermistor
R5T, R8T		domestic hot water thermistor
R6T	*	external indoor or outdoor ambient thermistor
R7T		mixed leaving water thermistor
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

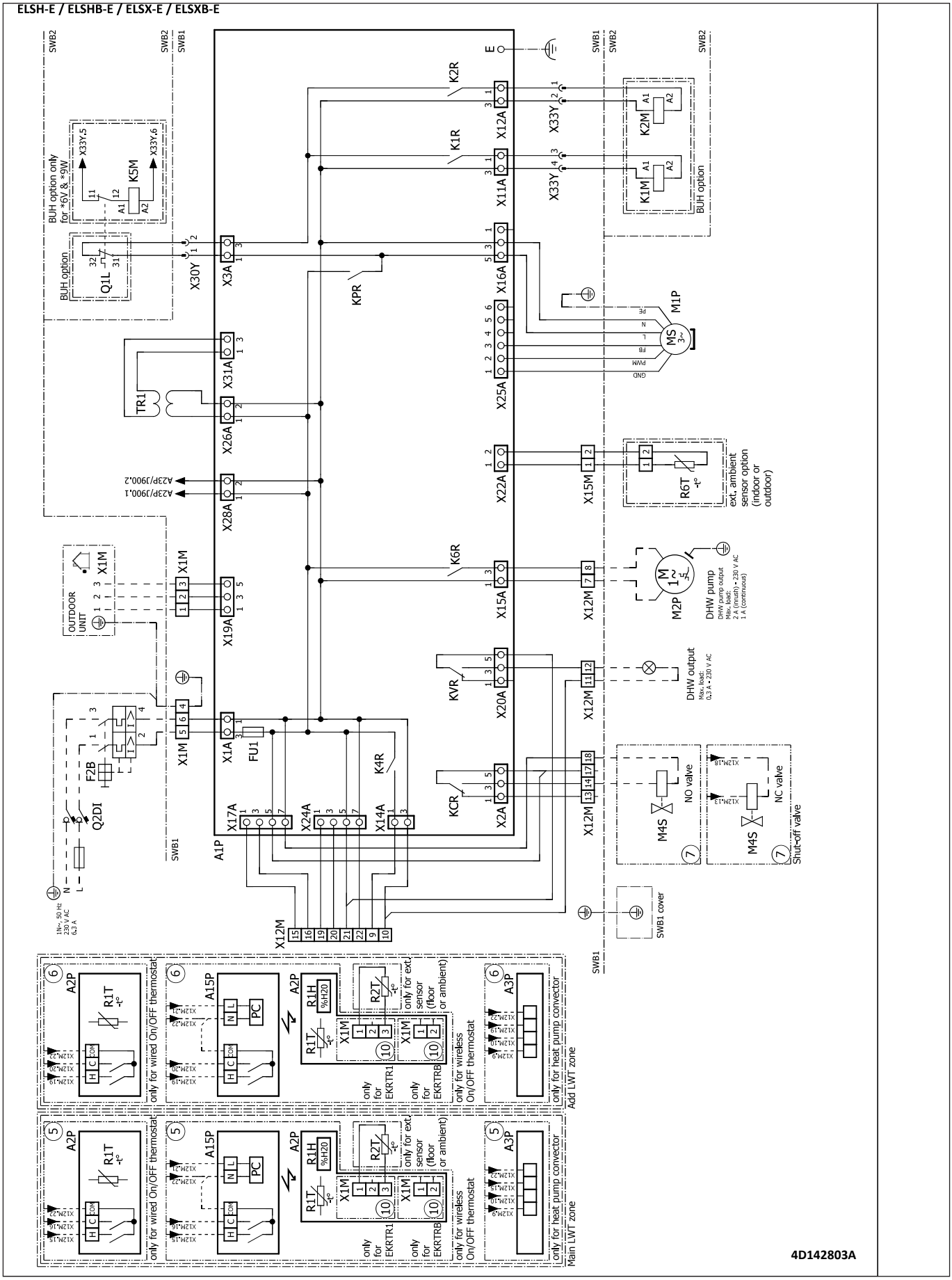
9 Wiring diagrams

9 - 2 Control Circuit



9 Wiring diagrams

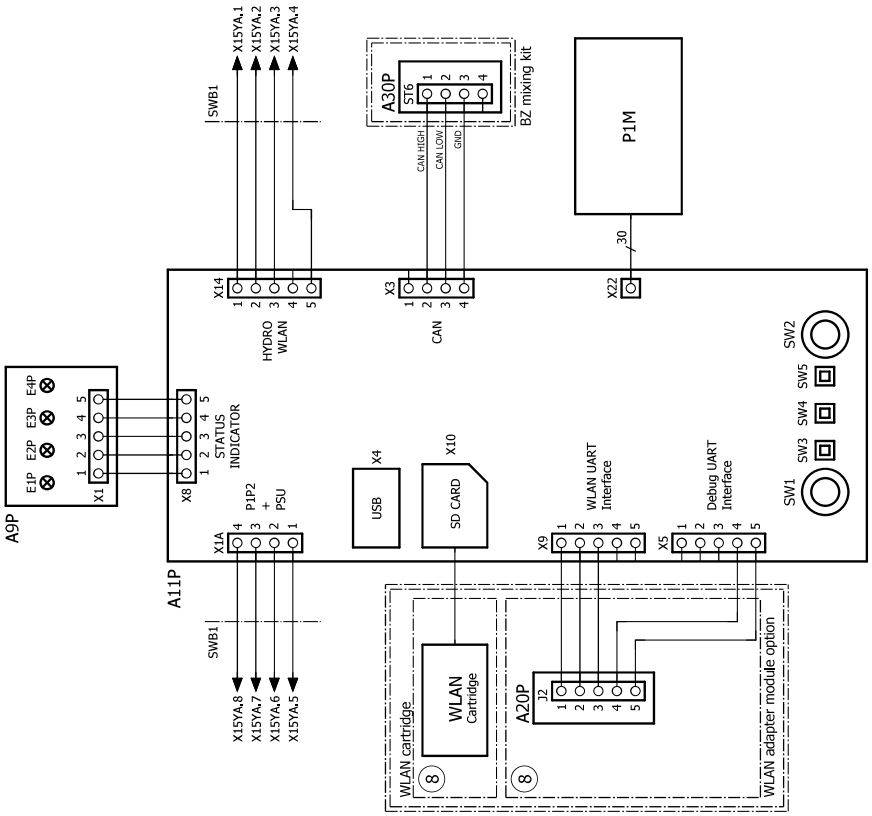
9 - 2 Control Circuit



9 Wiring diagrams

9 - 2 Control Circuit

ELSH-E / ELSHB-E / ELSX-E / ELSXB-E



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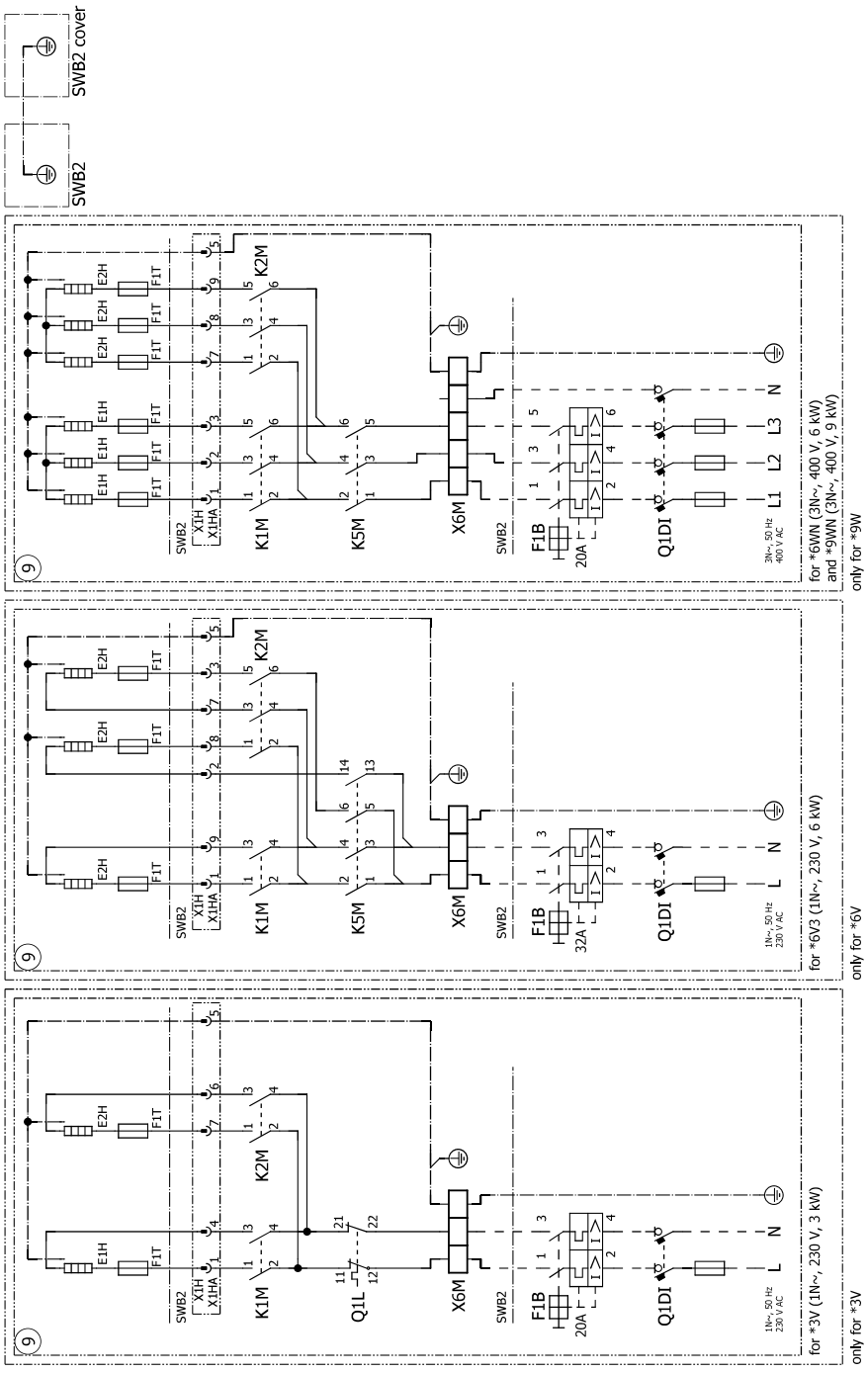
9 Wiring diagrams

9 - 3 Power Supply, Back-up Heater

ELSH-E / ELSHB-E / ELSX-E / ELSXB-E



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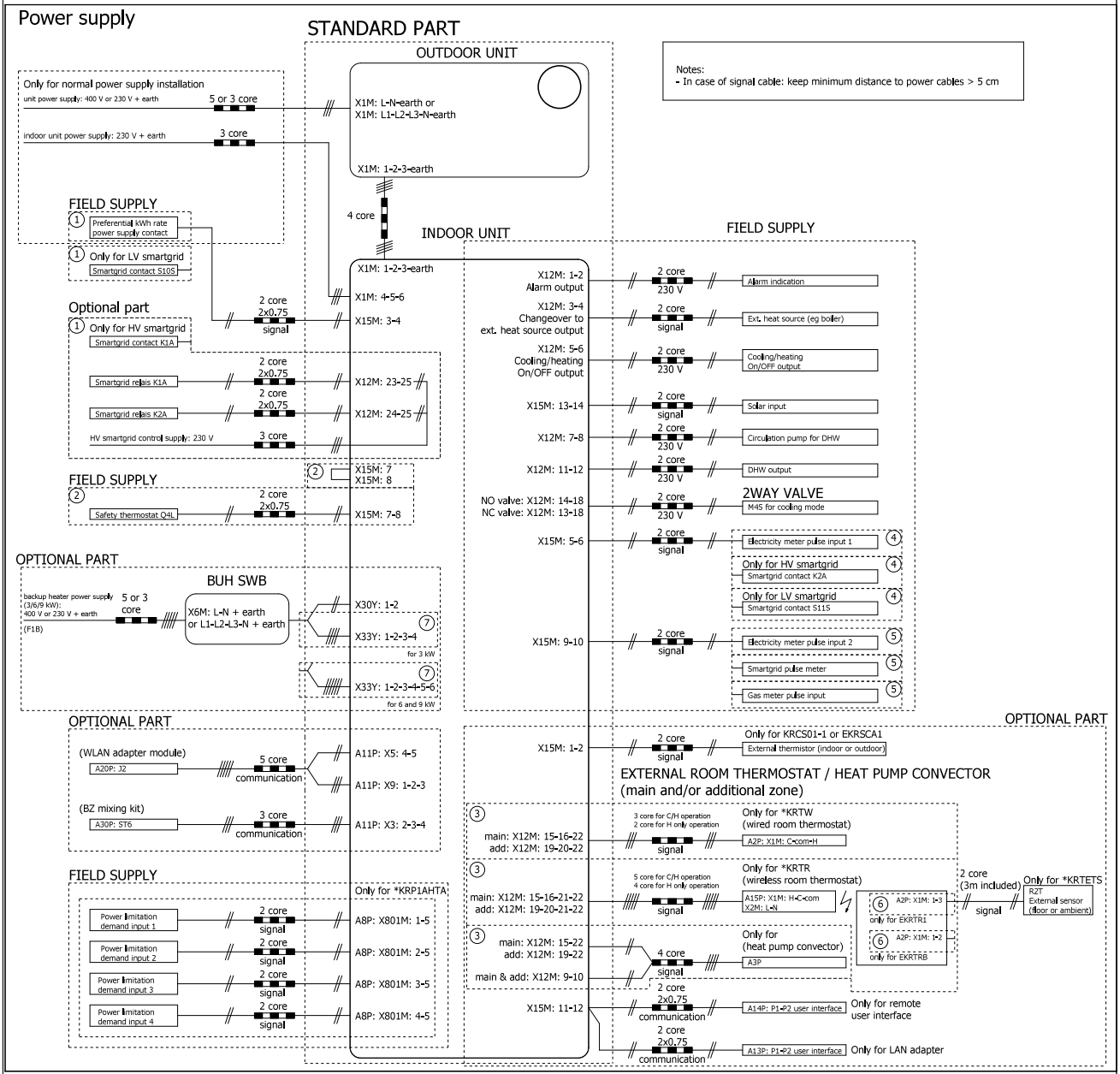
10 External connection diagrams

10 - 1 External Connection Diagrams

ELSH-E / ELSHB-E / ELSX-E / ELSXB-E



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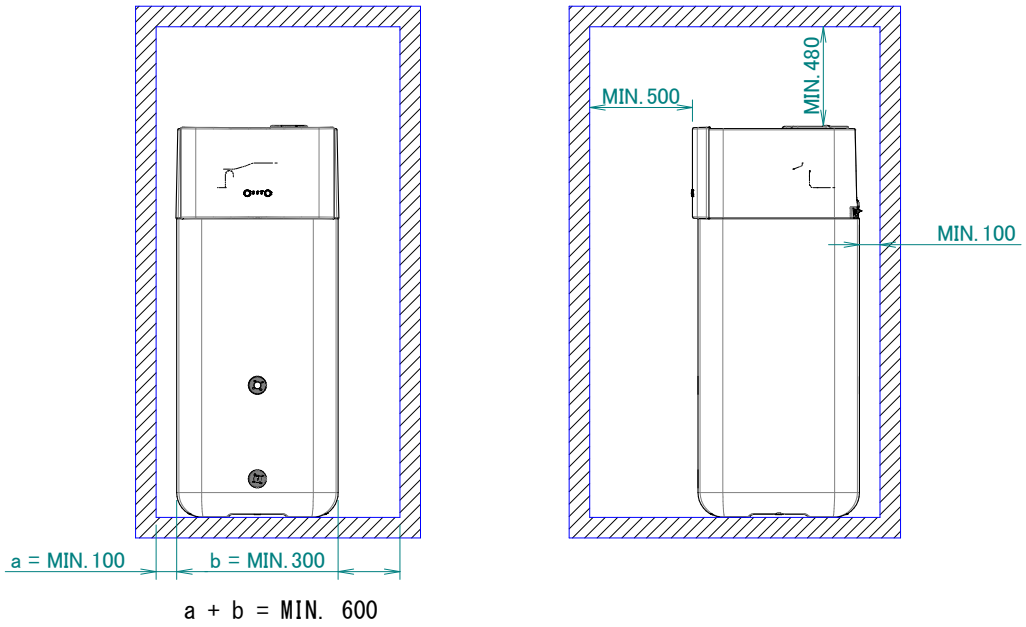
11 Installation

11 - 1 Installation Method

ELSH-E
ELSHB-E
ELSX-E
ELSXB-E



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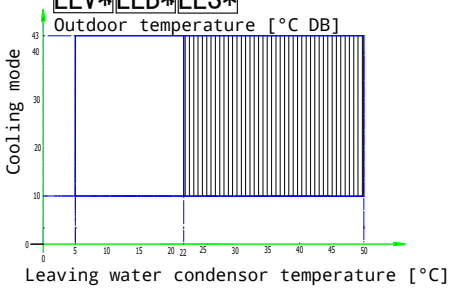
12 Operation range

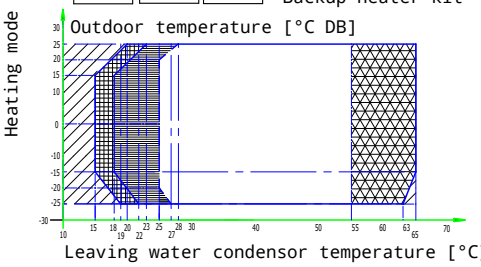
12 - 1 Operation Range

ELBH-E6V
ELBH-E9W
ELBX-E6V
ELBX-E9W
ELSH-E
ELSHB-E
ELSX-E
ELSXB-E
ELVH-E6V
ELVH-E9W
ELVX-E6V
ELVX-E9W
ELVZ-E6V
ELVZ-E9W

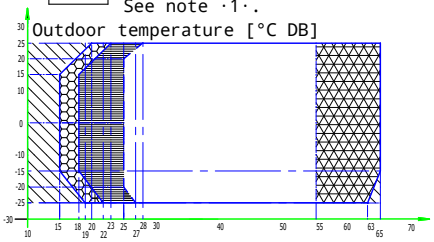
ELV*/ELB*/ELS*



ELV*/ELB*/ELS* Backup heater / Backup heater kit



ELS* No backup heater / With tank preheating / See note ·1·.



Legend
- Backup heater only operation / No outdoor unit operation
- Heat pump + backup heater operation / Pull-up area
- Auxiliary boiler only operation / No outdoor unit operation
- Heat pump + auxiliary boiler operation / Pull-up area
- Outdoor unit operation if controller setpoint is regulated to minimal leaving water temperature request.

See dashed lines

Outdoor unit operation if setpoint >·55·°C and ΔT = ·10·°C (ΔT = outlet temperature – inlet temperature)

Pull-down area

Notes
1.Tank preheating
For details, see the installer reference guide.
2.In restricted power supply mode, the outdoor unit and backup heater can only operate separately.

3D142809

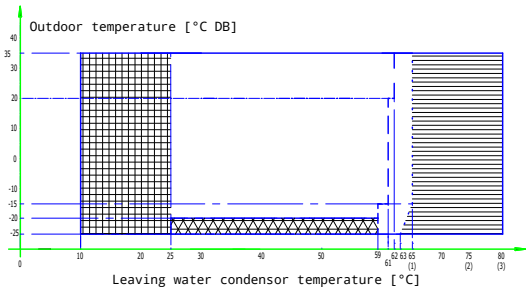
ELBH-E6V
ELBH-E9W
ELBX-E6V
ELBX-E9W
ELSH-E
ELSHB-E
ELSX-E
ELSXB-E
ELVH-E6V
ELVH-E9W
ELVX-E6V
ELVX-E9W
ELVZ-E6V
ELVZ-E9W

Domestic hot water heating mode

ELV* + ELS* + EKHWP* + EKHWS*200* / EKHWS*250* / EKHWS*300*

\+

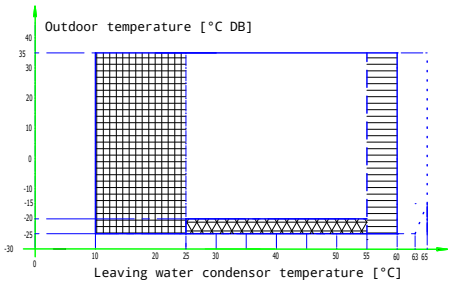
Third-party with identical specifications as ·EKHWS*200*·



EKHWS*150* / EKHWS*180*

\+

Third-party with identical specifications as ·EKHWS*150*·



Legend
- Setpoint [°C] / Domestic hot water
- Leaving water temperature [°C]
- Pull-up area
- Booster heater only operation (if a booster heater is part of the system)
  (1)·ELV*12*· indoor units only
  (2) Combination of ·EKHWS*· and ·ELB*· indoor units / ·ELS*12*· indoor units only
  (3) Combination of ·EKHWP*· and ·ELB*· indoor units
- Operation of the outdoor unit is possible. If the outdoor temperature drops below ·-20·°C, unit will continue operation. But when the unit is OFF and the outdoor temperature is below ·-20·°C, the outdoor unit will not start up. The indoor unit and backup heater will start in these cases.

Notes

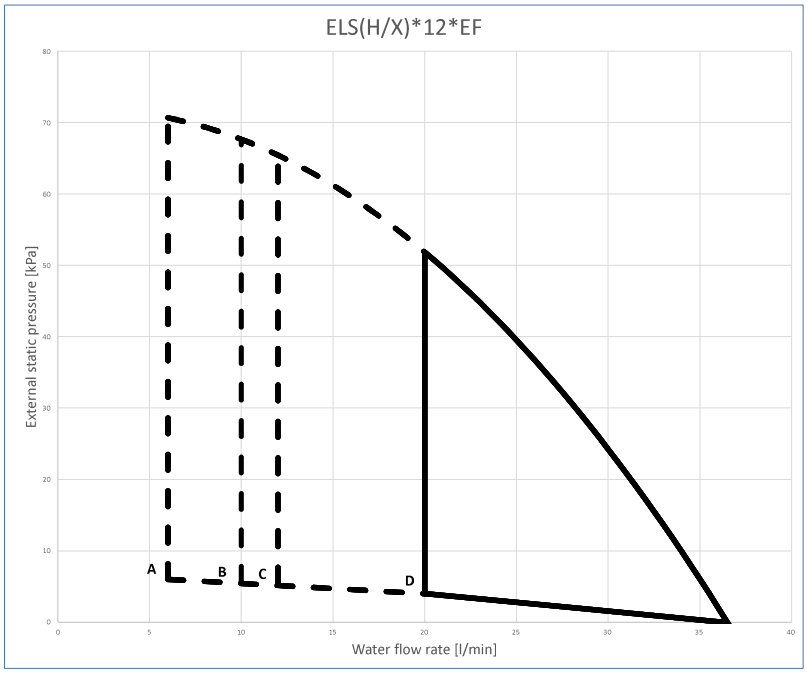
1.In restricted power supply mode (·EKHW*· only), the outdoor unit, booster heater and backup heater can only operate separately.
2.Third-party with identical specifications as ·EKHWS*150*·
Coil surface >·1.05·m² and <·3.7·m²
Tank thermistor and booster heater above heat pump coil.
3.Third-party with identical specifications as ·EKHWS*200*·
Coil surface >·1.8·m² and <·3.7·m²
Tank thermistor and booster heater above heat pump coil.

3D142810

13 Hydraulic performance

13 - 1 Static Pressure Drop Unit

ELSH-E
ELSHB-E
ELSX-E
ELSXB-E



A= Minimum water flow rate during normal operation
B= Minimum water flow rate during cooling operation
C= Minimum water flow rate during backup heater operation
D= Minimum water flow rate during defrost operation

Notes
1. Selecting 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 qualitiy must be according to EU directive 2020/2184.

3D142812

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