

Daikin Altherma high temperature split Technical Data

ETVZ16E6V / ETVZ16E9W



ETVZ16S18EA6V
ETVZ16S23EA6V
ETVZ16S18EA9W
ETVZ16S23EA9W

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1 Features

1 - 1 ETVZ16E9W, ETVZ16E6V

Floor standing unit integrated with different temperature zones management

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- › Integrated indoor unit: all-in-one floor standing unit including the domestic hot water tank
- › Inclusion of all hydraulic components means no third party components are required
- › The unit's sleek design blends in with other household appliances.
- › Bi-zone allows temperature monitoring for 2 zones. Connect underfloor heating to radiators to optimise efficiency
- › Quick configuration in 9 steps in a high resolution colour interface wizard



Daikin
Residential
Controller

2 Specifications

1 - 1 ETVZ16E9W, ETVZ16E6V

Technical specifications				ETVZ16S18E6V	ETVZ16S23E6V
Heater capacity	Step 1		kW	2	
	Step 2		kW	2 or 4	
Power input	Nom.		kW	0.33	
Casing	Material			Precoated sheet metal	
Dimensions	Unit	Height	mm	1,650	1,850
		Width	mm	595	
		Depth	mm	625	
	Packed unit	Height	mm	1,820	2,020
		Width	mm	720	
		Depth	mm	740	
Weight	Unit		kg	120	128
	Packed unit		kg	138	146
Packing	Material			Wood / Carton / PE wrapping foil / Metal	
	Weight		kg	16	
Pump Additional Zone	Nr of speeds			PWM	
	Power input		W	140	
	Type			Grundfos UPML GEO 25-105	
Pump Main Zone	Nr of speeds			PWM	
	Power input		W	140	
	Type			Grundfos UPML GEO 25-105	
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 Additional Zone	Diameter perforations		mm	0.8	
	Material			Plastic / Stainless steel	
Water filter Main Zone	Diameter perforations		mm	1.0	
	Material			Copper - brass - stainless steel	
Tank	Name			Stainless steel domestic hot water tank 180 l	Stainless steel domestic hot water tank 230 L
	Water volume		l	180	230
	Material			Stainless steel (EN 1.4521)	
	Maximum water temperature		°C	70.0	
	Maximum water pressure		bar	10	
	Insulation Material			Polyurethane foam	
	Heat loss		kWh/24h	1.2 (2)	1.4 (2)
	Corrosion protection			Pickling	
	Energy efficiency class			B	
	Supplier/Manufacturer details	Name or trademark		Daikin Europe N.V.	
3-way valve	Coeffi- cient of flow (kV)	Space heating	m³/h	8	
		Domestic hot water tank	m³/h	10	
3-way valve mixing	Coeffi- cient of flow (kV)	Bypass	m³/h	13	
		Main zone only	m³/h	8	
Water circuit	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	3.5 (3)	
	Minimum water volume in the system for cooling		l	20 (4)	
	Minimum water volume in the system for heating		l	20 (4)	
Water circuit - space heating side (additional zone)	Air purge valve			Yes	
	Drain valve / fill valve			No	
	Manometer			Yes	
	Piping connections diameter		inch	G 1" (FEMALE)	
	Safety valve		bar	3	
Water circuit - space heating side (main zone)	Shut off valve			Yes	
	Air purge valve			No	
	Manometer			Yes	
	Piping connections diameter		inch	G 1 (FEMALE)	
	Safety valve		bar	Yes	
	Shut off valve			Yes	

2 Specifications

1 - 1 ETVZ16E9W, ETVZ16E6V

2

Technical specifications					ETVZ16S18E6V	ETVZ16S23E6V
Water circuit - Domestic hot water side	Piping material				Stainless steel	
	Piping connections	Cold water in / Hot water out	inch		G 3/4" FEMALE	
		Recirculation connection	inch		G 3/4" FEMALE	
Sound power level	Nom.			dBA	44.0 (5)	
Sound pressure level	Nom.			dBA	30.0 (6)	
Operation range	Heating	Ambient	Min.	°C	0 (7)	
			Max.	°C	0 (7)	
Operation range	Heating	Water side	Min.	°C	0 (7)	
			Max.	°C	0 (7)	
	Indoor installation	Ambient	Min.	°CDB	5	
			Max.	°CDB	35 (8)	
	Cooling	Ambient	Min.	°CDB	0 (7)	
			Max.	°CDB	0 (7)	
		Water side	Min.	°C	0 (7)	
			Max.	°C	0 (7)	
		Domestic hot water	Min.	°C	0 (7)	
			Max.	°C	0 (7)	
Safety devices	Item	01			Thermal cut out	

Electrical specifications					ETVZ16S18E6V	ETVZ16S23E6V
Power supply	Name				See note 9	
	Voltage range	Min.		%	10	
		Max.		%	10	
IP class	IP				IP X0B	
Electric heater	Power supply	Name			6V3	
		Phase			1~ / 3~	
		Frequency			50	
		Voltage			230	
	Current	Maximum running current			26.0	
		Zmax	List	Ω	0.22	
		Minimum Ssc value			Equipment complying with EN/IEC 61000-3-12	
		Recommended fuses			20.000 (10)	
	Wiring connections	Communication cable	Quantity		3	
			Remark		2.5 mm ²	
		Electric meter	Quantity		2	
			Remark		Minimum 0.75 mm ² (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 mm ² (2A inrush, 1A continuous)	
		For power supply back-up heater	Quantity		Prewired	
			Remark			
		For connection with R6T	Quantity		2	
			Remark		Minimum 0.75 mm ²	
		For connection with A3P	Quantity		Depends on thermostat type, cf. installation manual	
			Remark		Voltage: 230V / Max. current: 100mA / Min. 0.75mm ²	
		For connection with M2S	Quantity		2	
			Remark		Voltage: 230V / Max. current: 100mA / Min. 0.75mm ²	
		For connection with optional FWXV* (demand	Quantity		4	
			Remark		100 mA, minimum 0.75 mm ²	

- (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) Based on a dT of 45 K |
- (3) Including piping + back-up heater; excluding expansion vessel |
- (4) Excluding the water in the unit. This minimum water volume is sufficient for most applications. During critical processes extra water may be required. |
- (5) 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°. |
- (6) 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 |
- (7) Refer to operation range of the unit. |
- (8) Depends on operation mode, refer to installation manual. |
- (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. |
- (10) 4 pole 20 A curve 400V tripping class C (refer to wiring diagram) |

2 Specifications

1 - 1 ETVZ16E9W, ETVZ16E6V

Technical specifications				ETVZ16S18E9W	ETVZ16S23E9W
Heater capacity	Step 1		kW	3	
	Step 2		kW	max. 6 kW	
Power input	Nom.		kW	0.33	
Casing	Material			Precoated sheet metal	
Dimensions	Unit	Height	mm	1,650	1,850
		Width	mm	595	
		Depth	mm	625	
	Packed unit	Height	mm	1,820	2,020
		Width	mm	720	
		Depth	mm	740	
Weight	Unit		kg	120	128
	Packed unit		kg	138	146
Packing	Material			Wood / Carton / PE wrapping foil / Metal	
	Weight		kg	16	
Pump Additional Zone	Nr of speeds			PWM	
	Power input		W	140	
	Type			Grundfos UPML GEO 25-105	
Pump Main Zone	Nr of speeds			PWM	
	Power input		W	140	
	Type			Grundfos UPML GEO 25-105	
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 Additional Zone	Diameter perforations		mm	0.8	
	Material			Plastic / Stainless steel	
Water filter Main Zone	Diameter perforations		mm	1.0	
	Material			Copper - brass - stainless steel	
Tank	Name			Stainless steel domestic hot water tank 180 l	Stainless steel domestic hot water tank 230 L
	Water volume		l	180	230
	Material			Stainless steel (EN 1.4521)	
	Maximum water temperature		°C	70.0	
	Maximum water pressure		bar	10	
	Insulation Material			Polyurethane foam	
		Heat loss	kWh/24h	1.2 (2)	1.4 (2)
	Corrosion protection			Pickling	
	Energy efficiency class			B	
	General			Daikin Europe N.V.	
3-way valve	Supplier/Manufacturer details	Name or trademark		Daikin Europe N.V. - Zandvoordestraat 300, 8400 Oostende, Belgium	
		Name and address			
3-way valve mixing	Coefficient of flow (kV)	Space heating	m³/h	8	
		Domestic hot water tank	m³/h	10	
3-way valve mixing	Coefficient of flow (kV)	Bypass	m³/h	13	
		Main zone only	m³/h	8	
Water circuit	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	3.5 (3)	
	Minimum water volume in the system for cooling		l	20 (4)	
	Minimum water volume in the system for heating		l	20 (4)	
Water circuit - space heating side (additional zone)	Air purge valve			Yes	
	Drain valve / fill valve			No	
	Manometer			Yes	
	Piping connections diameter		inch	G 1" (FEMALE)	
	Safety valve		bar	3	
Water circuit - space heating side (main zone)	Shut off valve			Yes	
	Air purge valve			No	
	Manometer			Yes	
	Piping connections diameter		inch	G 1 (FEMALE)	
	Safety valve		bar	Yes	
	Shut off valve			Yes	

2 Specifications

1 - 1 ETVZ16E9W, ETVZ16E6V

2

Technical specifications					ETVZ16S18E9W	ETVZ16S23E9W
Water circuit - Domestic hot water side	Piping material				Stainless steel	
	Piping connections	Cold water in / Hot water out	inch		G 3/4" FEMALE	
		Recirculation connection	inch		G 3/4" FEMALE	
Sound power level	Nom.				44.0 (5)	
Sound pressure level	Nom.				30.0 (6)	
Operation range	Heating	Ambient	Min.	°C	0 (7)	
			Max.	°C	0 (7)	
Operation range	Heating	Water side	Min.	°C	0 (7)	
			Max.	°C	0 (7)	
	Indoor installation	Ambient	Min.	°CDB	5	
			Max.	°CDB	35 (8)	
	Cooling	Ambient	Min.	°CDB	0 (7)	
			Max.	°CDB	0 (7)	
		Water side	Min.	°C	0 (7)	
			Max.	°C	0 (7)	
Safety devices	Item	01	Min.	°C	0 (7)	
					Thermal cut out	

Electrical specifications					ETVZ16S18E9W	ETVZ16S23E9W
Power supply	Name				See note 9	
	Voltage range	Min.	%		10	
		Max.	%		10	
IP class	IP				IP X0B	
Electric heater	Power supply	Name			9W	
		Phase			3~	
		Frequency			50	
		Voltage			400	
	Current	Maximum running current			13.0	
		Recommended fuses			20.000 (10)	
Wiring connections	Communication cable	Quantity			3	
		Remark			2.5 mm ²	
	Electric meter	Quantity			2	
		Remark			Minimum 0.75 mm ² (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 mm ² (2A inrush, 1A continuous)	
	For power supply back-up heater	Quantity			Prewired	
		Remark				
	For connection with R6T	Quantity			2	
		Remark			Minimum 0.75 mm ²	
	For connection with A3P	Quantity			Depends on thermostat type, cf. installation manual	
		Remark			Voltage: 230V / Max. current: 100mA / Min. 0.75mm ²	
	For connection with M2S	Quantity			2	
		Remark			Voltage: 230V / Max. current: 100mA / Min. 0.75mm ²	
	For connection with optional FWXV* (demand	Quantity			4	
		Remark			100 mA, minimum 0.75 mm ²	

(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) Based on a dT of 45 K |

(3) Including piping + back-up heater; excluding expansion vessel |

(4) Excluding the water in the unit. This minimum water volume is sufficient for most applications. During critical processes extra water may be required. |

(5) 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°. |

(6) 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 |

(7) Refer to operation range of the unit. |

(8) Depends on operation mode, refer to installation manual. |

(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.

(10) 4 pole 20 A curve 400V tripping class C (refer to wiring diagram) |

3 Electrical data

3 - 1 Electrical Data

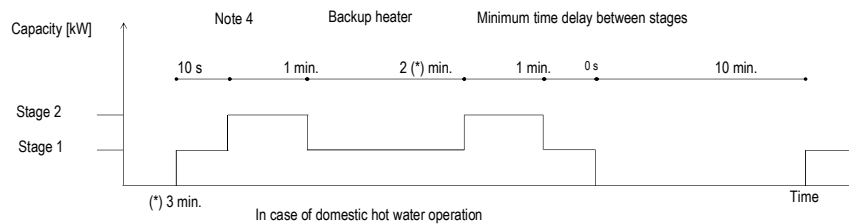
ETVH12E6V / ETVH16E6V / ETVH12UE6V / ETVH16UE6V / ETVH12E9W / ETVH16E9W

ETVX12E6V / ETVX16E6V / ETVX12E9W / ETVX16E9W

ETVZ12E6V / ETVZ16E6V / ETVZ12E9W / ETVZ16E9W

Electrical specifications

Backup heater	Type			6V						9W			
				2 - 4	2 - 6	4 - 6	2-4 (in case of emergency: 2-6)			3 - 6	3 - 9	3 - 6 (in case of emergency: 3-9)	
	Capacity setting	[kW]		2	2	2	2	2	6	3 - 6	3 - 9	2	2
	Capacity stage			2	2	2	2	2	6	3	3	3	3
	Capacity stage 1	kW		2	2	2	2	2	6	3	3	3	3
	Capacity stage 2	kW		4	6	4	4	6	-	6	9	6	9
	Minimum time delay between stages			Note 4						Note 4			
	Power supply	Phase		1~						3~			
	(1)	Frequency	Hz	50						50			
		Voltage	V	230 +-10%						400 +-10%			
Current	Nominal running current	A	17,4	26,1	26,1	17,4	26,1	15	8,7	13	8,7	13	
	Zmax (backup heater[2])	Ω							-				
		Complex							-				
		kVA		(3)		(3)			-				
Notes	(1)	The above-mentioned power supply of the hydrobox is for the backup heater only.											
	(2)	Booster heater power supply											
	(3)	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.											
		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

3

ETBH16E6V / ETBH16E9W / ETBX16E6V / ETBX16E9W

ETVH16E6V / ETVH16E9W / ETVH16E9W

ETVX16E6V / ETVX16E9W

ETVZ16E6V / ETVZ16E9W

* 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(14/16/18)(D/E)A*					
Indoor unit type		ETB(H/X)16(D/E)A*			ETV(H/X/Z)16S*(D/E)A*		
	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

ETVH16E6V / ETVH16UE6V / ETVH16E9W

ETVX16E6V / ETVX16E9W

ETVZ16E6V / ETVZ16E9W

Factory-mounted equipment for ·ETV(H/X/Z)16S*EA*·

Description	ETV(H/X/Z)16S*EA*			
Heating only model ·ETVH*·	18 - 6V (9)	18 - 9W (9)	23 - 6V (9)	23 - 9W (9)
Reversible model ·ETVX*·	18 - 6V (9)	18 - 9W (9)	23 - 6V (9)	23 - 9W (9)
(Integrated Bizone)	18 - 6V (9)	18 - 9W (9)	23 - 6V (9)	23 - 9W (9)
Heating only indoor unit for the UK	18 - 6V (9)	18 - 9W (9)	23 - 6V (9)	23 - 9W (9)
Backup heater ·2.4-6kW 1N-230 V·	0	-	0	-
Backup heater ·2.4-6kW 3-230 V·	0	-	0	-
Backup heater ·3.6-9kW 3N-400 V·	-	0	-	0
Domestic hot water tank ·180L·	0	0	-	-
Domestic hot water tank ·230L·	-	-	0	0

Outdoor combination table for ·ETV(H/X/Z)16S(U)(18/23)EA*·

		EPRA14DA(V3/W1)	EPRA16DA(V3/W1)	EPRA18DA(V3/W1)
ETVH16S(18/23)EA*·	Heating only indoor unit	0	0	0
ETVX16S(18/23)EA*·	Reversible indoor unit	0	0	0
ETVZ16S(18/23)EA*·	(Integrated Bizone)	0	0	0
ETVH16SU(18/23)EA*·	Heating only indoor unit for the UK	0	0	0

Kit availability

Reference	Description	ETV*16S*EA*				ETVH16SU*EA*	
ETVH*	Heating only indoor unit	18 - 6V	18 - 9W	23 - 6V	23 - 9W		
ETVX*	Reversible indoor unit	18 - 6V	18 - 9W	23 - 6V	23 - 9W		
ETVZ*	(Integrated Bizone)	18 - 6V	18 - 9W	23 - 6V	23 - 9W		
ETVH*U*	Heating only indoor unit for the UK	18 - 6V	18 - 9W	23 - 6V	23 - 9W	18 - 6V	23 - 6V
EKRP1HBAA	Digital I/O PCB	*(1)	(2)	0	0	0	0
EKR1AHTA	Demand PCB	*(3)	0	0	0	0	0
EKPPCAB4	PC cable	*(4)	0	0	0	0	0
KRCS01-1	Remote indoor sensor	*(5)	0	0	0	0	0
EKRSCA1	Remote sensor for outdoor	*(5)	0	0	0	0	0
EKCC8-W	Universal centralised user interface	0	0	0	0	0	0
DCOM-LT/I/O	DCOM gateway	0	0	0	0	0	0
DCOM-LT/MB	DCOM gateway	0	0	0	0	0	0
EKHVCNV4	Conversion kit: heating only to reversible.	0	0	0	0	0	0
EKUHVG3D	·G3· kit					0 (6)	0 (6)
BRP069A71	WLAN module	*(7)	0	0	0	0	0
BRC1HHDA*	HCI (Human Comfort Interface)	0	0	0	0	0	0
ESAE04A01*	Daikin Residential Controller	0	0	0	0	0	0
EKRELSG	Relay for Smart Grid	0	0	0	0	0	0
AFVALVE1	Freeze protection valve	0	0	0	0	0	0
FWXV10-15-20ATV3*	Heat pump convactor	*(8)	0	0	0	0	0
FWXT10-15-20ATV3*	Heat pump convactor	*(8)	0	0	0	0	0
FWXM10-15-20ATV3*	Heat pump convactor	*(8)	0	0	0	0	0
EKVHPC	Heat pump convactor valve kit	*(8)	0	0	0	0	0
EKRTWA	Wired room thermostat	0	0	0	0	0	0
EKRTR1	Wireless room thermostat	0	0	0	0	0	0
EKRTE5	External sensor room thermostat	*(10)	0	0	0	0	0
EKWUFHTA1V3	Multi-zoning base unit 230 V	*(11)	0	0	0	0	0
EKWCTRD1V3	Digital thermostat 230 V	*(11)	0	0	0	0	0
EKWCTRAN1V3	Analogue thermostat 230 V	*(11)	0	0	0	0	0
EKWCVATR1V3	Actuator 230 V	*(11)	0	0	0	0	0
HYDRA*	Hydrofast connection kit for field piping	0	0	0	0	0	0
HBKIT*	Easy floor standing installation kit	0	0	0	0	0	0
HBKITZ2	Easy floor standing bizone extension kit	*(14)(15)	0	0	0	0	0
HBACC00*	Easy floor standing installation side piping extension kit	*(14)	0	0	0	0	0

Reference	Description		
	Only applicable for ·ETVH* & ETVX*· models	ETVH*	ETVX*
EKMIKPOA	Mixing kit - PCB only	0	0
EKMIKPHA	Mixing kit - PCB with hydraulics	0	0
EKMIKHMA	Hydraulics - mixed pump group	*(12)	0
EKMIKHUA	Hydraulics - unmixed pump group	*(12)	0
EKMIKBVA	Balancing vessel	0	0
EKMIKDIA	Distributor for balancing vessel	*(13)	0

Kit availability for outdoor units

Reference	Description	EPRA14DA(V3/W1)	EPRA16DA(V3/W1)	EPRA18DA(V3/W1)
EKMST1	Mounting stand	0	0	0
EKMST2	Mounting stand	0	0	0

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.
- This kit is mandatory for the UK models.
- 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.
- The valve kit is mandatory if a heat pump convactor is installed on a reversible model (not mandatory for heating only models).
- The backup heater capacity depends on a user interface setting.
- EKRTETS· can only be used in combination with ·EKRTTR1·.
- Multi-zoning wired controls
- Only possible in combination with ·EKMIKPOA·.
- Only possible in combination with ·EKMIKBVA· and ·EKMIKPHA· or ·EKMIKHUA·.
- Only possible in combination with ·HBKIT*·.
- Only possible in combination with ·ETVZ*·.

Remark

Other combinations than mentioned in this combination table are prohibited.

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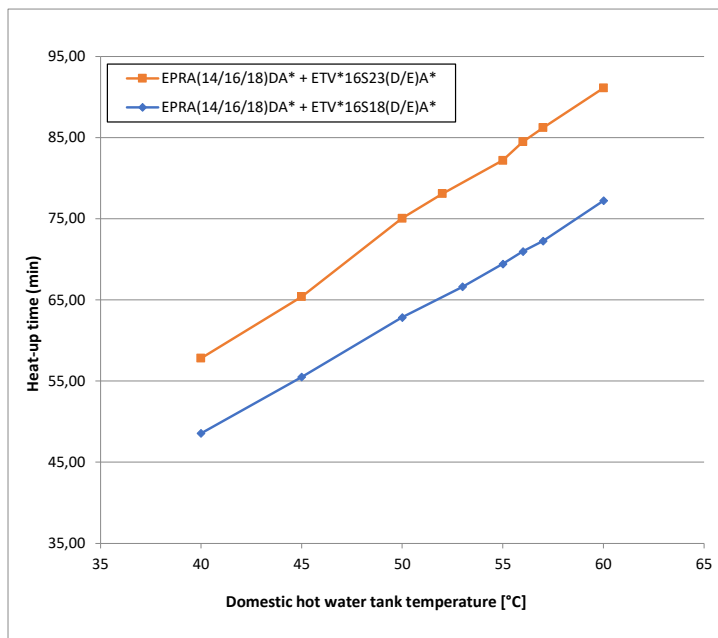
5 Capacity tables

5 - 1 Domestic Hot Water performance

5

ETVH16E6V
ETVH16UE6V
ETVH16E9W
ETVX16E6V
ETVX16E9W
ETVZ16E6V
ETVZ16E9W

Heat-up times



Model name	Heat-up time domestic hot water tank until 45°C
EPRA(14/16/18)DA* + ETV*16S18(D/E)A*	55 min.
EPRA(14/16/18)DA* + ETV*16S23(D/E)A*	65 min.

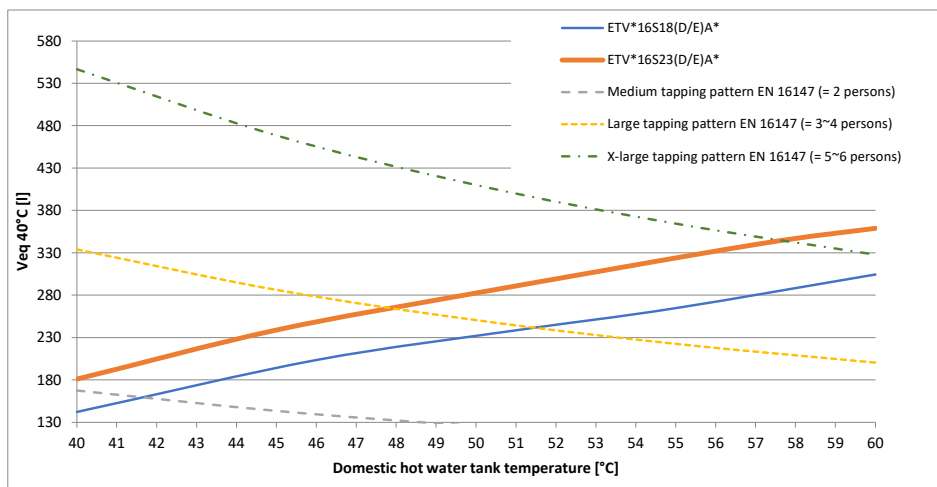
Notes

- 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

(1)

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

Notes

- According to EN16147.

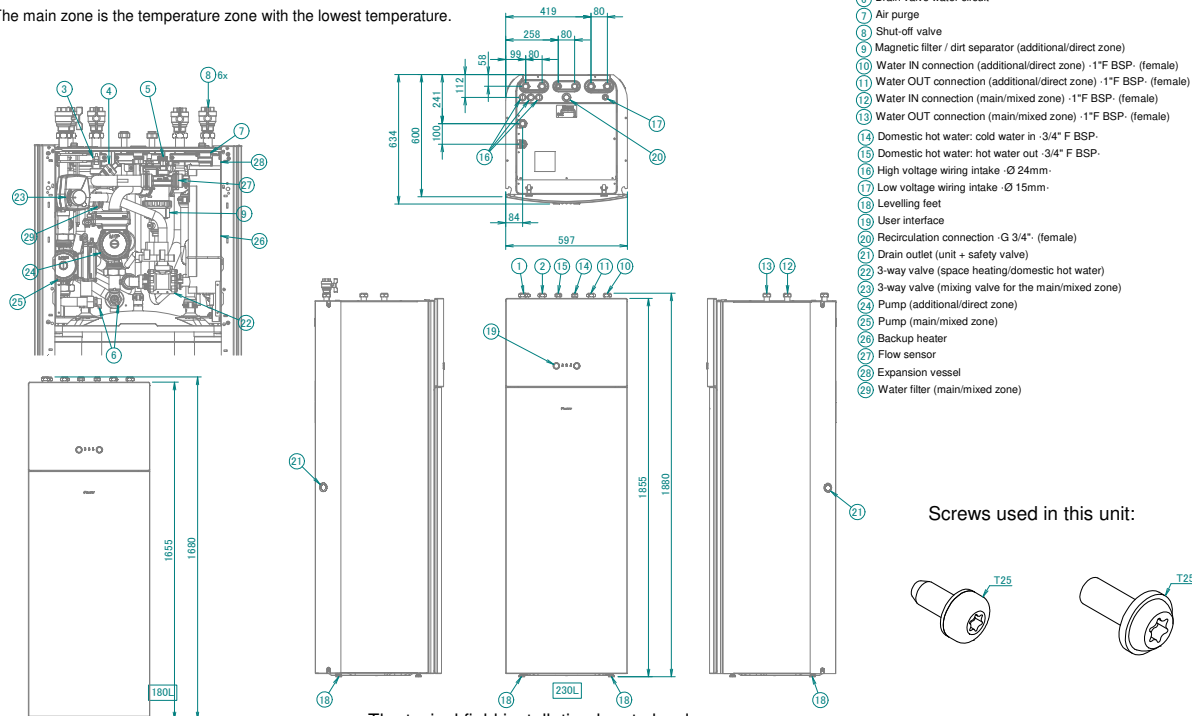
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6 Dimensional drawings

6 - 1 Dimensional Drawings

ETVZ16E6V ETVZ16E9W

The additional zone is the temperature zone with the highest temperature.
The main zone is the temperature zone with the lowest temperature.



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

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7 Centre of gravity

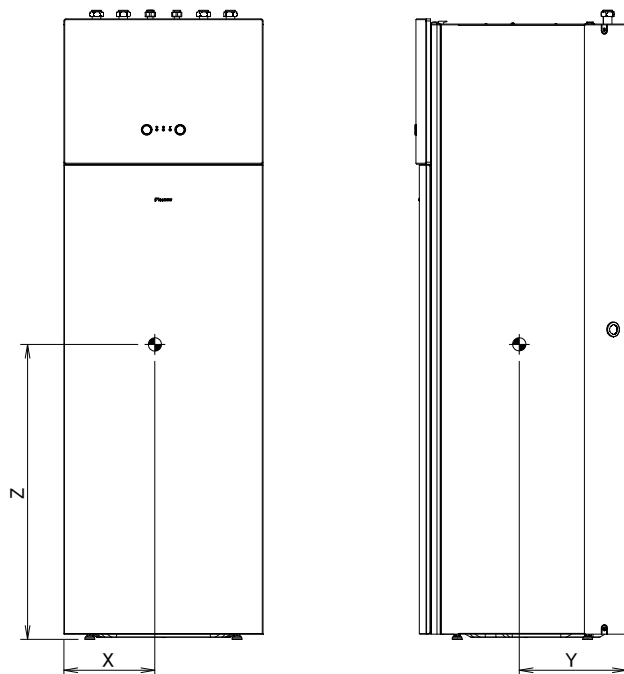
7 - 1 Centre of Gravity

7

ETVH12E6V / ETVH16E6V / ETVH12UE6V / ETVH16UE6V / ETVH12E9W / ETVH16E9W

ETVX12E6V / ETVX16E6V / ETVX12E9W / ETVX16E9W

ETVZ12E6V / ETVZ16E6V / ETVZ12E9W / ETVZ16E9W



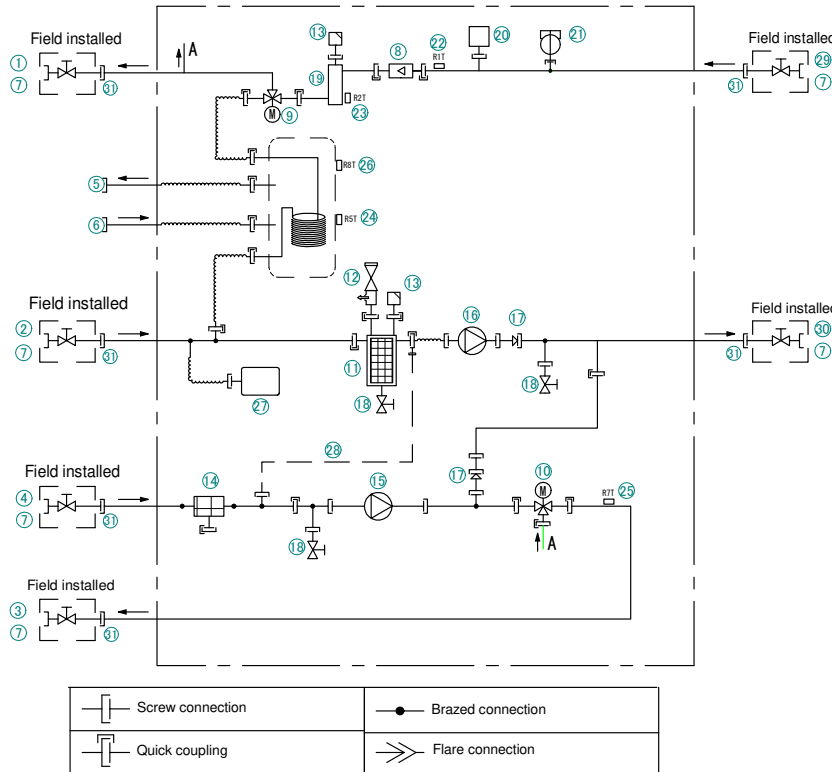
MODEL	X	Y	Z
EAV (H/X) 16S18*	327	329	890
EAV (H/X) 16S23*	327	329	1015
EAVZ16S18*	311	315	903
EAVZ16S23*	311	315	1028
ETV (H/X) 16S18*	327	329	890
ETV (H/X) 16S23*	327	329	1015
ETVZ16S18*	311	315	903
ETVZ16S23*	311	315	1028
ETV (H/X) 12S18*	327	329	890
ETV (H/X) 12S23*	327	329	1015
ETVZ12S18*	311	315	903
ETVZ12S23*	311	315	1028
ETVH12SU18*	327	329	890
ETVH12SU23*	327	329	1015
ETVH16SU18*	327	329	890
ETVH16SU23*	327	329	1015

3D121014D

8 Piping diagrams

8 - 1 Piping Diagrams

ETVZ12E6V / ETVZ16E6V
ETVZ12E9W / ETVZ16E9W



- ① Space heating - water OUT (additional/direct zone)
- ② Space heating - water IN (additional/direct zone)
- ③ Space heating - water OUT (main/mixed zone)
- ④ Space heating - water IN (main/mixed zone)
- ⑤ Domestic hot water: hot water out (3/4")
- ⑥ Domestic hot water: cold water in (3/4")
- ⑦ Shut-off valve (1") (male-female)
- ⑧ Flow sensor
- ⑨ 3-way valve (space heating/domestic hot water)
- ⑩ 3-way valve (mixing valve for the main/mixed zone)
- ⑪ Magnetic filter / dirt separator
- ⑫ Safety valve
- ⑬ Air purge
- ⑭ Water filter (main/mixed zone)
- ⑮ Pump (main/mixed zone)
- ⑯ Pump (additional/direct zone)
- ⑰ Check valve
- ⑱ Drain valve
- ⑲ Backup heater
- ⑳ Space heating water pressure sensor
- ㉑ Flow switch
- ㉒ R1T - Inlet water thermistor
- ㉓ R2T - Outlet water backup heater thermistor
- ㉔ R5T - Tank thermistor
- ㉕ R7T - Water outlet thermistor (main/mixed zone)
- ㉖ R8T - Tank thermistor
- ㉗ Expansion vessel
- ㉘ Capillary tube
- Field piping connections
- ㉙ Water in connection (1")
- ㉚ Water out connection (1")
- ㉛ Screw connection (1")

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9 Wiring diagrams

9 - 1 Notes & Legend

ETVZ16E6V ETVZ16E9W

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
X10M : Smartgrid terminal

— : Earth wiring
- - - : Field supply

① : Several wiring possibilities

Option

Wiring depending on model

Not mounted in switch box

PCB

Backup heater power supply

User installed options:

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

- ☐ Remote user interface
- ☐ Ext. indoor thermistor
- ☐ Ext. outdoor thermistor
- ☐ Digital I/O PCB
- ☐ Demand PCB
- ☐ Safety thermostat
- ☐ Smartgrid
- ☐ WLAN adapter module
- ☐ WLAN cartridge

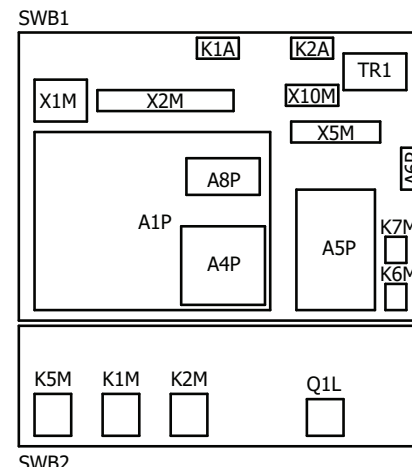
Main LWT:

- ☐ 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



NOTES

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

LEGEND

Part n°	Description
A1P	main PCB
A2P	* ON/OFF thermostat (PC = power circuit)
A3P	* heat pump convector
A4P	* digital I/O PCB
A5P	bizone PCB
A6P	current loop PCB
A8P	* demand PCB
A9P	status indicator
A11P	MMI main PCB
A14P	* user interface PCB
A15P	* receiver PCB (wireless ON/OFF thermostat)
A20P	* WLAN module
B2L	flow sensor
B1PW	water pressure sensor
CN* (A4P)	* connector
DS1 (A5P)	dipswitch
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
F1U, F2U (A4P)	* fuse 5 A 250 V for digital I/O PCB
F1U, F2U (A5P)	fuse T 2 A 250 V for PCB
FU1 (A1P)	fuse T 5 A 250 V for PCB
K1A, K2A	* high voltage smartgrid relay
K1M, K2M	contactor backup heater
K5M	safety contactor BUH
K6M	relay 3 way valve bypass
K7M	relay 3 way valve flow
K*R (A1P-A4P)	relay on PCB
M1P	additional zone pump
M1S	mixing 3 way valve
M2P	# domestic hot water pump
M2S	# 2 way valve for cooling mode
M3P	main zone pump

Part n°	Description
M3S	3 way valve for space heating / domestic hot water
P1M	MMI display
PC (A15P)	* power circuit
PHC1 (A4P)	* optocoupler input circuit
Q1L	thermal protector backup heater
Q3L, Q4L	# safety thermostat
Q*DI	# earth leakage circuit breaker
R1H (A2P)	* humidity sensor
R1T (A1P)	inlet water 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, R8T	domestic hot water thermistor
R6T	* external indoor or outdoor ambient thermistor
R7T	mixed leaving water thermistor
S1L	flow switch
S1S	# preferential kWh rate PS contact
S2S	# electrical meter pulse input 1
S3S	# electrical meter pulse input 2
S4S	# smartgrid feed-in
S6S-S9S	* digital power limitation inputs
S10S-S11S	# low voltage smartgrid contact
SS1 (A4P)	* selector switch
SW1~2 (A11P)	turn buttons
SW3~5 (A11P)	push button
TR1	power supply transformer
X6M	# BUH 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 - 2 Control Circuit



ETVZ16E9W

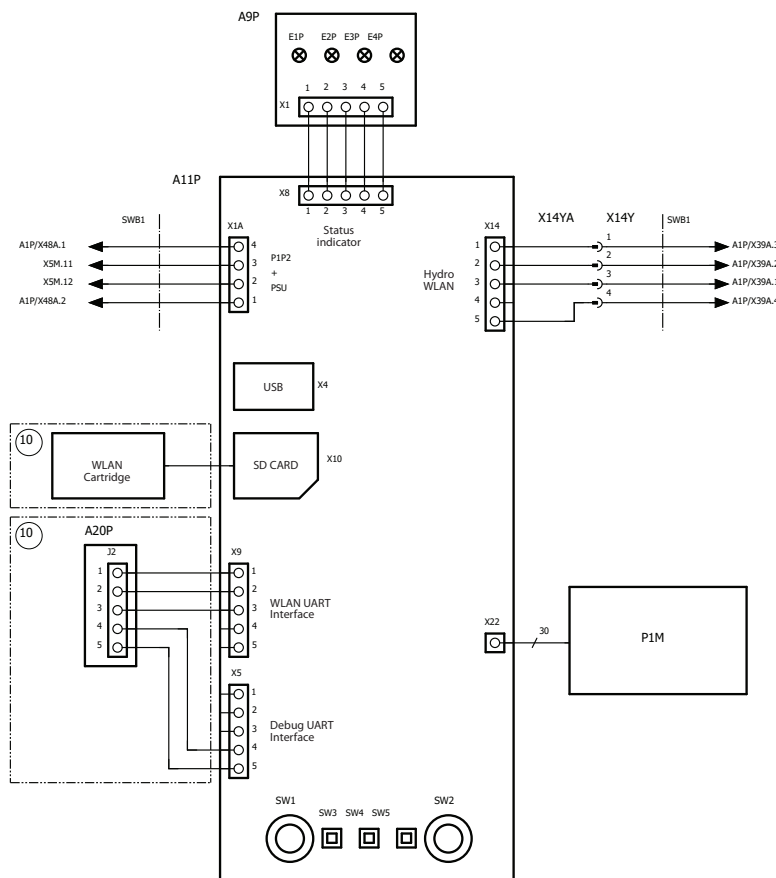


9 Wiring diagrams

9 - 2 Control Circuit

9

ETVZ16E6V
ETVZ16E9W

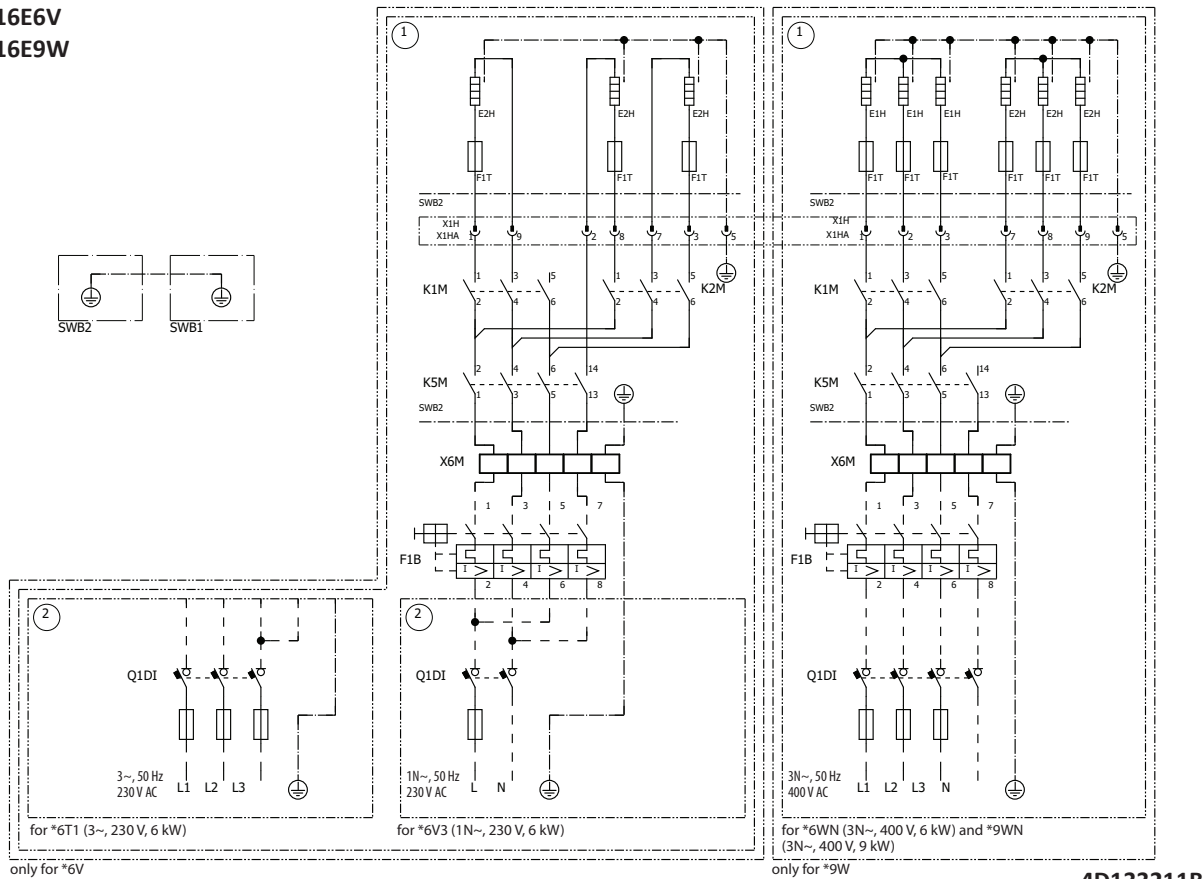
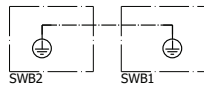


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9 Wiring diagrams

9 - 3 Power Supply, Back-up Heater

ETVZ16E6V
ETVZ16E9W

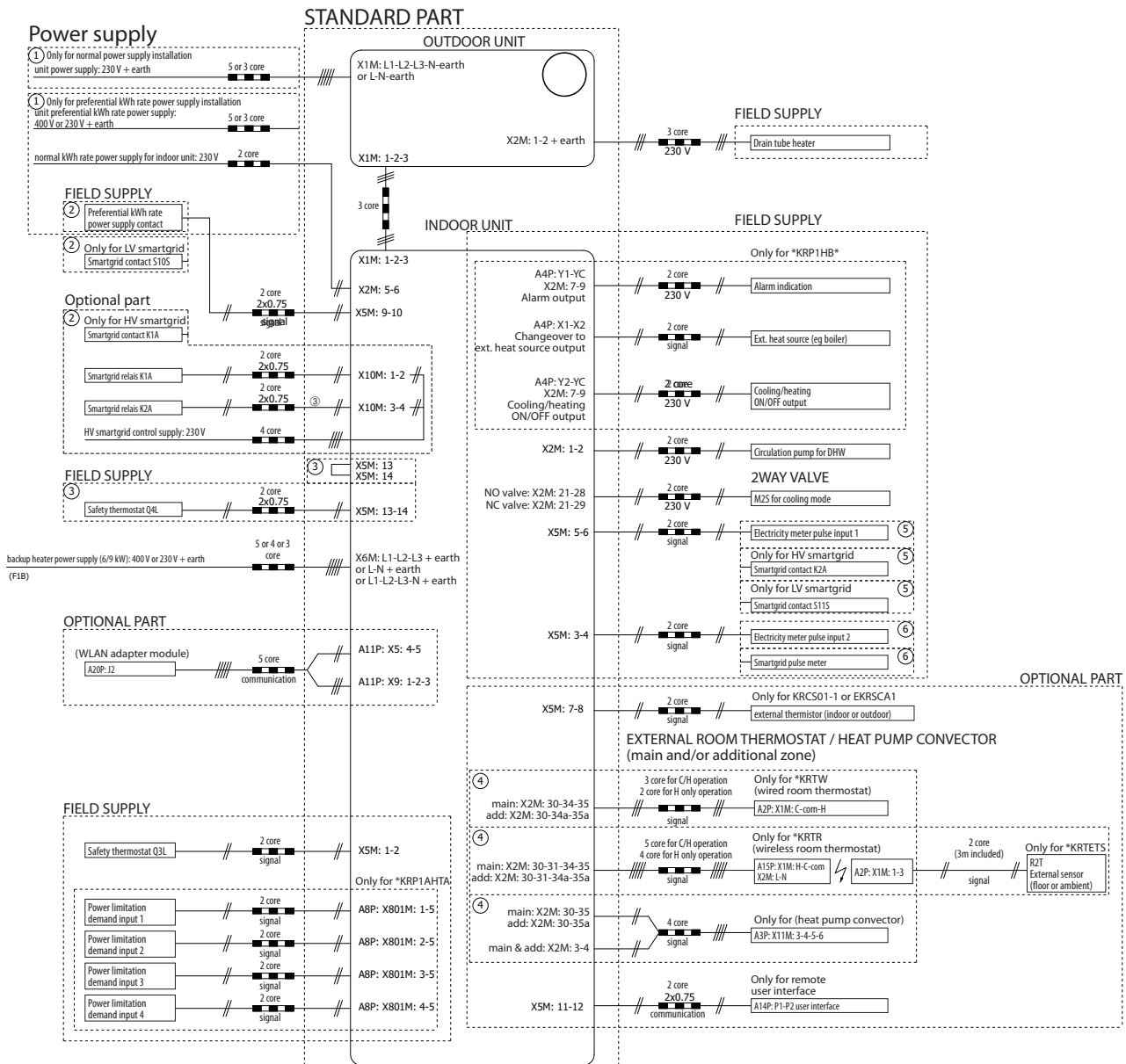


10 External connection diagrams

10 - 1 External Connection Diagrams

10

ETVZ16E6V
ETVZ16E9W



NOTE

- In case of signal cable: keep minimum distance to power cables > 5 cm

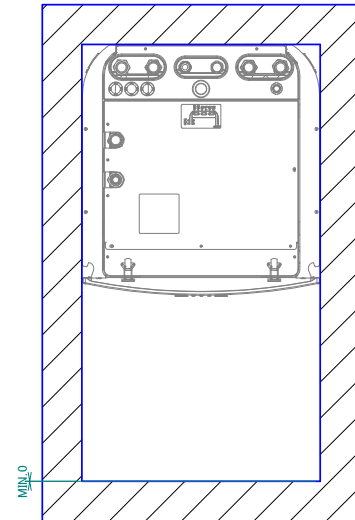
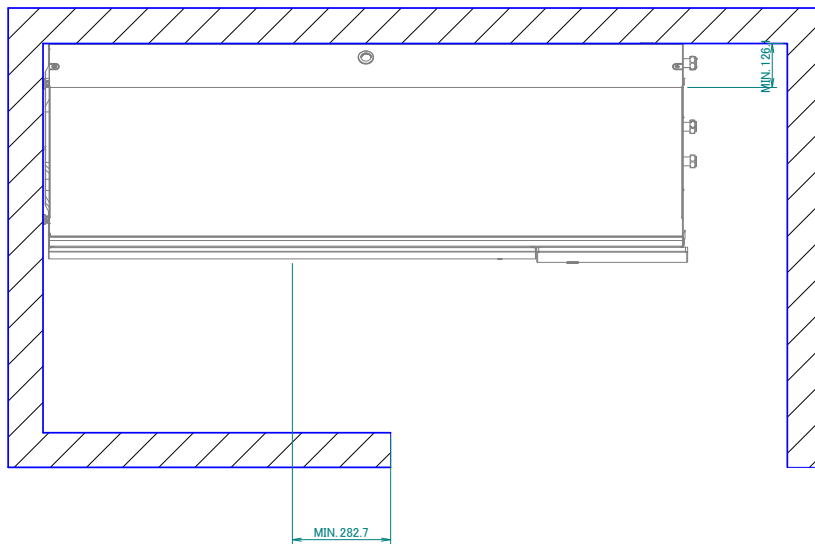
For more details please check unit wiring

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11 Installation

11 - 1 Installation Method

ETVZ12E6V / ETVZ16E6V
ETVZ12E9W / ETVZ16E9W



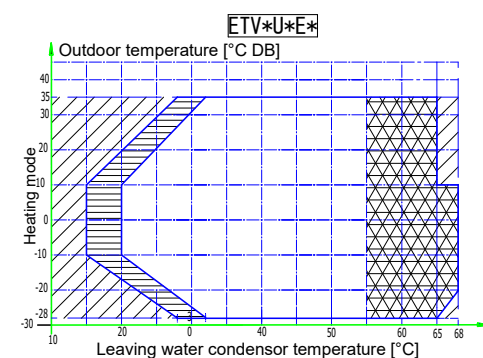
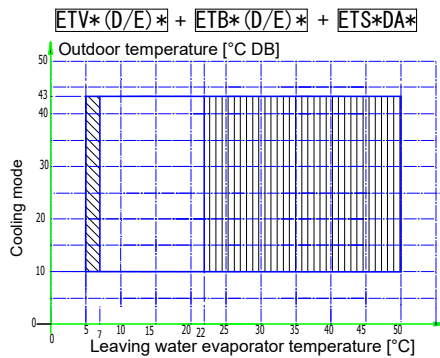
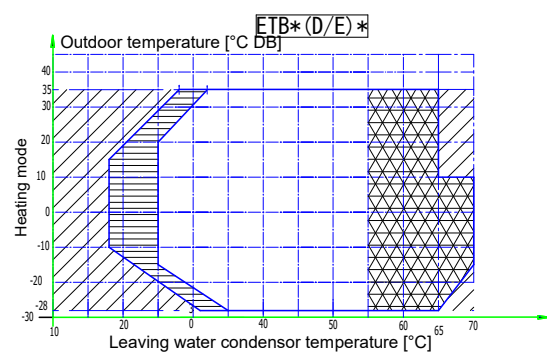
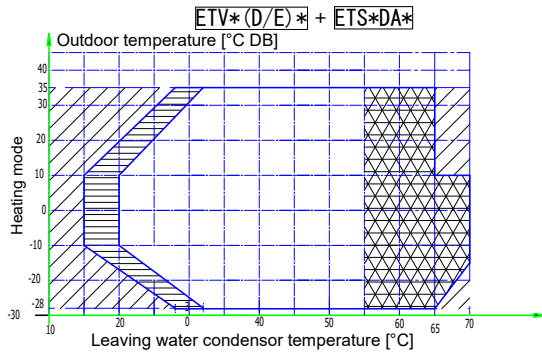
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12 Operation range

12 - 1 Operation Range

12

ETBH16E6V
ETBH16E9W
ETBX16E6V
ETBX16E9W
ETVH16E6V
ETVH16E9W
ETVX16E6V
ETVX16E9W
ETVZ16E6V
ETVZ16E9W



Legend

- Backup heater only operation
No outdoor unit operation
- Outdoor unit operation if setpoint $\geq 20^\circ$
- Pull-down area
- Outdoor unit operation if setpoint $> 55^\circ\text{C}$ and $\Delta T = -10^\circ\text{C}$ ($\Delta T = \text{outlet temperature} - \text{inlet temperature}$)
- In case valve kit -AFVALVE1- is part of the system, then the minimum setpoint is -7°C .

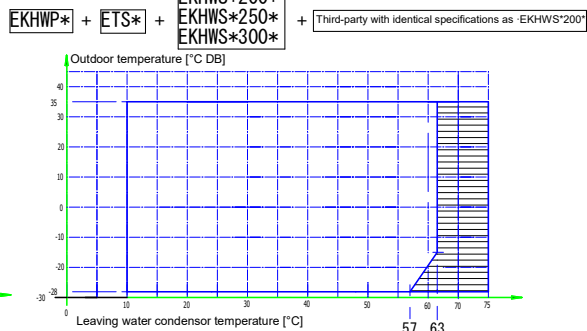
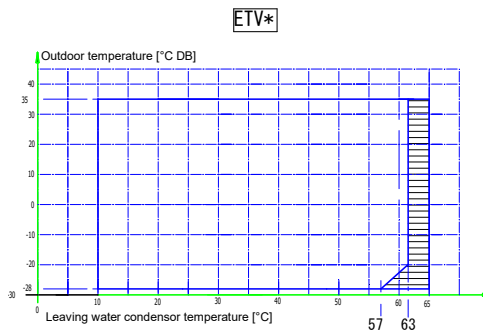
Remark

In restricted power supply mode, the outdoor unit, booster heater and backup heater can only operate separately.

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ETBH16E6V
ETBH16E9W
ETBX16E6V
ETBX16E9W
ETVH16E6V
ETVH16E9W
ETVX16E6V
ETVX16E9W
ETVZ16E6V
ETVZ16E9W

Domestic hot water heating mode



Legend

- Backup heater only operation (or booster heater, if part of the system)

Remark

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 $> 1.05\text{ m}^2$
Tank thermostat: top part of heat pump coil. Small overlap.
3. Third-party with identical specifications as 'EKHWS*200*':
Coil surface $> 1.8\text{ m}^2$
Tank thermostat: top part of heat pump coil. Small overlap.

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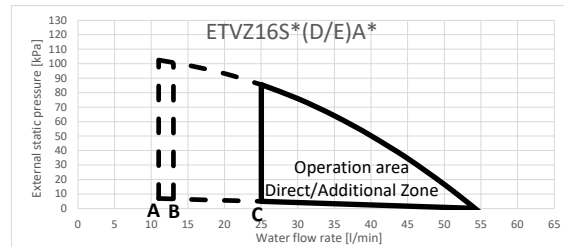
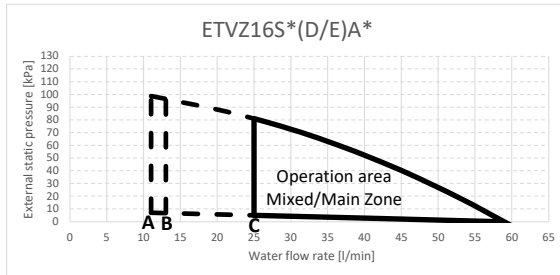
13 Hydraulic performance

13 - 1 Static Pressure Drop Unit

ETVZ16E6V

ETVZ16E9W

13



- 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

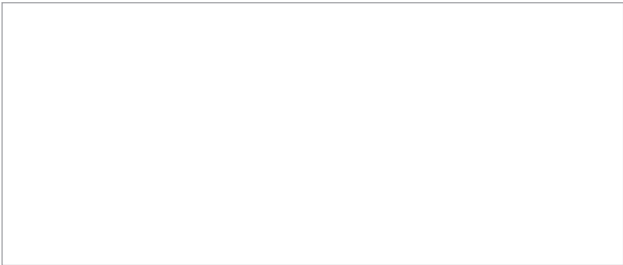
Operation area is extended to lower flow rates only in case the unit operates with heat pump only.
(Not in startup, no BUH operation, no defrost operation.)

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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04/2021



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