Daikin Altherma mid temperature split Technical Data

ETBH12E6V
ETBH12E9W
ETBX12E6V
ETBX12E9W

ETBH12EF6V
ETBH12EF9W
ETBX12EF6V
ETBX12EF9W

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ETBH12E6V / ETBH12E9W / ETBX12E6V / ETBX12E9W

1 Features

1 - 1 ETBH12E6V, ETBH12E9W, ETBX12E6V, ETBX12E9W

› Inclusion of all hydraulic components means no third party components are required
› Compact dimensions allows for small installation space, as almost no side clearances are required.
› The unit's sleek design blends in with other household appliances.
› Combine with a stainless steel tank or ECH2O thermal store.
› Quick configuration in 9 steps in a high resolution colour interface wizard

Daikin Residential Controller (optional)

2 Specifications

1 - 1 ETBH12E6V, ETBH12E9W, ETBX12E6V, ETBX12E9W

Technical specifications					ETBH12E6V
Heater capacity	Step 1			kW	2
	Step 2			kW	2 or 4
Power input	Nom.			kW	0.10
Casing	Colour				White + Black
	Material				Resin, sheet metal
Dimensions	Unit	Height		mm	840
		Width		mm	440
		Depth		mm	390
	Packed unit	Height		mm	450
		Width		mm	650
		Depth		mm	1,016
Weight	Unit			kg	36.5
	Packed unit			kg	42
Packing	Material				Carton / PP (Straps) / EPS
	Weight			kg	5
Pump	Nr of speeds				PWM
	Power input			W	75
	Type				Grundfos UPM3LK 15-75 130 PWM
Water side Heat exchanger	Water flow rate	Min.		l/min	20.0 (1)
Expansion vessel	Volume			l	10
	Max. water pressure			bar	3
	Pre pressure			bar	1
Water filter	Diameter perforations			mm	0.8
	Material				Stainless steel / Plastic
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" (female)
	Piping material				Cu
	Internal piping diameter			inch	1-1/4"
	Piping			inch	1"
	Safety valve			bar	3
	Manometer				Digital
	Drain valve / fill valve				No
	Shut off valve				Yes
	flowswitch				Yes
	Air purge valve				Yes
	Total water volume			l	2.2 (2)
Water circuit	Minimum water volume in the system for cooling			l	20 (3)
	Minimum water volume in the system for heating			l	20 (3)
Sound power level	Nom.			dBA	44.0 (4)
Sound pressure level	Nom.			dBA	30.0 (5)
Operation range	Heating	Ambient	Min.	°C	0 (6)
			Max.	°C	0 (6)
		Water side	Min.	°C	0 (6)
			Max.	°C	0 (6)
	Indoor installation	Ambient	Min.	°CDB	5
			Max.	°CDB	35 (7)
	Cooling	Ambient	Min.	°CDB	0 (6)
			Max.	°CDB	0 (6)
		Water side	Min.	°C	0 (6)
			Max.	°C	0 (6)
	Domestic hot water	Water side	Min.	°C	0 (6)
			Max.	°C	0 (6)
Safety devices	Item	01			Thermal cut out

Electrical specifications				ETBH12E6V
Power supply	Name			See note 9
	Voltage range	Max.	%	10
IP class	IP			IP X0B

2 Specifications

1 - 1 ETBH12E6V, ETBH12E9W, ETBX12E6V, ETBX12E9W

Electrical specifications				ETBH12E6V
Electric heater	Power supply	Name		6V3
		Phase		1~ / 3~
		Frequency	Hz	50
		Voltage	V	230
	Current	Maximum running current	A	26.0
		Zmax List	Ω	0.22
		Minimum Ssc value		Equipment complying with EN/IEC 61000-3-12
	Recommended fuses		A	20 (8)
Wiring connections	Communication cable	Quantity		3+GRD
		Remark		1.5 mm²
	Electric meter	Quantity		2
		Remark		Minimum 0.75 mm² (5VDC pulse detection)
	Preferential kWh rate power supply	Quantity		Power: 2
		Remark		Power 6.3A (Select diameter and type according to national and local regulations)
	Domestic hot water pump	Quantity		2
		Remark		Minimum 0.75 mm² (2A inrush, 1A continuous)
	For power supply back-up heater	Quantity		Prewired
	For connection with R6T	Quantity		2
		Remark		Minimum 0.75 mm²
	For connection with A3P	Quantity		Depends on thermostat type, cf. installation manual
		Remark		Voltage: 230V / Max. current: 100mA / Min. 0.75mm²
	For connection with M2S	Quantity		2
		Remark		Voltage: 230V / Max. current: 100mA / Min. 0.75mm²
	For connection with optional	Quantity		4
		Remark		100 mA, minimum 0.75 mm²

(1)Operation area is extended to lower flow rates only in case the unit operates with heat pump only. (Not in startup, no BUH operation, no defrost operation). |
(2)ncluding piping + back-up heater; excluding expansion vessel |
(3)Excluding the water in the unit. This minimum water volume is sufficient for most applications. During critical processes extra water may be required. |
(4)Measured with a pressure drop of 10 kPa in the heating system at an operating condition of leaving water 47-55°C in a room with an ambient of 20°C. DB/WB 7°C/6°. |
(5)Value measured in an anechoic room at 1m distance from the unit. It is a relative value, depending on the distance and acoustic environment. The sound pressure level mentioned is measured with a pressure drop of 10 kPa in the heating system at an operatin |
(6)Refer to operation range of the unit. |
(7)Depends on operation mode, refer to installation manual. |
(8)4 pole 20 A curve 400V tripping class C (refer to wiring diagram) |
(9)Above mentioned power supply of the hydrobox is for the backup heater only. The switch box and the pump of the hydrobox are supplied via the outdoor unit. The optional domestic hot water tank has a separate power supply.

Technical specifications				ETBH12E9W
Heater capacity	Step 1		kW	3
	Step 2		kW	max. 6 kW
Power input	Nom.		kW	0.10
Casing	Colour			White + Black
	Material			Resin, sheet metal
Dimensions	Unit	Height	mm	840
		Width	mm	440
		Depth	mm	390
	Packed unit	Height	mm	450
		Width	mm	650
		Depth	mm	1,016
Weight	Unit		kg	36.5
	Packed unit		kg	42
Packing	Material			Carton / PP (Straps) / EPS
	Weight		kg	5
Pump	Nr of speeds			PWM
	Power input		W	75
	Type			Grundfos UPM3LK 15-75 130 PWM
Water side Heat exchanger	Water flow rate	Min.	l/min	20.0 (1)
Expansion vessel	Volume		l	10
	Max. water pressure		bar	3
	Pre pressure		bar	1
Water filter	Diameter perforations		mm	0.8
	Material			Stainless steel / Plastic

2 Specifications

1 - 1 ETBH12E6V, ETBH12E9W, ETBX12E6V, ETBX12E9W

Technical specifications					ETBH12E9W
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" (female)
	Piping material				Cu
	Internal piping diameter			inch	1-1/4"
	Piping			inch	1"
	Safety valve			bar	3
	Manometer				Digital
	Drain valve / fill valve				No
	Shut off valve				Yes
	flowswitch				Yes
	Air purge valve				Yes
	Total water volume			l	2.2 (2)
Water circuit	Minimum water volume in the system for cooling			l	20 (3)
	Minimum water volume in the system for heating			l	20 (3)
Sound power level	Nom.			dBA	44.0 (4)
Sound pressure level	Nom.			dBA	30.0 (5)
Operation range	Heating	Ambient	Min.	°C	0 (6)
			Max.	°C	0 (6)
		Water side	Min.	°C	0 (6)
			Max.	°C	0 (6)
	Indoor installation	Ambient	Min.	°CDB	5
			Max.	°CDB	35 (7)
	Cooling	Ambient	Min.	°CDB	0 (6)
			Max.	°CDB	0 (6)
		Water side	Min.	°C	0 (6)
			Max.	°C	0 (6)
	Domestic hot water	Water side	Min.	°C	0 (6)
			Max.	°C	0 (6)
Safety devices	Item	01			Thermal cut out

Electrical specifications				ETBH12E9W
Power supply	Name			See note 9
	Voltage range	Max.	%	10
IP class	IP			IP X0B
Electric heater	Power supply	Name		9W
		Phase		3~
		Frequency	Hz	50
		Voltage	V	400
	Current	Maximum running current	A	13.0
	Recommended fuses		A	20 (8)

2 Specifications

1 - 1 ETBH12E6V, ETBH12E9W, ETBX12E6V, ETBX12E9W

Electrical specifications			ETBH12E9W
Wiring connections	Communication cable	Quantity	3+GRD
		Remark	1.5 mm²
	Electric meter	Quantity	2
		Remark	Minimum 0.75 mm² (5VDC pulse detection)
	Preferential kWh rate power supply	Quantity	Power: 2
		Remark	Power 6.3A (Select diameter and type according to national and local regulations)
	Domestic hot water pump	Quantity	2
		Remark	Minimum 0.75 mm² (2A inrush, 1A continuous)
	For power supply back-up heater	Quantity	Prewired
	For connection with R6T	Quantity	2
		Remark	Minimum 0.75 mm²
	For connection with A3P	Quantity	Depends on thermostat type, cf. installation manual
		Remark	Voltage: 230V / Max. current: 100mA / Min. 0.75mm²
	For connection with M2S	Quantity	2
		Remark	Voltage: 230V / Max. current: 100mA / Min. 0.75mm²
	For connection with optional	Quantity	4
		Remark	100 mA, minimum 0.75 mm²

(1)Operation area is extended to lower flow rates only in case the unit operates with heat pump only. (Not in startup, no BUH operation, no defrost operation). |
(2)ncluding piping + back-up heater; excluding expansion vessel |
(3)Excluding the water in the unit. This minimum water volume is sufficient for most applications. During critical processes extra water may be required. |
(4)Measured with a pressure drop of 10 kPa in the heating system at an operating condition of leaving water 47-55°C in a room with an ambient of 20°C. DB/WB 7°C/6°. |
(5)Value measured in an anechoic room at 1m distance from the unit. It is a relative value, depending on the distance and acoustic environment. The sound pressure level mentioned is measured with a pressure drop of 10 kPa in the heating system at an operatin |
(6)Refer to operation range of the unit. |
(7)Depends on operation mode, refer to installation manual. |
(8)4 pole 20 A curve 400V tripping class C (refer to wiring diagram) |
(9)Above mentioned power supply of the hydrobox is for the backup heater only. The switch box and the pump of the hydrobox are supplied via the outdoor unit. The optional domestic hot water tank has a separate power supply.

Technical specifications				ETBX12E6V
Heater capacity	Step 1		kW	2
	Step 2		kW	2 or 4
Power input	Nom.		kW	0.10
Casing	Colour			White + Black
	Material			Resin, sheet metal
Dimensions	Unit	Height	mm	840
		Width	mm	440
		Depth	mm	390
	Packed unit	Height	mm	450
		Width	mm	650
		Depth	mm	1,016
Weight	Unit		kg	36.5
	Packed unit		kg	42
Packing	Material			Carton / PP (Straps) / EPS
	Weight		kg	5
Pump	Nr of speeds			PWM
	Power input		W	75
	Type			Grundfos UPM3LK 15-75 130 PWM
Water side Heat exchanger	Water flow rate	Min.	l/min	20.0 (1)
Expansion vessel	Volume		l	10
	Max. water pressure		bar	3
	Pre pressure		bar	1
Water filter	Diameter perforations		mm	0.8
	Material			Stainless steel / Plastic
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

1 - 1 ETBH12E6V, ETBH12E9W, ETBX12E6V, ETBX12E9W

Technical specifications					ETBX12E6V
Water circuit	Piping connections diameter			inch	G 1" (female)
	Piping material				Cu
	Internal piping diameter			inch	1-1/4"
	Piping			inch	1"
	Safety valve			bar	3
	Manometer				Digital
	Drain valve / fill valve				No
	Shut off valve				Yes
	flowswitch				Yes
	Air purge valve				Yes
	Total water volume			l	2.2 (2)
Water circuit	Minimum water volume in the system for cooling			l	20 (3)
	Minimum water volume in the system for heating			l	20 (3)
Sound power level	Nom.			dBA	44.0 (4)
Sound pressure level	Nom.			dBA	30.0 (5)
Operation range	Heating	Ambient	Min.	°C	0 (6)
			Max.	°C	0 (6)
		Water side	Min.	°C	0 (6)
			Max.	°C	0 (6)
	Indoor installation	Ambient	Min.	°CDB	5
			Max.	°CDB	35 (7)
	Cooling	Ambient	Min.	°CDB	0 (6)
			Max.	°CDB	0 (6)
		Water side	Min.	°C	0 (6)
			Max.	°C	0 (6)
	Domestic hot water	Water side	Min.	°C	0 (6)
			Max.	°C	0 (6)
Safety devices	Item	01			Thermal cut out

Electrical specifications					ETBX12E6V
Power supply	Name				See note 9
	Voltage range	Max.		%	10
IP class	IP				IP X0B
Electric heater	Power supply	Name			6V3
		Phase			1~ / 3~
		Frequency		Hz	50
		Voltage		V	230
	Current	Maximum running current		A	26.0
		Zmax	List	Ω	0.22
		Minimum Ssc value			Equipment complying with EN/IEC 61000-3-12
	Recommended fuses			A	20 (8)

2 Specifications

1 - 1 ETBH12E6V, ETBH12E9W, ETBX12E6V, ETBX12E9W

Electrical specifications			ETBX12E6V
Wiring connections	Communication cable	Quantity	3+GRD
		Remark	1.5 mm²
	Electric meter	Quantity	2
		Remark	Minimum 0.75 mm² (5VDC pulse detection)
	Preferential kWh rate power supply	Quantity	Power: 2
		Remark	Power 6.3A (Select diameter and type according to national and local regulations)
	Domestic hot water pump	Quantity	2
		Remark	Minimum 0.75 mm² (2A inrush, 1A continuous)
	For power supply back-up heater	Quantity	Prewired
	For connection with R6T	Quantity	2
		Remark	Minimum 0.75 mm²
	For connection with A3P	Quantity	Depends on thermostat type, cf. installation manual
		Remark	Voltage: 230V / Max. current: 100mA / Min. 0.75mm²
	For connection with M2S	Quantity	2
		Remark	Voltage: 230V / Max. current: 100mA / Min. 0.75mm²
	For connection with optional	Quantity	4
		Remark	100 mA, minimum 0.75 mm²

(1)Operation area is extended to lower flow rates only in case the unit operates with heat pump only. (Not in startup, no BUH operation, no defrost operation). |
(2)ncluding piping + back-up heater; excluding expansion vessel |
(3)Excluding the water in the unit. This minimum water volume is sufficient for most applications. During critical processes extra water may be required. |
(4)Measured with a pressure drop of 10 kPa in the heating system at an operating condition of leaving water 47-55°C in a room with an ambient of 20°C. DB/WB 7°C/6°. |
(5)Value measured in an anechoic room at 1m distance from the unit. It is a relative value, depending on the distance and acoustic environment. The sound pressure level mentioned is measured with a pressure drop of 10 kPa in the heating system at an operatin |
(6)Refer to operation range of the unit. |
(7)Depends on operation mode, refer to installation manual. |
(8)4 pole 20 A curve 400V tripping class C (refer to wiring diagram) |
(9)Above mentioned power supply of the hydrobox is for the backup heater only. The switch box and the pump of the hydrobox are supplied via the outdoor unit. The optional domestic hot water tank has a separate power supply.

Technical specifications				ETBX12E9W
Heater capacity	Step 1		kW	3
	Step 2		kW	max. 6 kW
Power input	Nom.		kW	0.10
Casing	Colour			White + Black
	Material			Resin, sheet metal
Dimensions	Unit	Height	mm	840
		Width	mm	440
		Depth	mm	390
	Packed unit	Height	mm	450
		Width	mm	650
		Depth	mm	1,016
Weight	Unit		kg	36.5
	Packed unit		kg	42
Packing	Material			Carton / PP (Straps) / EPS
	Weight		kg	5
Pump	Nr of speeds			PWM
	Power input		W	75
	Type			Grundfos UPM3LK 15-75 130 PWM
Water side Heat exchanger	Water flow rate	Min.	l/min	20.0 (1)
Expansion vessel	Volume		l	10
	Max. water pressure		bar	3
	Pre pressure		bar	1
Water filter	Diameter perforations		mm	0.8
	Material			Stainless steel / Plastic
General	Supplier/	Name or trademark		Daikin Europe N.V.
	Manufacturer details	Name and address		Daikin Europe N.V. - Zandvoordestraat 300, 8400 Oostende, Belgium

2 Specifications

1 - 1 ETBH12E6V, ETBH12E9W, ETBX12E6V, ETBX12E9W

Technical specifications					ETBX12E9W
Water circuit	Piping connections diameter			inch	G 1" (female)
	Piping material				Cu
	Internal piping diameter			inch	1-1/4"
	Piping			inch	1"
	Safety valve			bar	3
	Manometer				Digital
	Drain valve / fill valve				No
	Shut off valve				Yes
	flowswitch				Yes
	Air purge valve				Yes
	Total water volume			l	2.2 (2)
Water circuit	Minimum water volume in the system for cooling			l	20 (3)
	Minimum water volume in the system for heating			l	20 (3)
Sound power level	Nom.			dBA	44.0 (4)
Sound pressure level	Nom.			dBA	30.0 (5)
Operation range	Heating	Ambient	Min.	°C	0 (6)
			Max.	°C	0 (6)
		Water side	Min.	°C	0 (6)
			Max.	°C	0 (6)
	Indoor installation	Ambient	Min.	°CDB	5
			Max.	°CDB	35 (7)
	Cooling	Ambient	Min.	°CDB	0 (6)
			Max.	°CDB	0 (6)
		Water side	Min.	°C	0 (6)
			Max.	°C	0 (6)
	Domestic hot water	Water side	Min.	°C	0 (6)
			Max.	°C	0 (6)
Safety devices	Item	01			Thermal cut out

Electrical specifications				ETBX12E9W
Power supply	Name			See note 9
	Voltage range	Max.	%	10
IP class	IP			IP X0B
Electric heater	Power supply	Name		9W
		Phase		3~
		Frequency	Hz	50
		Voltage	V	400
	Current	Maximum running current	A	13.0
	Recommended fuses		A	20 (8)
Wiring connections	Communication cable	Quantity		3+GRD
		Remark		1.5 mm²
	Electric meter	Quantity		2
		Remark		Minimum 0.75 mm² (5VDC pulse detection)
	Preferential kWh rate power supply	Quantity		Power: 2
		Remark		Power 6.3A (Select diameter and type according to national and local regulations)
	Domestic hot water pump	Quantity		2
		Remark		Minimum 0.75 mm² (2A inrush, 1A continuous)
	For power supply back-up heater	Quantity		Prewired
	For connection with R6T	Quantity		2
		Remark		Minimum 0.75 mm²
	For connection with A3P	Quantity		Depends on thermostat type, cf. installation manual
		Remark		Voltage: 230V / Max. current: 100mA / Min. 0.75mm²
	For connection with M2S	Quantity		2
		Remark		Voltage: 230V / Max. current: 100mA / Min. 0.75mm²
	For connection with optional	Quantity		4
		Remark		100 mA, minimum 0.75 mm²

2 Specifications

1 - 1 ETBH12E6V, ETBH12E9W, ETBX12E6V, ETBX12E9W

(1) Operation area is extended to lower flow rates only in case the unit operates with heat pump only. (Not in startup, no BUH operation, no defrost operation). |
(2)ncluding piping + back-up heater; excluding expansion vessel |
(3) Excluding the water in the unit. This minimum water volume is sufficient for most applications. During critical processes extra water may be required. |
(4) Measured with a pressure drop of 10 kPa in the heating system at an operating condition of leaving water 47-55°C in a room with an ambient of 20°C. DB/WB 7°C/6°. |
(5) Value measured in an anechoic room at 1m distance from the unit. It is a relative value, depending on the distance and acoustic environment. The sound pressure level mentioned is measured with a pressure drop of 10 kPa in the heating system at an operatin |
(6) Refer to operation range of the unit. |
(7) Depends on operation mode, refer to installation manual. |
(8)4 pole 20 A curve 400V tripping class C (refer to wiring diagram) |
(9) Above mentioned power supply of the hydrobox is for the backup heater only. The switch box and the pump of the hydrobox are supplied via the outdoor unit. The optional domestic hot water tank has a separate power supply.

3 Electrical data

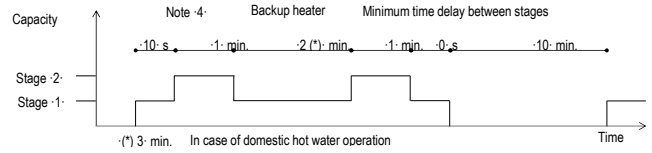
3 - 1 Electrical Data

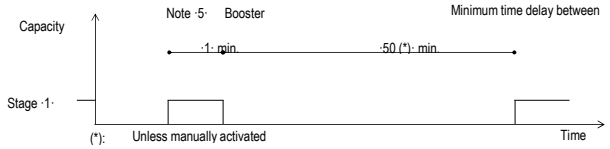
ETBH12E6V
ETBH12E9W
ETBX12E6V
ETBX12E9W
ETBH16E6V
ETBH16E9W
ETBX16E6V
ETBX16E9W

Electrical specifications of the backup heaters and booster heaters

						6V					9W			
Backup heater	Type													
	Capacity setting				[kW]	2 - 4	2 - 6	·2-4· (in case of emergency: ·2·		6	3 - 6	3 - 9	·3 - 6· (in case of	
	Capacity stage · ·					2	2	2	2	1	2	2	2	2
	Capacity stage ·1·				kW	2	2	2	2	6	3	3	3	3
	Capacity stage ·2·				kW	4	6	4	6	-	6	9	6	9
	Minimum time delay between stages					Note ·4·					Note ·4·			
	Power supply	Phase				1~				3~	3~			
	(1)	Frequency			Hz	50								
		Voltage			V	230 +-10%					400 +-10%			
		Nominal running current			A	17,4	26,1	17,4	26,1	15	8,7	13	8,7	13
	Current	Zmax (backup heater)	(2)								-			
					Complex	0,22				-	-			
		Minimum Ssc value			kVA	(3)					-			
Booster heater (optional)(·* KHW*· models)	Capacity setting				kW	3								
	Capacity stage · ·					1								
	Minimum time delay between stages					Note ·5·								
	Nominal running current			+EK*V3	A	13								
	Booster heater			+EK*Z2		-				75				
	Zmax	Booster heater	(2)			-								
					Complex	-								
	Nominal running current	Backup heater ·+·	Booster heater	Backup heater ·+ EK*V3·	A	30,4 (17,4+13)	39,1 (26,1+13)	30,4 (17,4+13)	39,1 (26,1+13)	28 (15 + 13)	21,7 (8,7+13)	26 (13+13	21,7 (8,7+13)	26 (13+13
				Backup heater ·+ EK*Z2·	A					22,5 (15 + 7,5)	16,2 (8,7+7,5)	20,5 (13+7,5)	16,2 (8,7+7,5)	20,5 (13+7,5)
	Minimum Ssc value	Backup heater ·+·	Booster heater ·+ EK*V3·		kVA	(3)								
			Booster heater ·+ EK*Z2·		kVA	-				(3)	-	(3)	-	(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.
	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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3 Electrical data

3 - 1 Electrical Data

ETBH12E6V / ETBH12E9W / ETBX12E6V / ETBX12E9W
ETVH12E6V / ETVH12UE6V / ETVH12E9W / ETVX12E6V
ETVX12E9W / ETVZ12E6V / ETVZ12E9W

* 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 — 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		EPRA(08/10/12)EA*					
Indoor unit type		ETB(H/X)12EF*			ETV(H/X/Z)12S(U)*EA*		
	Backup heater type	6V		9W	6V		9W
	Backup heater power supply	1~ 230V	3~ 230V	3~ 400V	1~ 230V	3~ 230V	3~ 400V
	Backup heater configuration	2 / 4 / 6 kW	6 kW	3 / 6 / 9 kW	2 / 4 / 6 kW	6 kW	3 / 6 / 9 kW
		Normal kWh rate power supply					
Electrical meter type	1~	1	-	-	1	-	-
	3~ balanced	-	-	-	-	-	-
	3~ unbalanced	-	1	1	-	1	1
		Preferential kWh rate power supply					
Electrical meter type	1~	2	1	1	2	1	1
	3~ balanced	-	-	-	-	-	-
	3~ unbalanced	-	1	1	-	1	1

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4 Combination table

4 - 1 Combination Table

ETBH12E6V / ETBH12E9W / ETBX12E6V / ETBX12E9W

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

Description	ETB(H/X)12EF*	
Heating only model ·ETBH·	6V (8)	9W (8)
Reversible model ·ETBX·	6V (8)	9W (8)
Backup heater ·2-4-6kW 1N~230 V·	o	-
Backup heater ·2-4-6kW 3~230 V·	o	-
Backup heater ·3-6-9kW 3N~400 V·	-	o

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

Description		EPRA08EA(V3/W1)	EPRA10EA(V3/W1)	EPRA12EA(V3/W1)
ETBH12EA*	Heating only	o	o	o
ETBX12EA*	Reversible	o	o	o

Kit availability for outdoor units

Reference	Description	EPRA08EA(V3/W1)	EPRA10EA(V3/W1)	EPRA12EA(V3/W1)
EKMST1	Mounting stand	o	o	o
EKMST2	Mounting stand	o	o	o

Kit availability for indoor units

Reference	Description		ETB*12EF*	
ETBH*	Heating only indoor unit		6V	9W
ETBX*	Reversible indoor unit		6V	9W
EKRP1HBAA	Digital I/O PCB	*(1) (2)	o	o
EKRP1AHTA	Demand PCB	*(3)	o	o
BRC1HHDA	Simplified user interface		o	o
EKPCCAB4	PC cable	*(4)	o	o
EKHWS150D3V3	Domestic hot water tank ·150 l 1~230 V·		o	o
EKHWS180D3V3	Domestic hot water tank ·180 l 1~230 V·		o	o
EKHWS200D3V3	Domestic hot water tank ·200 l 1~230 V·		o	o
EKHWS250D3V3	Domestic hot water tank ·250 l 1~230 V·		o	o
EKHWS300D3V3	Domestic hot water tank ·300 l 1~230 V·		o	o
EKHWSU150D3V3	Domestic hot water tank ·150 l 1~230 V·		o	o
EKHWSU180D3V3	Domestic hot water tank ·180 l 1~230 V·		o	o
EKHWSU200D3V3	Domestic hot water tank ·200 l 1~230 V·		o	o
EKHWSU250D3V3	Domestic hot water tank ·250 l 1~230 V·		o	o
EKHWSU300D3V3	Domestic hot water tank ·300 l 1~230 V·		o	o
EKHWP500B**A**	Domestic hot water tank with solar connection	*(9)(10)	o	o
EKHWP500PB**A**	Domestic hot water tank with solar connection	*(9)(10)	o	o
EKHWP300B**A**	Domestic hot water tank with solar connection	*(9)(10)	o	o
EKHWP300PB**A**	Domestic hot water tank with solar connection	*(9)(10)	o	o
EKHY3PART	Third-party tank connection kit for thermistor pocket		o	o
EKHY3PART2	Third-party tank connection kit for thermostat contact		o	o
EKMIKPOA	Bizone kit		o	o
EKMIKPHA	Bizone kit		o	o
EKMIKHMA	Hydraulics – mixed pump group	*(13)	o	o
EKMIKHUA	Hydraulics – unmixed pump group	*(13)	o	o
EKMIKBVA	Balancing vessel		o	o
EKMIKDIA	Distributor for balancing vessel	*(14)	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		o	o
DCOM-LT/MB	DCOM gateway		o	o
AFVALVE1	Freeze protection valve		o	o
EKHBCONV	Conversion kit: heating only to reversible.		o	o
BRP069A71	WLAN module	*(12)	o	o
EKRELSG	Relay for Smart Grid		o	o
ESAE04A01*	Daikin Residential Controller		o	o

Reference	Description		ETB*12EF*	
ETBH*	Heating only indoor unit		6V	9W
ETBX*	Reversible indoor unit		6V	9W
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	*(6)	o	o
EKRTWA	Wired room thermostat		o	o
EKRTR1	Wireless room thermostat		o	o
EKRTETS	External sensor room thermostat	*(7)	o	o
EKWUFHTA1V3	Multi-zoning base unit 230 V	*(11)	o	o
EKWCTRDI1V3	Digital thermostat 230 V	*(11)	o	o
EKWCTRAN1V3	Analogue thermostat 230 V	*(11)	o	o
EKWCVATR1V3	Actuator 230 V	*(11)	o	o

Kit availability for domestic hot water tanks

Reference	Description	*KHWP*			
KHWP	Domestic hot water tank with solar connection	500BA	500PBA	300BA	300PBA
*KSRPS4A	Solar pump station	o	o	o	o
EKEPRHLT3HX	Dedicated connection kit available.			o	o
EKEPRHLT5H	Heating only indoor unit	o	o		
EKEPRHLT5X	Only for reversible models	o	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 ·*KRTR1·
(8) The backup heater capacity depends on a user interface setting.
(9) Solar pump station
(10) Dedicated connection kit available: ·EKEP*·.
(11) Multi-zoning wired controls
(12) 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.
(13) Only possible in combination with ·EKMIKPOA·
(14) Only possible in combination with ·EKMIKBVA· and ·EKMIKPHA· or ·EKMIKHUA·

Remark

Other combinations than mentioned in this combination table are prohibited.

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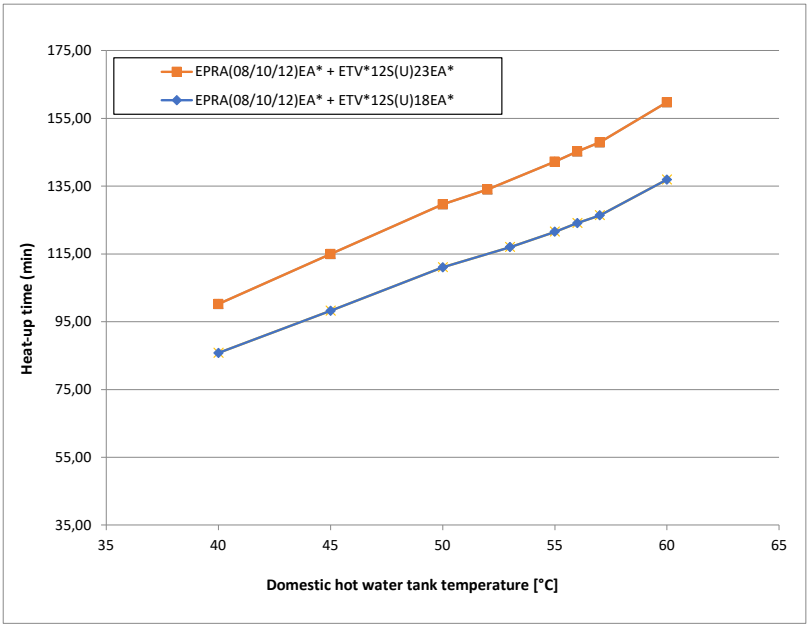
5 Capacity tables

5 - 1 Domestic Hot Water performance

ETBH12E6V / ETBH12E9W
ETBX12E6V / ETBX12E9W
ETVH12E6V / ETVH12UE6V
ETVH12E9W / ETVX12E6V
ETVX12E9W / ETVZ12E6V
ETVZ12E9W

Heat-up times



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.

Model name	Heat-up time domestic hot water tank until 45°C
EPRA(08/10/12)EA* + ETV*12S(U)18EA*	·98· min.
EPRA(08/10/12)EA* + ETV*12S(U)23EA*	·115· min.

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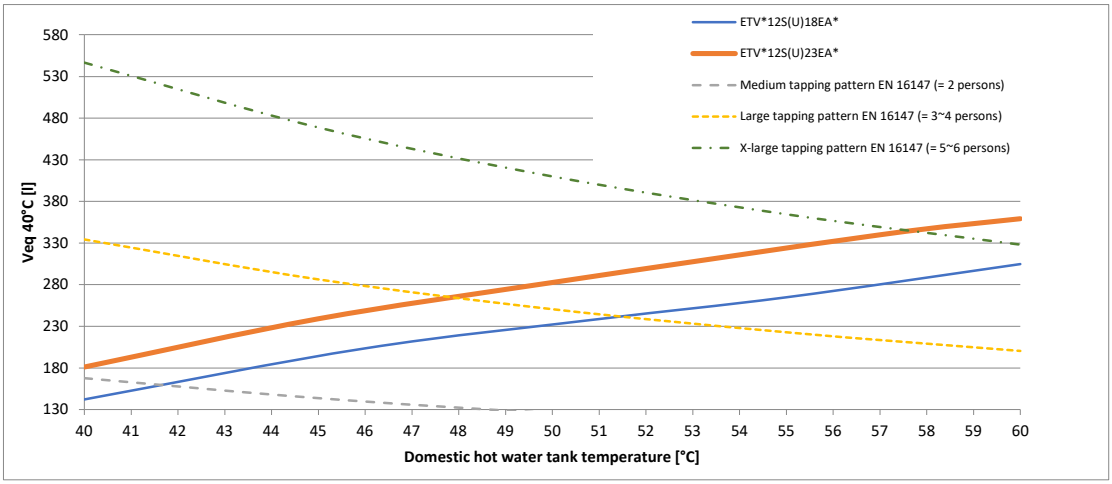
ETBH12E6V / ETBH12E9W / ETBX12E6V / ETBX12E9W
ETVH12E6V / ETVH12UE6V / ETVH12E9W / ETVX12E6V
ETVX12E9W / ETVZ12E6V / ETVZ12E9W

Selection guide for the domestic hot water tank volume

(1)

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.



If a higher daily Veq 40°C is required, then additional heat-up cycles are required within 24 hours.
See the operation manual for more information.

Notes

(1) According to EN16147.

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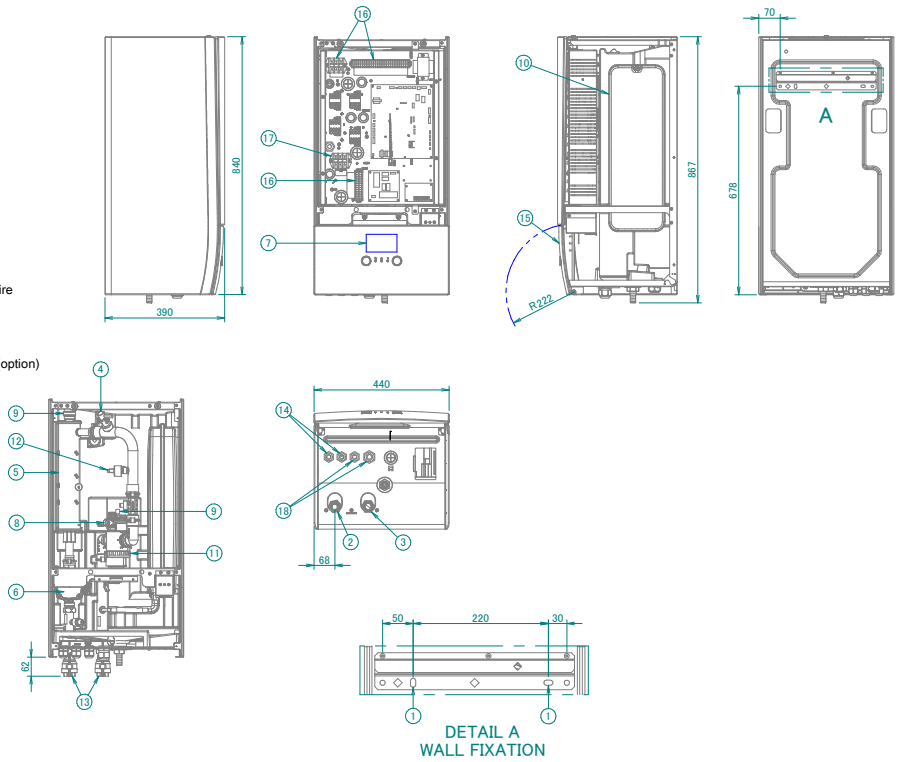
6 Dimensional drawings

6 - 1 Dimensional Drawings

ETBH12E6V / ETBH12E9W / ETBX12E6V / ETBX12E9W

1. Holes ·(Ø8.5)· for wall fixation
2. Water out connection ·(1" F BSP)·
3. Water in connection ·(1" F BSP)·
4. Flow switch
5. Backup heater
6. Pump
7. User interface
8. Safety valve Pressure
9. Air purge
10. Expansion vessel
11. Magnetic filter / dirt separator
12. Space heating water pressure sensor
13. Shut-off valves
14. Wire entrance of the power supply / communication wire
15. Service door
16. Switch box terminals
17. Switch box terminals for the domestic hot water tank (option)
18. Options



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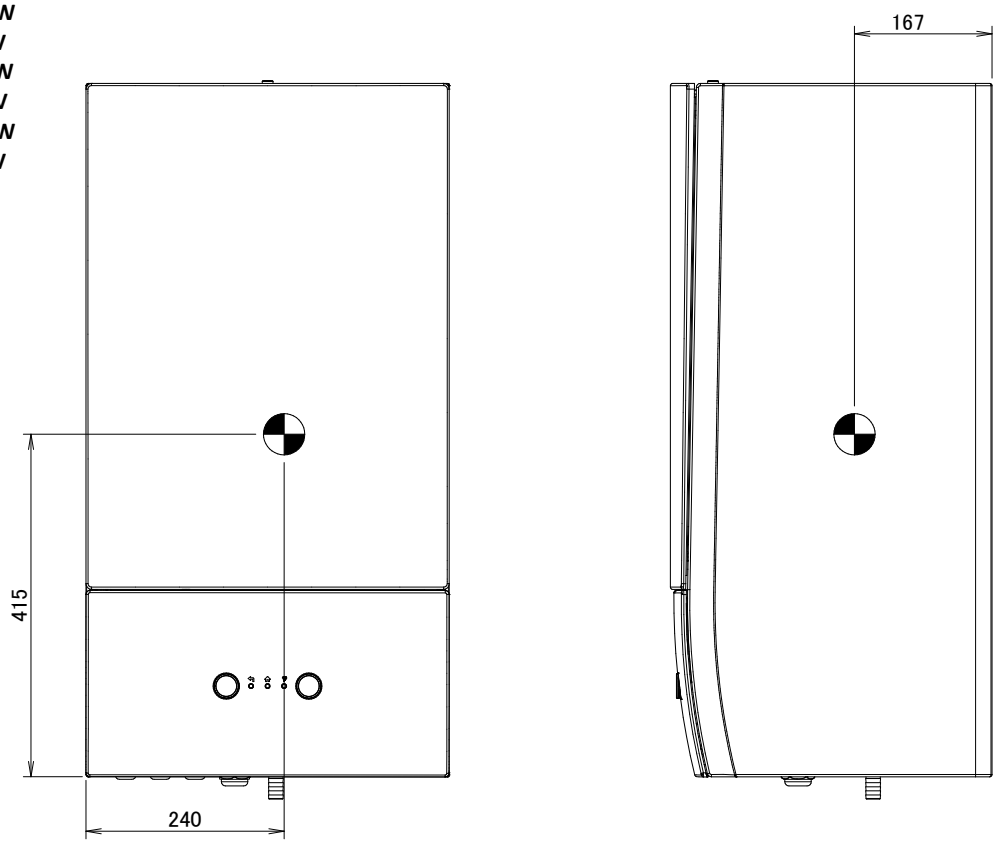
7 Centre of gravity

7 - 1 Centre of Gravity

ETBH12E6V
ETBH12E9W
ETBX12E6V
ETBX12E9W
ETBH16E6V
ETBH16E9W
ETBX16E6V
ETBX16E9



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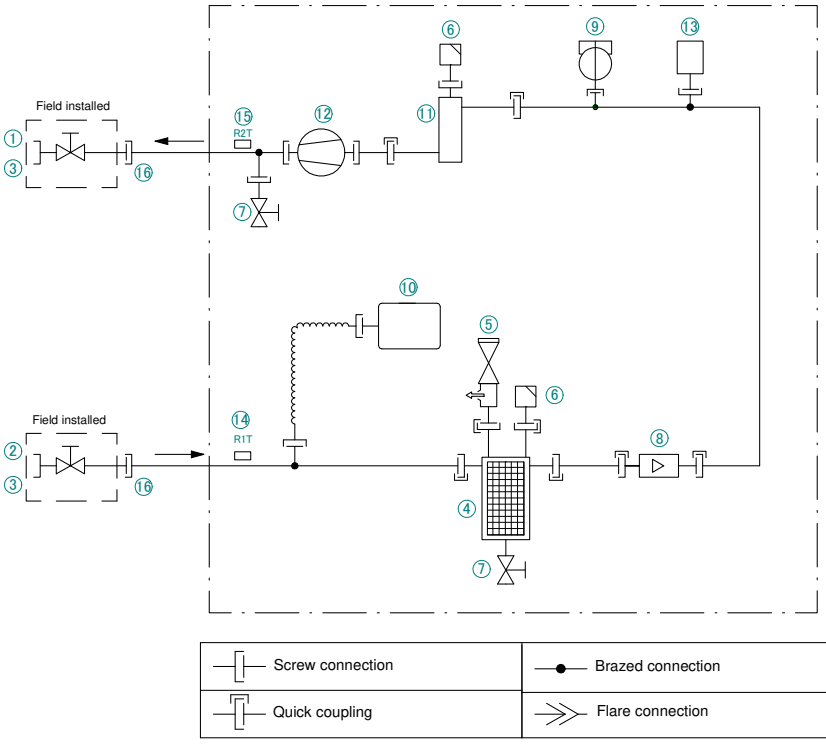
8 Piping diagrams

8 - 1 Piping Diagrams

ETBH12E6V / ETBH16E6V
ETBH12E9W / ETBH16E9W
ETBX12E6V / ETBX16E6V
ETBX12E9W / ETBX16E9W



① Space heating - water OUT
Field piping connections
② Water in connection ·1"·
③ Shut-off valve ·1"· (male-female)
④ Magnetic filter / dirt separator
⑤ Safety valve
⑥ Air purge
⑦ Drain valve
⑧ Flow sensor
⑨ Flow switch
⑩ Expansion vessel
⑪ Backup heater
⑫ Pump
⑬ Space heating water pressure sensor
⑭ R1T – Inlet water thermistor
⑮ R2T – Outlet water backup heater thermistor
⑯ Screw connection ·1"·

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9 Wiring diagrams

9 - 1 Notes & Legend

ETBH12E6V / ETBH12E9W / ETBX12E6V / ETBX12E9W

NOTES to go through before starting the unit

X1M : Main terminal
X2M : Field wiring terminal for AC
X5M : Field wiring terminal for DC
X6M : BUH Power supply terminal
X7M, X8M : BSH Power supply terminal
X10M : Smartgrid terminal
X1M
: Earth wiring
: Field supply
**/12.2
(1) : Several wiring possibilities

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

NOTES

1. Connection point of the power supply for the BUH/BSH should be foreseen outside the unit.

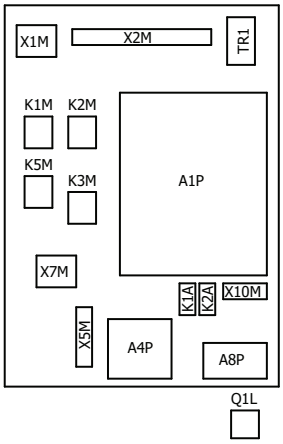
Backup heater power supply
- ☐ 6T1 (3~, 230V, 6kW)
- ☐ 6V3 (1N~, 230V, 6kW)
- ☐ 6WN/9WN (3N~, 400V, 6/9kW)

User installed options:
- ☐ Domestic hot water tank
- ☐ Remote user interface
- ☐ Ext. indoor thermistor
- ☐ Ext. outdoor thermistor
- ☐ Digital I/O PCB
- ☐ Demand PCB
- ☐ Safety thermostat
- ☐ Smartgrid kit
- ☐ WLAN adapter module
- ☐ WLAN cartridge
- ☐ Bizone 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

POSITION IN SWITCH BOX



LEGEND

Part n°		Description
A1P		main PCB
A2P	*	ON/OFF thermostat (PC=power circuit)
A3P	*	heat pump convector
A4P	*	digital I/O PCB
A8P	*	demand PCB
A9P		status indicator
A11P		MMI main PCB
A14P	*	user interface PCB
A15P	*	receiver PCB (wireless ON/OFF thermostat)
A20P	*	WLAN adapter module
A30P	*	Bizone mixing kit PCB
B*L		flow sensor
B1PW		water pressure sensor
BSK (A3P)		solar pump station relay
CN* (A4P)	*	connector
DS1 (A8P)	*	dipswitch
E1H		backup heater element (1 kW)
E2H		backup heater element (2 kW)
E4H	*	booster heater (3 kW)
E*P (A9P)		indication LED
F1B	#	overcurrent fuse backup heater
F2B	#	overcurrent fuse booster heater
F1T		thermal fuse backup heater
F1U, F2U (A4P)	*	fuse 5 A 250 V for digital I/O PCB
FU1 (A1P)		fuse T 6.3 A 250 V for PCB
K1A, K2A	*	high voltage smartgrid relay
K1M, K2M		contactor backup heater
K3M	*	contactor booster heater
K5M		safety contactor BUH
K*R (A*P)		relay on PCB
M1P		main supply pump
M2P	#	domestic hot water pump
M2S	#	2 way valve for cooling mode
M3S	*	3 way valve for spaceheating/domestic hot water

Part n°		Description
P1M		MMI display
PC (A15P)	*	power circuit
PHC1 (A4P)	*	optocoupler input circuit
Q1L		thermal protector backup heater
Q2L	*	thermal protector booster 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)
R5T	*	domestic hot water thermistor
R6T	*	external indoor or outdoor ambient thermistor
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
S6S-S9S	*	digital power limitation inputs
S10S-S11S	#	low voltage smartgrid contact
SS1 (A4P)	*	selector switch
SW1~2 (A12P)		turn buttons
SW3~5 (A12P)		push button
TR1		power supply transformer
X6M	#	BUH power supply terminal strip
X6M	*	BSH power supply connector
X7M, X8M	*	BSH power supply terminal strip
X10M	*	smartgrid power supply terminal strip
X*, X*A, J* X*H*, X*Y		connector
X*M		terminal strip

* : optional #: field supply

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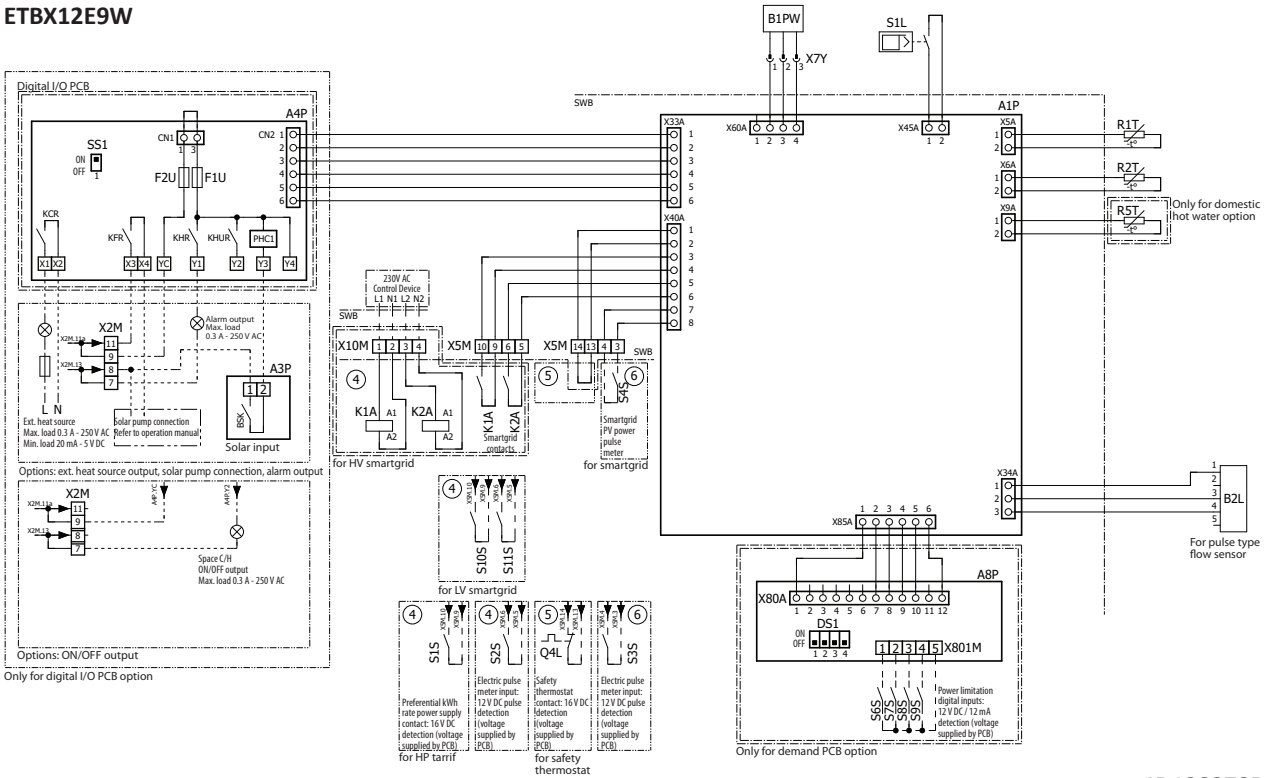
9 Wiring diagrams

9 - 2 Control Circuit

ETBH12E6V
ETBH12E9W
ETBX12E6V
ETBX12E9W



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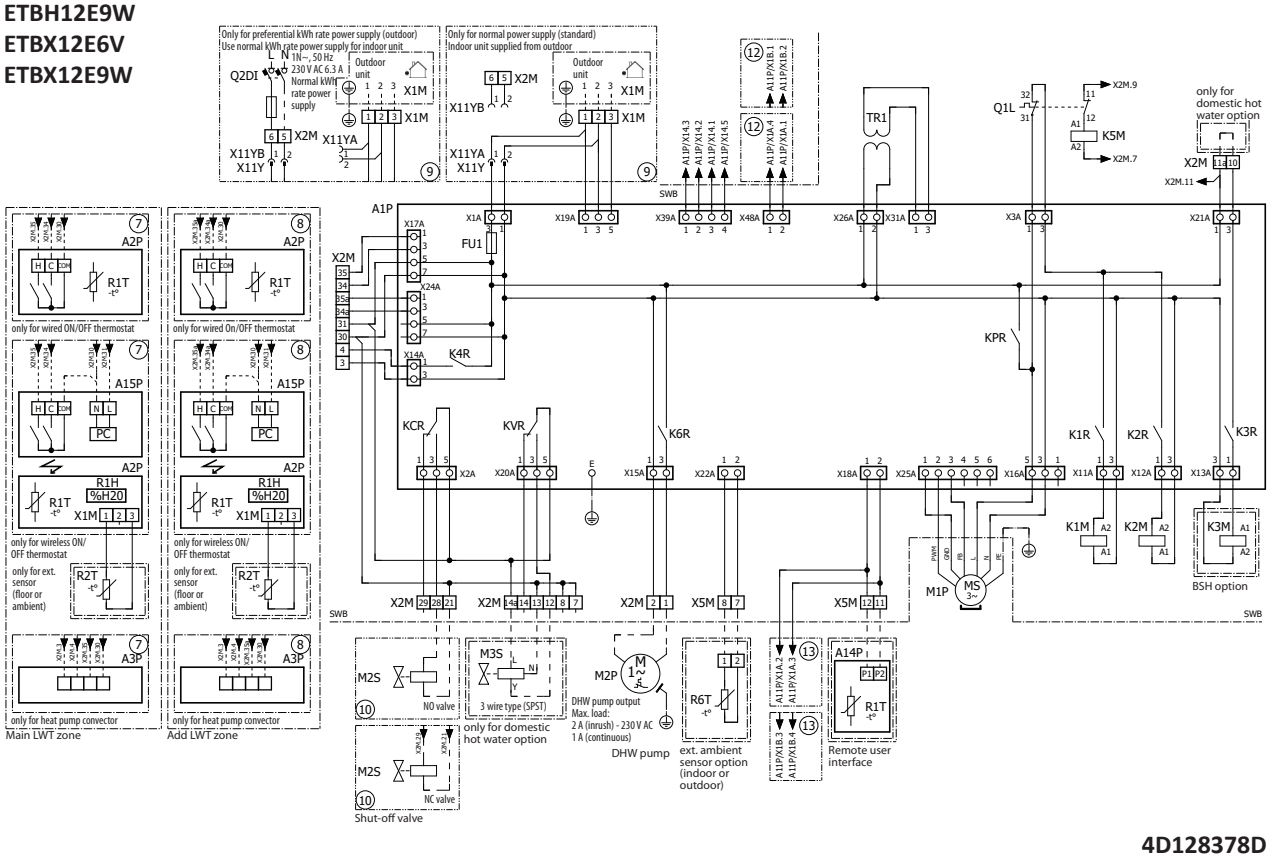
ETBH12E6V
ETBH12E9W
ETBX12E6V
ETBX12E9W



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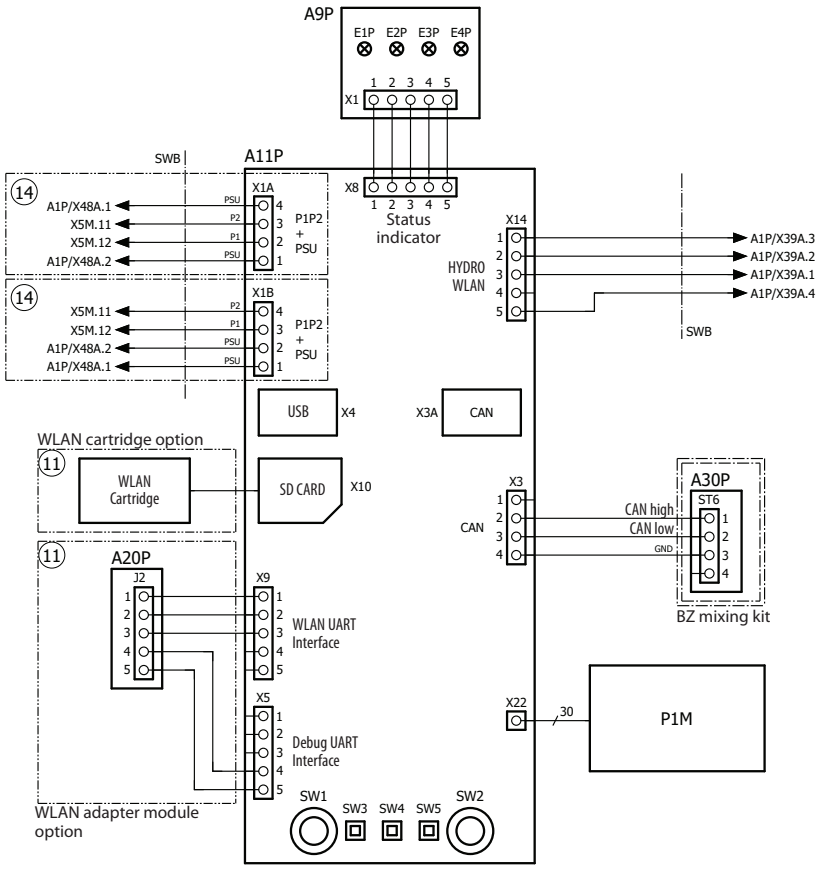
9 Wiring diagrams

9 - 2 Control Circuit

ETBH12E6V
ETBH12E9W
ETBX12E6V
ETBX12E9W



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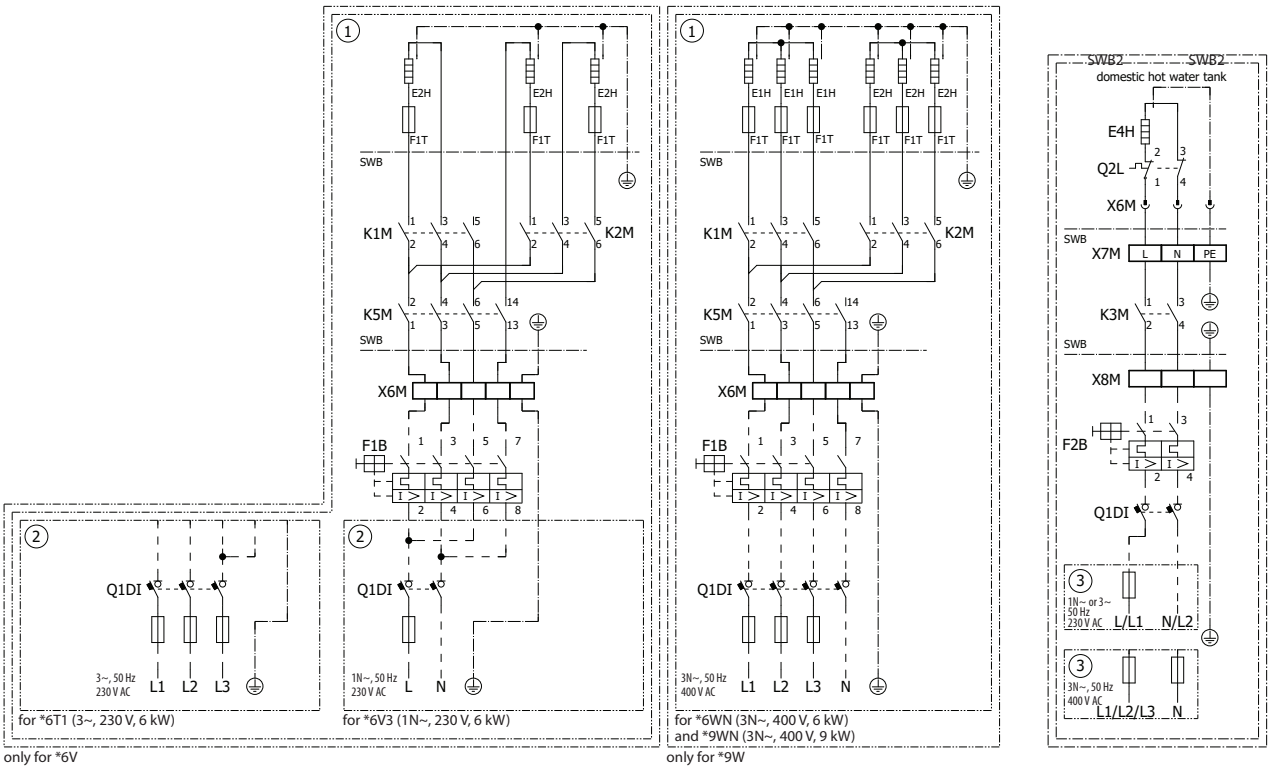
9 Wiring diagrams

9 - 3 Power Supply, Back-up Heater

ETBH12E6V / ETBH12E9W / ETBX12E6V /ETBX12E9W



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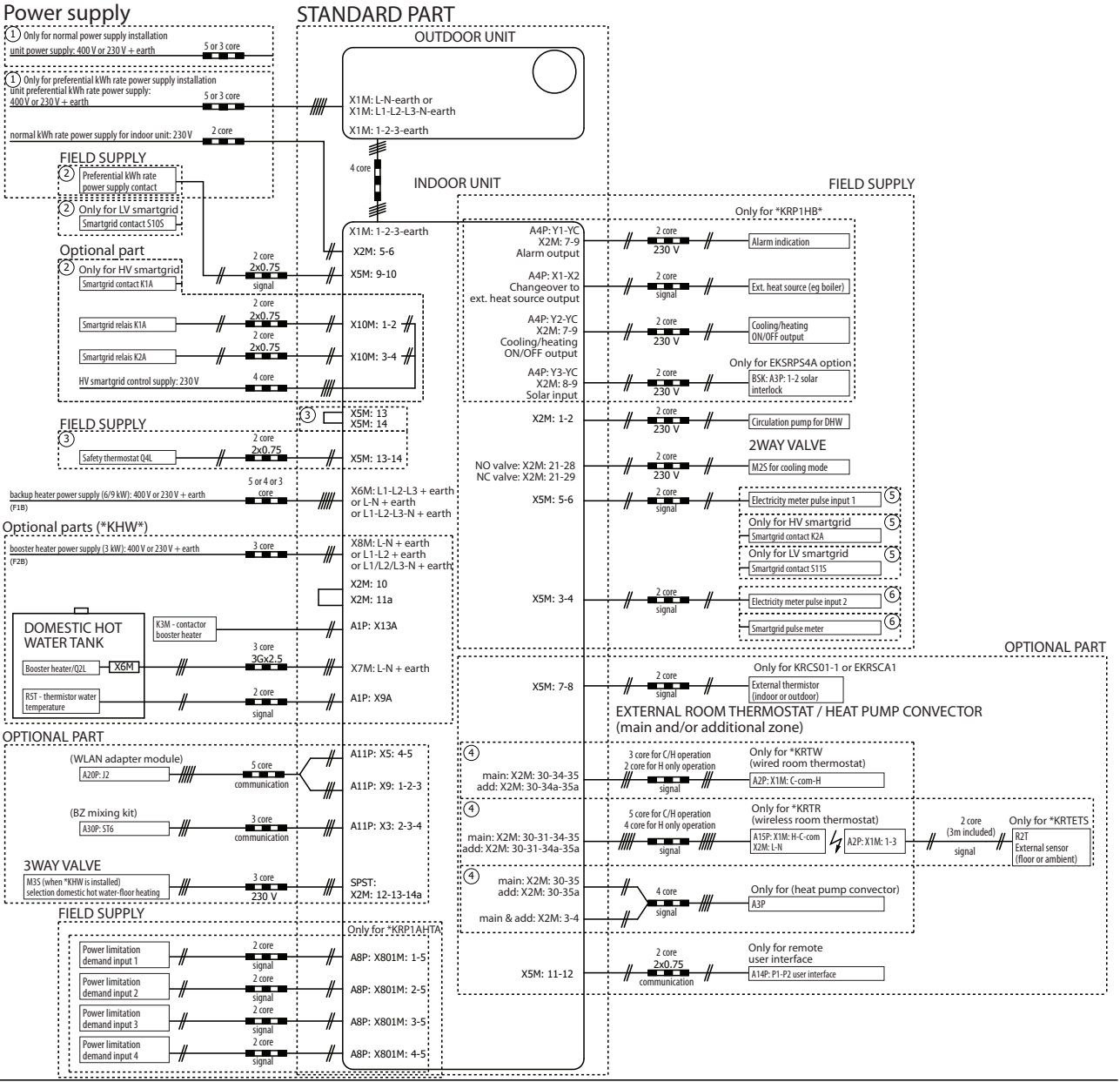
10 External connection diagrams

10 - 1 External Connection Diagrams

ETBH12E6V
ETBH12E9W
ETBX12E6V
ETBX12E9W



NOTE

- In case of signal cable: keep minimum distance to power cables > 5 cm
- Available heaters depending on model: see combination table

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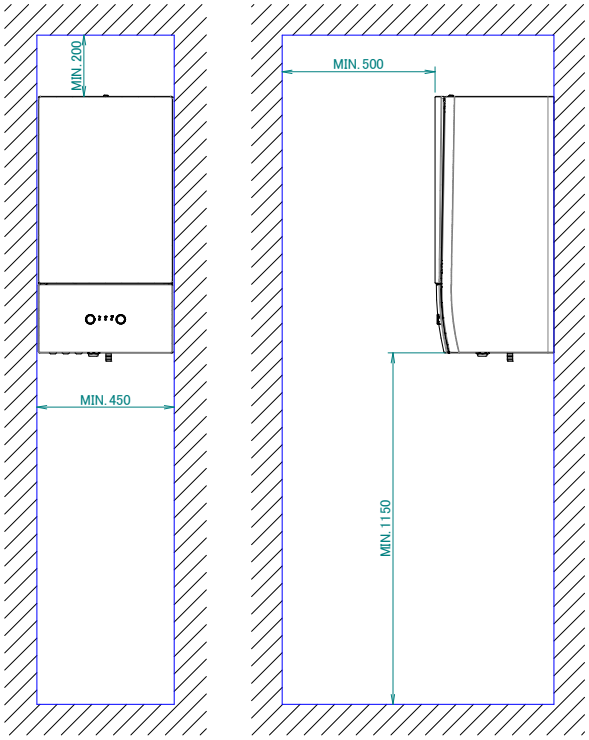
11 Installation

11 - 1 Installation Method

ETBH12E6V
ETBH12E9W
ETBX12E6V
ETBX12E9W
ETBH16E6V
ETBH16E9W
ETBX16E6V
ETBX16E9W



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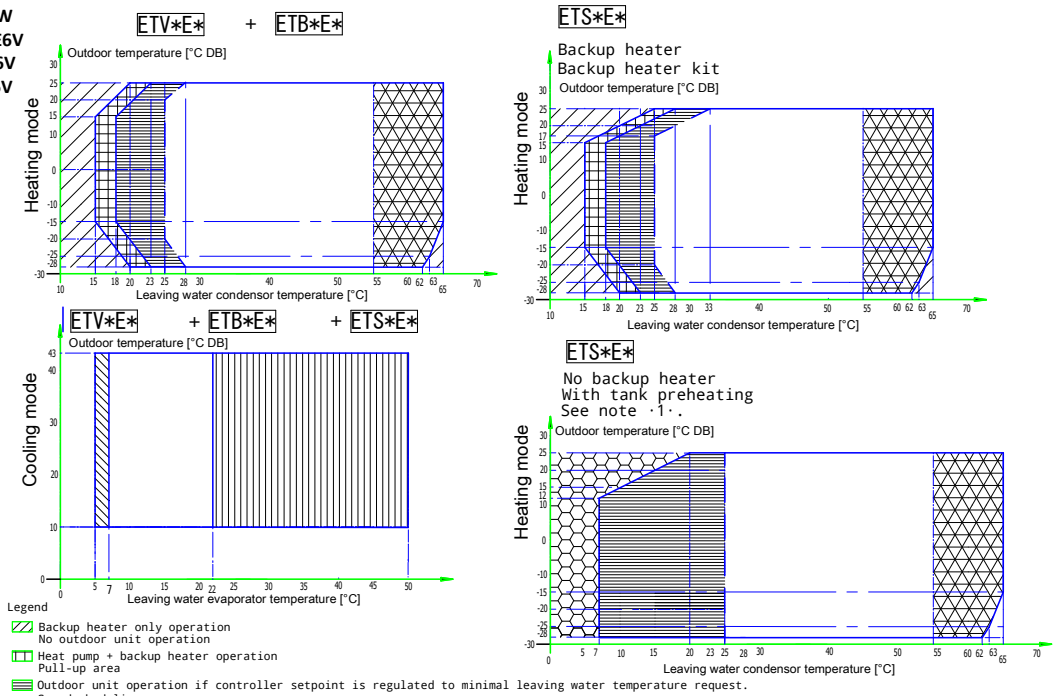
12 Operation range

12 - 1 Operation Range

ETBH12E6V / ETBH12E9W
ETBX12E6V / ETBX12E9W
ETVH12E6V / ETVH12UE6V
ETVH12E9W / ETVX12E6V
ETVX12E9W / ETVZ12E6V
ETVZ12E9W



Legend

- Backup heater only operation
  No outdoor unit operation
- Heat pump + backup heater operation
  Pull-up area
- Outdoor unit operation if controller setpoint is regulated to minimal leaving water temperature request.
  See dashed lines
- Circulation pump operation only
- Outdoor unit operation if setpoint >·55·°C and ΔT = ·10·°C (ΔT = outlet temperature – inlet temperature)
- Pull-down area
- In case valve kit ·AFVALVE1· is part of the system, then the minimum setpoint is ·7·°C.

Notes

1. Tank preheating
   For details, see the installer reference guide.
2. If negative ambient temperatures are expected, both in operation or at standstill, take adequate countermeasures against freezing.
   For more information, refer to the installation manual.
3. In restricted power supply mode, the outdoor unit and backup heater can only operate separately.

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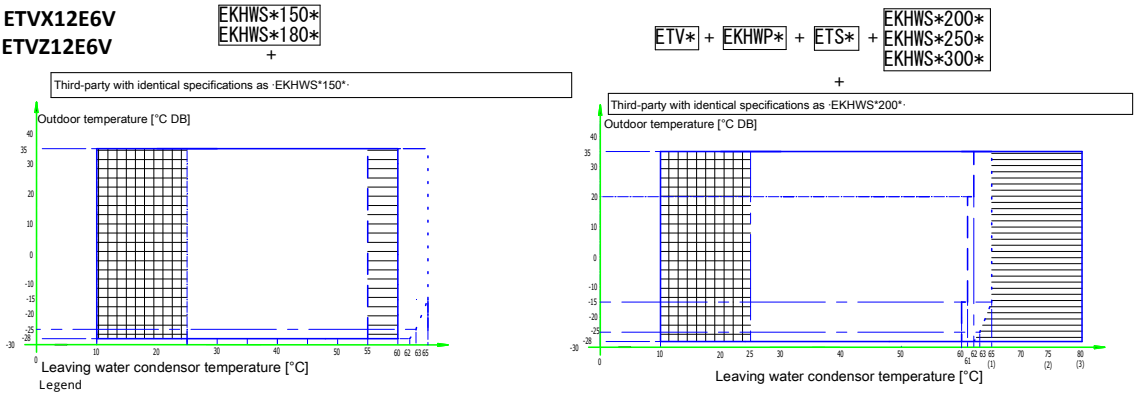
ETBH12E6V / ETBH12E9W
ETBX12E6V / ETBX12E9W
ETVH12E6V / ETVH12UE6V
ETVH12E9W / ETVX12E6V
ETVX12E9W / ETVZ12E6V
ETVZ12E9W

Domestic hot water heating mode



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) ETV*12*E*· indoor units only /·ETS*12*E· indoor units only
  (2) Combination of ·EKHWS*· and ·ETB*12*E· indoor units
  (3) Combination of ·EKHWP*· and ·ETB*12*E· indoor units

Notes

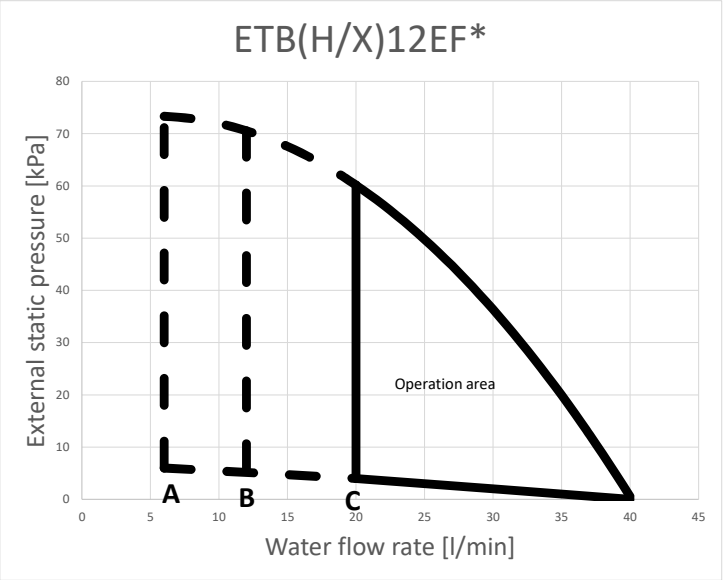
1. In restricted power supply mode (·EKHW*· only), the outdoor unit, booster heater and backup heater can only operate separately.
2. Third-party with identical specifications as ·EKHWS*150*·
   Coil surface >·1.05·m² and <·3.7·m²
   Tank thermistor and booster heater above heat pump coil.
3. If negative ambient temperatures are expected, both in operation or at standstill, take adequate countermeasures against freezing.
   For more information, refer to the installation manual.
4. 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.

3D133532

13 Hydraulic performance

13 - 1 Static Pressure Drop Unit

ETBH12E6V
ETBH12E9W
ETBX12E6V
ETBX12E9W



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.
(Not in startup, no BUH operation, no defrost operation.)

See dashed lines

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 quality must be according to EU directive 98/83 EC.

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