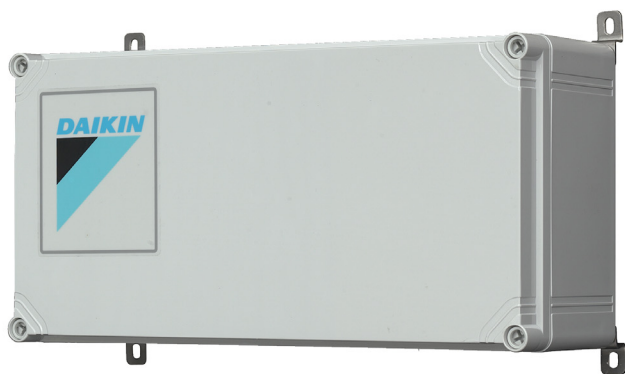


Ventilation Technical Data

EKEQ



- > EKEQDCBV3
- > EKEQFCBAV3
- > EKEQMCBAV3

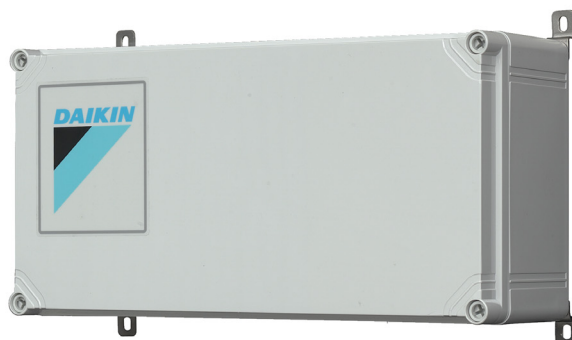
TABLE OF CONTENTS

EKEQ

1	Features	2
2	Specifications	3
	Technical Specifications	3
	Electrical Specifications	3
3	Options	5
4	Control systems	6
5	Combination table	7
6	Dimensional drawings	8
7	Wiring diagrams	10
	Wiring Diagrams - Single Phase	10
8	External connection diagrams	12

1 Features

- Wide range of units offers maximum application potential and flexible control options
- The system provides optimized air conditions such as fresh air and humidity control etc. and can be used in small warehouses, showrooms and offices.
- Control box and expansion valve kit are required for each combination plus an air handling unit
- Both option kits are designed for indoor and outdoor installation and can be wall mounted.
- Wide offer in control possibilities: control w: Off the shelf control of air temperature via any DDC controller; control x: Precize control of air temperature requireing a preprogrammed DDC controller (for special applications); control y: Control of refrigeratn temperature via Daikin control (no DDC controller needed); control z: Control of air temperature via Daikin control (no DDC controller needed)



2 Specifications

2-1 Technical Specifications					EKEQDCB	EKEQFCBA	EKEQMCBA
Application					Pair		Multi
Outdoor unit					ERQ		VRV
Dimensions	Unit	Height	mm		132		
		Width	mm		400		
		Depth	mm		200		
	Packed unit	Height	mm		215		
		Width	mm		495		
		Depth	mm		310		
Weight	Unit		kg		3.6	3.9	3.6
	Packed unit		kg		4.6	4.9	4.6
Packing	Material				Carton / EPS / Plastic		
Casing	Colour				White grey		
	Material				Resin		
Operation range	Cooling	Min.	°CDB		-10		
		Max.	°CDB		40		
	On coil temperature	Heating	Min.	°CDB	-		
		Cooling	Max.	°CDB	-		

Standard Accessories : Thermistor (R1T); Quantity : 1;
 Standard Accessories : Thermistor (R2T/R3T); Quantity : 2;
 Standard Accessories : Insulation sheet; Quantity : 2;
 Standard Accessories : Rubber sheet; Quantity : 2;
 Standard Accessories : Wire to wire splice; Quantity : 6;
 Standard Accessories : Installation and operation manual; Quantity : 1;
 Standard Accessories : Screw nut; Quantity : 8;
 Standard Accessories : Tie-wraps; Quantity : 6;
 Standard Accessories : Capacity setting adapter; Quantity : 7;
 Standard Accessories : Stopper (closing up); Quantity : 0;

2-2 Electrical Specifications					EKEQDCB	EKEQFCBA	EKEQMCBA
Power supply	Name				V3		
	Phase				1~		
	Frequency			Hz	50		
	Voltage			V	230		
	Voltage range	Min.	%		-10		
		Max.	%		10		

2 Specifications

2

2-2 Electrical Specifications			EKEQDCB	EKEQFCBA	EKEQMCBA
Wiring connections	For power supply	Quantity	3		
		Remark	Earth wire included		
	For connection with indoor	Quantity	2		
		Remark	F1,F2		
	For remote control	Quantity	2		
		Remark	P1,P2	P1,P2 (for service)	P1,P2
	For expansion valve kit	Quantity	6		
		Remark	Y1~Y6		
	Thermistors liquid pipe	Quantity	2		
		Remark	R1,R2		
	Thermistors gas pipe	Quantity	2		
		Remark	R3,R4		
	Thermistor air	Quantity	2	-	2
		Remark	R5,R6	-	R5,R6
	ON/OFF	Quantity	2		
		Remark	T1,T2		
	Error signal	Quantity	-	2	-
		Remark	-	C1,C2	-
	Operation signal	Quantity	-	2	-
		Remark	-	C3,C4	-
	Capacity steps	Quantity	-	2	-
		Remark	-	C5,C6	-
	Fan on/off	Quantity	2		
		Remark	C1,C2	C7,C8	C1,C2
	Defrost signal	Quantity	-	2	-
		Remark	-	C9,C10	-
Power supply intake			Bottom		

3 Options
3 - 1 Options

EKEQD/F/MCBA

Nr.	Item	EKEQFCBA	EKEQDCB	EKEQMCBA
1	Remote control Wired type	BRC1D528 (*1) BRC1E53A (*1)(*2) BRC1E53B (*1)(*3) BRC1E53C (*1)(*4)(*6) BRC2E52C (*1)(*5)(*6) BRC3E52C (*1)(*5)(*6)	BRC1D528 BRC1E53A (*2) BRC1E53B (*3) BRC1E53C (*4)(*6) BRC2E52C (*5)(*6) BRC3E52C (*5)(*6)	
2	Wiring adaptor for electrical appendices	/	KRP4A516	
3	Remote sensor	/	KRC501-1	
4	Valve kit	EKE XV50 EKE XV63 EKE XV80 EKE XV100 EKE XV125 EKE XV140 EKE XV200 EKE XV250 EKE XV400 EKE XV500	EKE XV63 EKE XV80 EKE XV100 EKE XV125 EKE XV140 EKE XV200 EKE XV250	EKE XV50 EKE XV63 EKE XV80 EKE XV100 EKE XV125 EKE XV140 EKE XV200 EKE XV250 EKE XV400 EKE XV500

(*1) Useful accessory tool for service and installation, but not required for operation.
(*2) Included languages are: English, German, French, Italian, Spanish, Portuguese, and Dutch.
(*3) Included languages are: English, Czech, Croatian, Hungarian, Slovenian, Romanian, and Bulgarian.
(*4) Included languages are: English, Russian, Greek, Turkish, Polish, Albanian, and Slovak.
(*5) Included languages are:
Language pack 1: English, German, French, Dutch, Spanish, Italian, and Portuguese.
With PC cable EKPCCAB3 in combination with the Updater PC software, you can additionally change the language to:
Language pack 2: English, Bulgarian, Croatian, Czech, Hungarian, Romanian, and Slovenian.
Language pack 3: English, Greek, Polish, Russian, Serbian, Slovak, and Turkish.
(*6) Language pack 3 of controller BRC1E53C7 is different from that of controller BRC2/3E52C7.

Caution
- The control boxes can be connected to the following DIII-NET devices: iTouch Manager II and Modbus Interface DIII.
- Only use this system in combination with a field-supplied air handling unit.
Do not connect this system to other indoor units.
- Refer to the combination table for the application of the valve kits.

4D090226A

4 Control systems

4 - 1 Control Systems

In order to maximize installation flexibility,
4 types of control systems are offered

Control w: Off the shelf control of air temperature (discharge temperature, suction temperature, room temperature) via any DDC controller

Control x: Precise control of air temperature (discharge temperature, suction temperature, room temperature) requiring a preprogrammed DDC controller (for special applications)

Control y: Control of refrigerant (Te/Tc) temperature via Daikin control (no DDC controller needed)

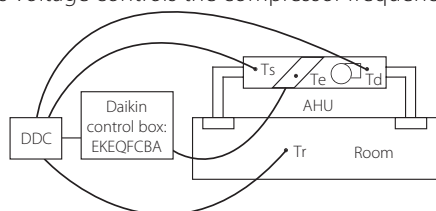
Control z: Control of air temperature (suction temperature, room temperature) via Daikin control (no DDC controller needed)

Possibility W (Td/Tr control):

Air temperature control via DDC controller

Room temperature is controlled as a function of the air handling unit suction or discharge air (customer selection). The DDC controller is translating the temperature difference between set point and air suction temperature (or air discharge temperature or room temperature) into a proportional 0-10V signal which is transferred to the Daikin control box (EKEQFCBA).

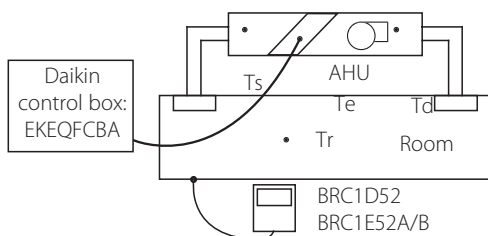
This voltage controls the compressor frequency.



Possibility Y (Te/Tc control):

By fixed evaporating /condensing temperature

A fixed target evaporating temperature of between 3°C and 8°C can be set by the customer. In this case, room temperature is only indirectly controlled. The cooling load is determined from the actual evaporating temperature (i.e. load to the heat exchanger). A Daikin infrared remote control (BRC1D52 or BRC1E52A/B - optional) can be connected for error indication.

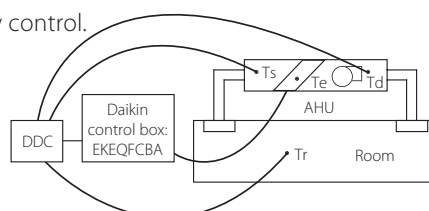


Possibility X (Td/Tr control):

Precise air temperature control via DDC controller

Room temperature is controlled as a function of the air handling unit suction or discharge air (customer selection). The DDC controller is translating the temperature difference between set point and air suction temperature (or air discharge temperature or room temperature) into a reference voltage (0-10V) which is transferred to the Daikin control box (EKEQFCBA). This reference voltage will be used as the main input value for the compressor

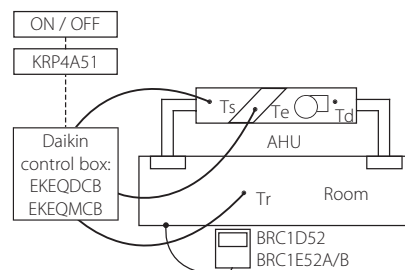
frequency control.



Possibility Z (Ts/Tr control):

Control your AHU just like a VRV indoor unit with 100% fresh air (BRC1D52 or BRC1E52A/B - optional)

Set point can be fixed via standard Daikin infrared remote control. Remote ON/OFF can be achieved by an optional adapter KRP4A51. No external DDC controller should be connected. The cooling load is determined from the air suction temperature and set point on the Daikin controller.



Ts = Air suction temperature
Td = Air discharge temperature

Tr = Room temperature
Te = Evaporating temperature

AHU = Air Handling Unit
DDC = Digital Display Controller

	Option kit	Features
Possibility w	EKEQFCBA	DDC controller is required temperature control using air suction or air discharge temperature
Possibility x		DDC and Microtech controller is required Precise Temperature control using air suction or air discharge temperature
Possibility y		Using fixed evaporating temperature, no set point can be set using remote control
Possibility z	EKEQDCB EKFQMCBA*	Using Daikin infrared remote control BRC1D52 or BRC1E52A/B Temperature control using air suction temperature

* EKEQMCB (for 'multi' application)

5 Combination table

5 - 1 Combination Table

EKEQD/F/MCBA

		Control box			Expansion valve kit										Options			
		EKEQDCBV3	EKEQFCBAV3	EKEQMCBAV3	EKEKV50	EKEKV63	EKEKV80	EKEKV100	EKEKV125	EKEKV140	EKEKV200	EKEKV250	EKEKV400	EKEKV500	EKDK04	KWC26B160	KWC26B280	KRC19-26A6
System A	1-phase	ERQ100	P	P	-	P	P	P	P	-	-	-	-	-	0	-	-	0
		ERQ125	P	P	-	P	P	P	P	-	-	-	-	-	0	-	-	0
		ERQ140	P	P	-	-	P	P	P	P	-	-	-	-	0	-	-	0
	3-phase	ERQ125	P	P	-	P	P	P	P	P	-	-	-	-	-	0	-	0
		ERQ200	P	P	-	-	-	P	P	P	P	-	-	-	-	-	0	0
		ERQ250	P	P	-	-	-	-	P	P	P	-	-	-	-	-	0	0
System B	VRV III			n1	n1	n1	n1	n1	n1	n1	n1	n1	n1	n1	See note 1.			
System B	VRV IV	1 ~ 3		n2	n2	n2	n2	n2	n2	n2	n2	n2	n2	n2	See note 1.			

P (pair application): combination depends on the capacity of the air handling unit
n1 (multi application: combination of air handling units and VRV DX indoor units): to determine the quantity, refer to 3D090229.
n2 (multi application: multiple air handling units, or the combination of air handling units and VRV DX indoor units): to determine the quantity, refer to 3D090229.

- Notes
- See outdoor unit. The system can only be connected to the following DIII-NET devices: iTouch Manager II and Modbus Interface DIII.
 - Control box EKEQD can only be connected to an ERQ outdoor unit (pair application).
 - Control box EKEQFA can be connected to an ERQ outdoor unit in pair application.
Control box EKEQFA can be connected to some types of VRV IV: HP outdoor unit system (with a maximum of 3 boxes per system; an outdoor unit system contains maximum 3 outdoor units).
Do not combine EKEQFA control boxes with VRV DX indoor units, RA indoor units, or Hydroboxes.
For details, refer to the combination table drawing of the outdoor unit.
 - The control box EKEQMA can only be connected to a VRV outdoor unit (system).
 - Depending on the type of air handling unit, an appropriate expansion valve kit EKEKV must be selected using following limitations:

Cooling

EKEKV Class	Allowed heat exchanger capacity [kW]		Allowed heat exchanger volume [dm ³]	
	Minimum	Maximum	Minimum	Maximum
50	5,00	6,20	1,33	1,65
63	6,30	7,80	1,66	2,08
80	7,90	9,90	2,09	2,64
100	10,0	12,3	2,65	3,30
125	12,4	15,4	3,31	4,12
140	15,5	17,6	4,13	4,62
200	17,7	24,6	4,63	6,60
250	24,7	30,8	6,61	8,25
400	35,4	49,5	9,26	13,2
500	49,6	61,6	13,2	16,5

Saturated evaporating temperature: 6°C
Air temperature: 27°C DB / 19°C WB

Heating

EKEKV Class	Allowed heat exchanger capacity [kW]		Allowed heat exchanger volume [dm ³]	
	Minimum	Maximum	Minimum	Maximum
50	5,60	7,00	1,33	1,65
63	7,10	8,80	1,66	2,08
80	8,90	11,1	2,09	2,64
100	11,2	13,8	2,65	3,30
125	13,9	17,3	3,31	4,12
140	17,4	19,8	4,13	4,62
200	19,9	27,7	4,63	6,60
250	27,8	34,7	6,61	8,25
400	39,8	55,0	9,26	13,2
500	55,1	69,3	13,2	16,5

Saturated condensing temperature: 46°C
Air temperature: 20°C DB

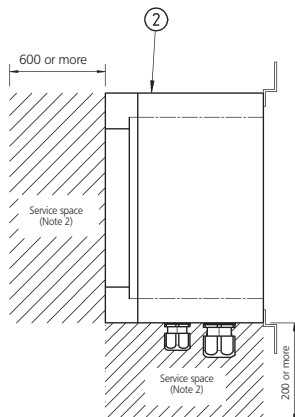
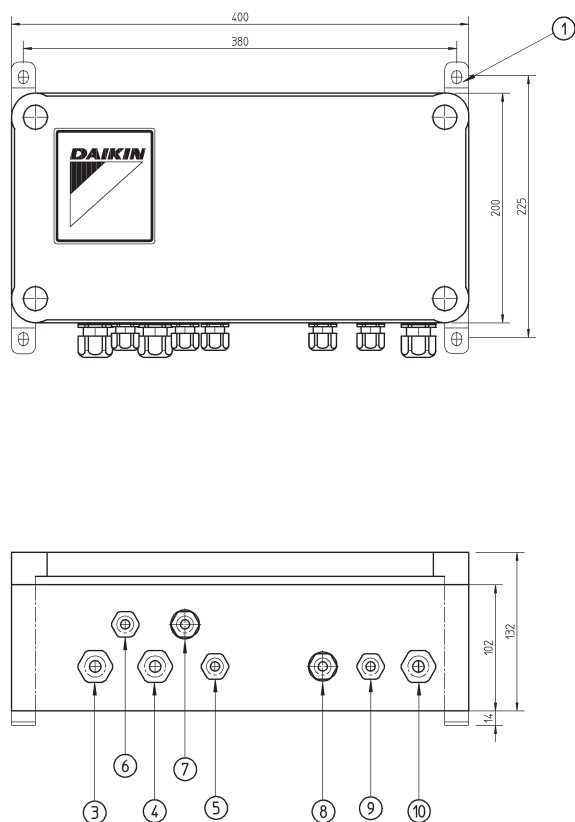
3D090631A

6 Dimensional drawings

6 - 1 Dimensional Drawings

6

EKEQDCB



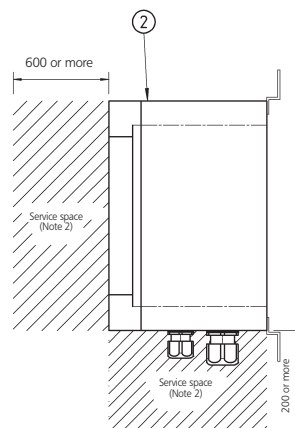
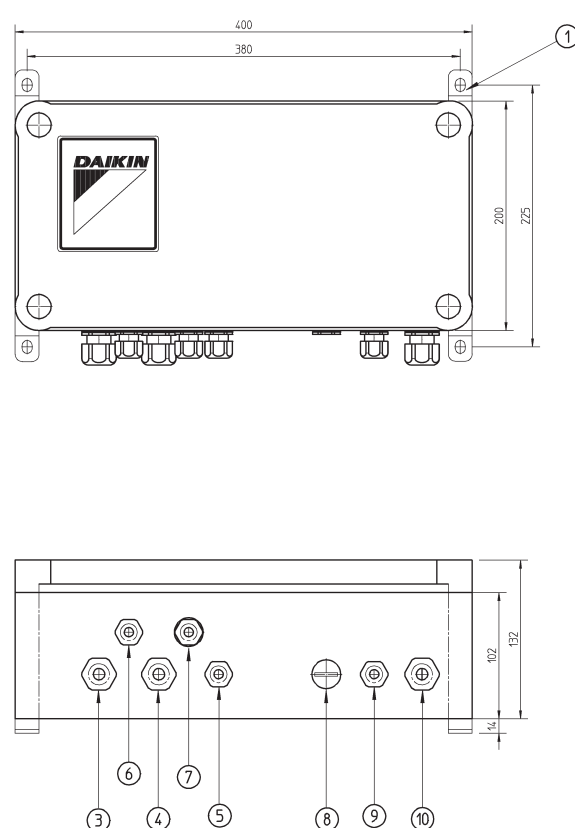
- ① 4 holes to fix control box
- ② Control box lid
- ③ Screw nut for power supply cable
- ④ Screw nut for expansion valve cable
- ⑤ Screw nut for thermistor cable (liquid) R2T + (Air) R1T
- ⑥ Screw nut for thermistor cable (gas) R3T
- ⑦ Screw nut for communication cable to outdoor unit
- ⑧ Screw nut for fan cable
- ⑨ Screw nut for remote controller
- ⑩ Screw nut for connection cable to controller

Notes:

- 1 Installation:
Make sure that the control box is installed horizontal, screw nuts position downwards.
The option boxes (expansion valve and electrical control box) can be installed inside and outside.
Do not install the option boxes in or on the outdoor unit.
Do not put the option boxes in direct sunlight. Direct sunlight will increase the temperature inside the option boxes and may reduce its lifetime and influence its operation.
Choose a flat and strong mounting surface.
Operation temperature of the control box is between -10°C And 40°C
- 2 Service space:
Keep the space in front of the boxes free for future maintenance.

3TW32144-1

EKEQFCB



- ① 4 holes to fix control box
- ② Control box lid
- ③ Screw nut for power supply cable
- ④ Screw nut for expansion valve cable
- ⑤ Screw nut for thermistor cable (liquid) R2T + (gas) R3T
- ⑥ Screw nut for fan
- ⑦ Screw nut for connection cable to controller
- ⑧ Stopper (closing cup)
- ⑨ Screw nut for communication cable to outdoor unit
- ⑩ Screw nut for connection cable to controller

Notes:

- 1 Installation:
Make sure that the control box is installed horizontal, screw nuts position downwards.
The option boxes (expansion valve and electrical control box) can be installed inside and outside.
Do not install the option boxes in or on the outdoor unit.
Do not put the option boxes in direct sunlight. Direct sunlight will increase the temperature inside the option boxes and may reduce its lifetime and influence its operation.
Choose a flat and strong mounting surface.
Operation temperature of the control box is between -10°C And 40°C
- 2 Service space:
Keep the space in front of the boxes free for future maintenance.

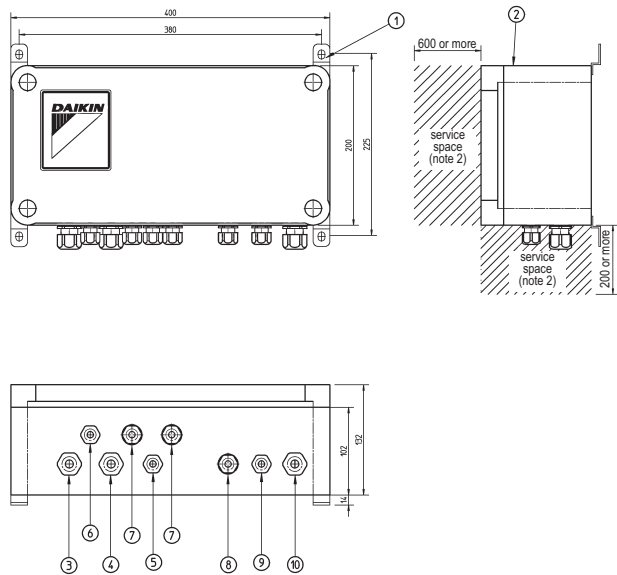
3TW32134-1

8

6 Dimensional drawings

6 - 1 Dimensional Drawings

EKEQMCB



3TW32154-1A

1	4 holes to fix the control box
2	Control box lid
3	Screw nut for power supply cable
4	Screw nut for expansion valve cable
5	Screw nut for thermistor cable (liquid) R2T + (air) R1T
6	Screw nut for thermistor cable (gas) R3T
7	Screw nut for communication cable
8	Screw nut for fan cable
9	Screw nut for remote control
10	Screw nut for connection cable to controller

NOTES

1. Installation:
Make sure that the control box is installed horizontal. Screw nuts position downwards.
The option boxes (expansion valve and electrical control box) can be installed inside and outside.
Do not install the option boxes in or on the outdoor unit.
Do not put the option boxes in direct sunlight. Direct sunlight will increase the temperature inside the option boxes and may reduce its lifetime and influence its operation.
Choose a flat and strong mounting surface.
Operation temperature of the control box is between -10°C and 40°C.
2. Service space:
Keep the space in front of the boxes free for future maintenance.

7 Wiring diagrams

7 - 1 Wiring Diagrams - Single Phase

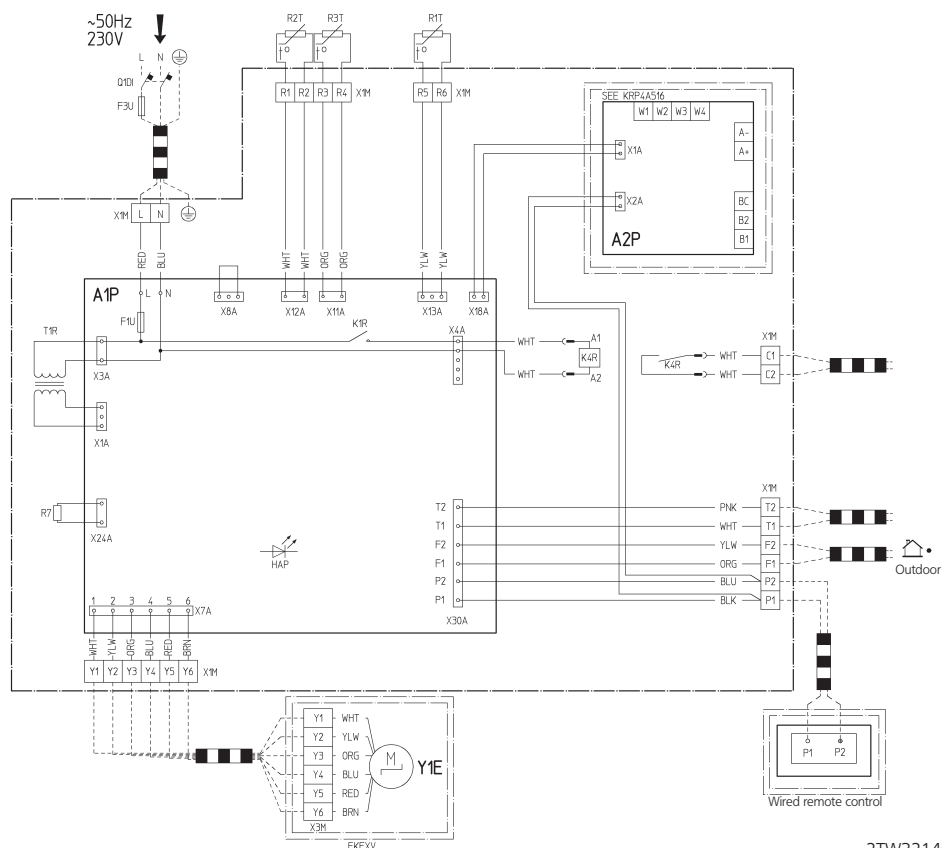
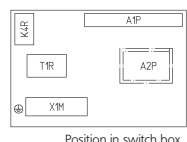
7

EKEQDCB

- A1P : Printed circuit board
A2P : Printed circuit board (Option KRP4)
F1U : Fuse (250V, F5A) (A1P)
F3U : Field fuse
HAP : Light emitting diode (service monitor green)
K1R : Magnetic relay (Fan) AC
K4R : Magnetic relay (Fan) AC
Q1DI : Earth leakage breaker
R7 : Capacity adaptor
R1T : Thermistor (Air)
R2T : Thermistor (Liquid)
R3T : Thermistor (Gas)
T1R : Transformer (220V/21.8V)
X1M : Terminal block
X3M : Terminal block
X1M-R1/R2 : Thermistor Liquid
X1M-R3/R4 : Thermistor Gas
X1M-R5/R6 : Thermistor Air
X1M-Y1-6 : Expansion valve
X1M-C1/C2 : Output Fan ON/OFF
X1M-P1/P2 : Communication remote controller
X1M-F1/F2 : Communication outdoor
X1M-T1/T2 : Input: ON/OFF
Y1E : Electronic expansion valve

- 1 Use copper conductors only.
2 BLK: Black / WHT: White / RED: Red / BLU: Blue /
BRN: Brown / GRV: Grey / GRN: Green / ORG: Orange /
PNK: Pink / YLW: Yellow

- L : Live
N : Neutral
□ : Connector
○ : Wire clamp
⊕ : Protective earth (Screw)
— : Separate component
— : Optional accessory
— : Field wiring



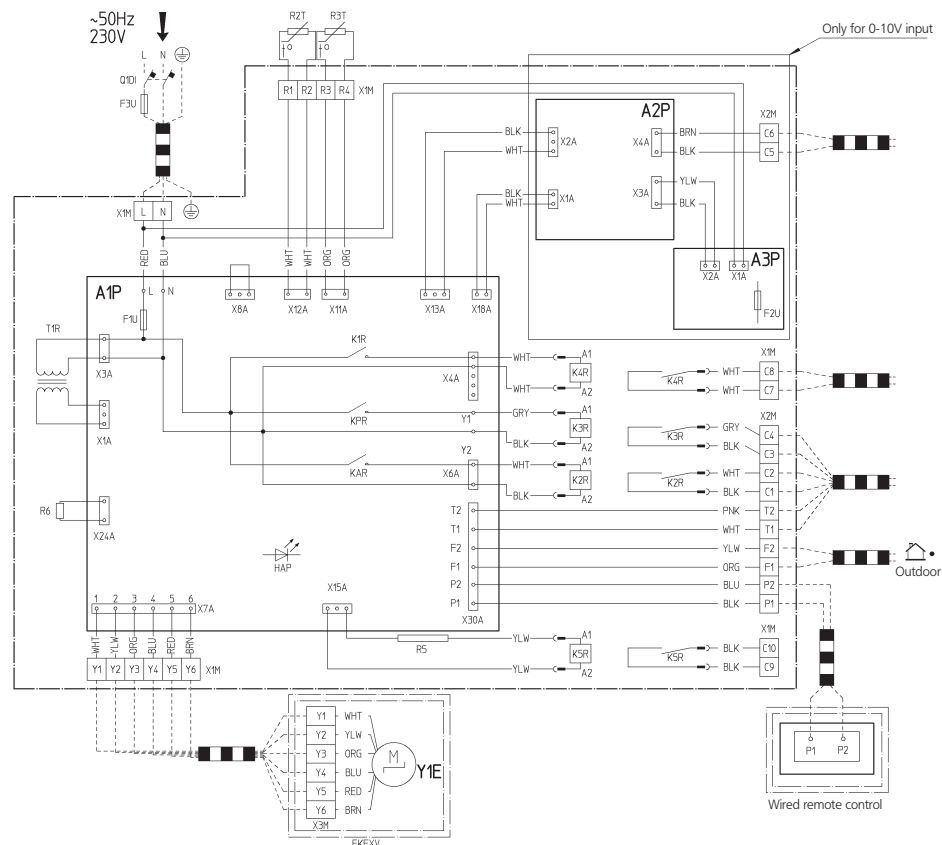
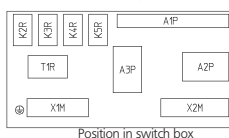
2TW32146-1

EKEQFCB

- A1P : Printed circuit board
A2P : Printed circuit board (for voltage conversion)
A3P : Printed circuit board (Power supply)
F1U : Fuse (250V, F5A) (A1P)
F2U : Fuse (250V, 11A) (A3P)
F3U : Field fuse
HAP : Light emitting diode (service monitor green)
K2R : Magnetic relay (error status) AC
K3R : Magnetic relay (Operation / Compressor ON/OFF) AC
K4R : Magnetic relay (Fan) AC
K5R : Magnetic relay (Defrost signal) DC
K1R, KAR, KPR : Magnetic relay
Q1DI : Earth leakage breaker
R5 : Resistance (DC: 120 OHM)
R6 : Capacity adaptor
R2T : Thermistor (Liquid)
R3T : Thermistor (Gas)
T1R : Transformer (220V/21.8V)
X1M : Terminal block
X2M : Terminal block
X3M : Terminal block
Y1E : Electronic expansion valve
X1M-R1/R2 : Thermistor Liquid
X1M-R3/R4 : Thermistor Gas
X1M-Y1-6 : Expansion valve
X2M-P1/P2 : Communication remote controller
X2M-C1/C2 : Output: error status
X2M-C3/C4 : Output: Operation / Compressor ON/OFF
X2M-C5/C6 : Input: 0-10V DC capacity control
X1M-C7/C8 : Output: Fan ON/OFF
X1M-C9/C10 : Output: Defrost signal
X2M-F1/F2 : Communication outdoor
X2M-T1/T2 : Input: ON/OFF

- 1 Use copper conductors only.
2 BLK: Black / WHT: White / RED: Red / BLU: Blue /
BRN: Brown / GRV: Grey / GRN: Green / ORG: Orange /
PNK: Pink / YLW: Yellow

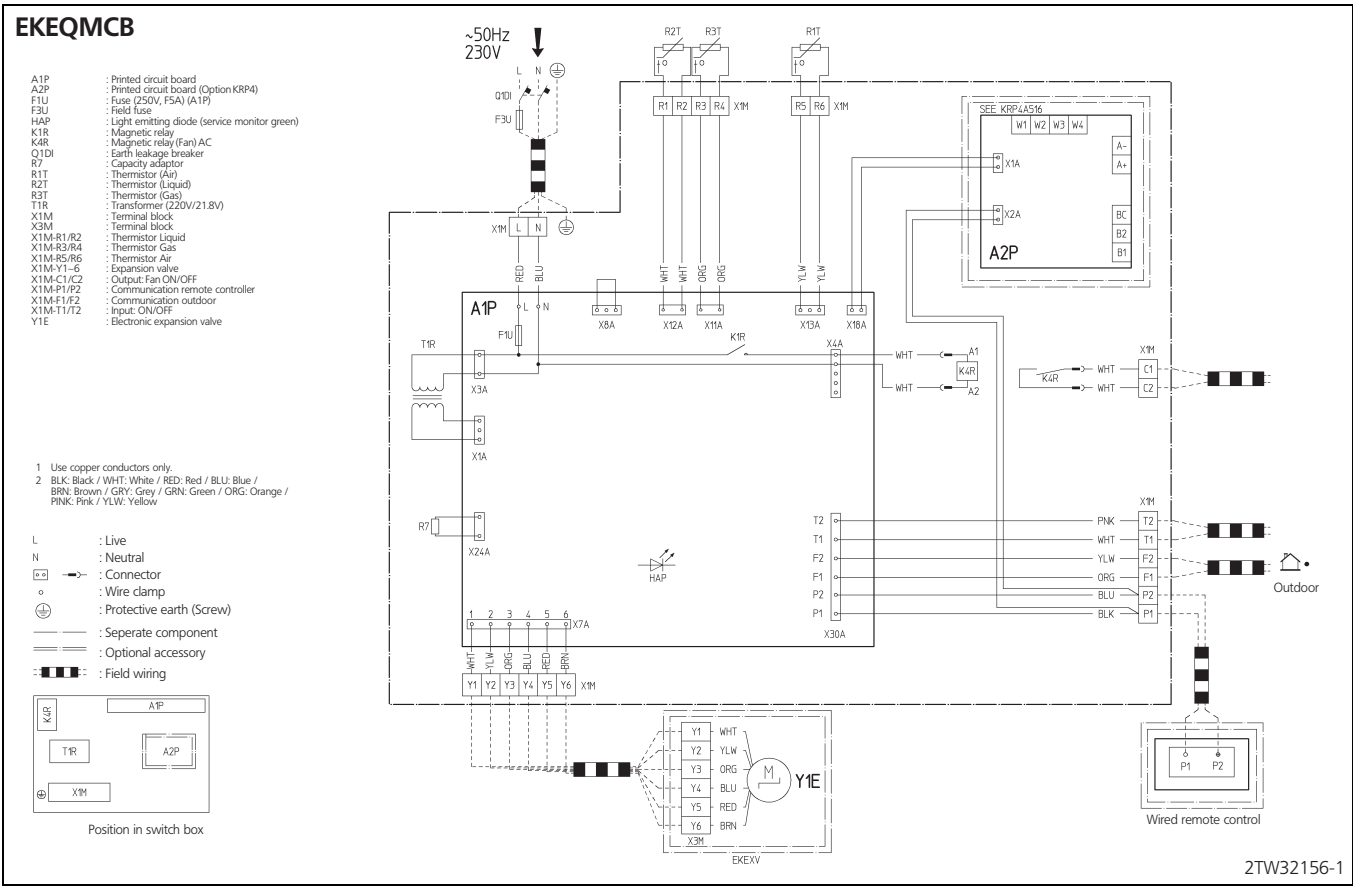
- L : Live
N : Neutral
□ : Connector
○ : Wire clamp
⊕ : Protective earth (Screw)
— : Separate component
— : Optional accessory
— : Field wiring



2TW32136-1

7 Wiring diagrams

7 - 1 Wiring Diagrams - Single Phase

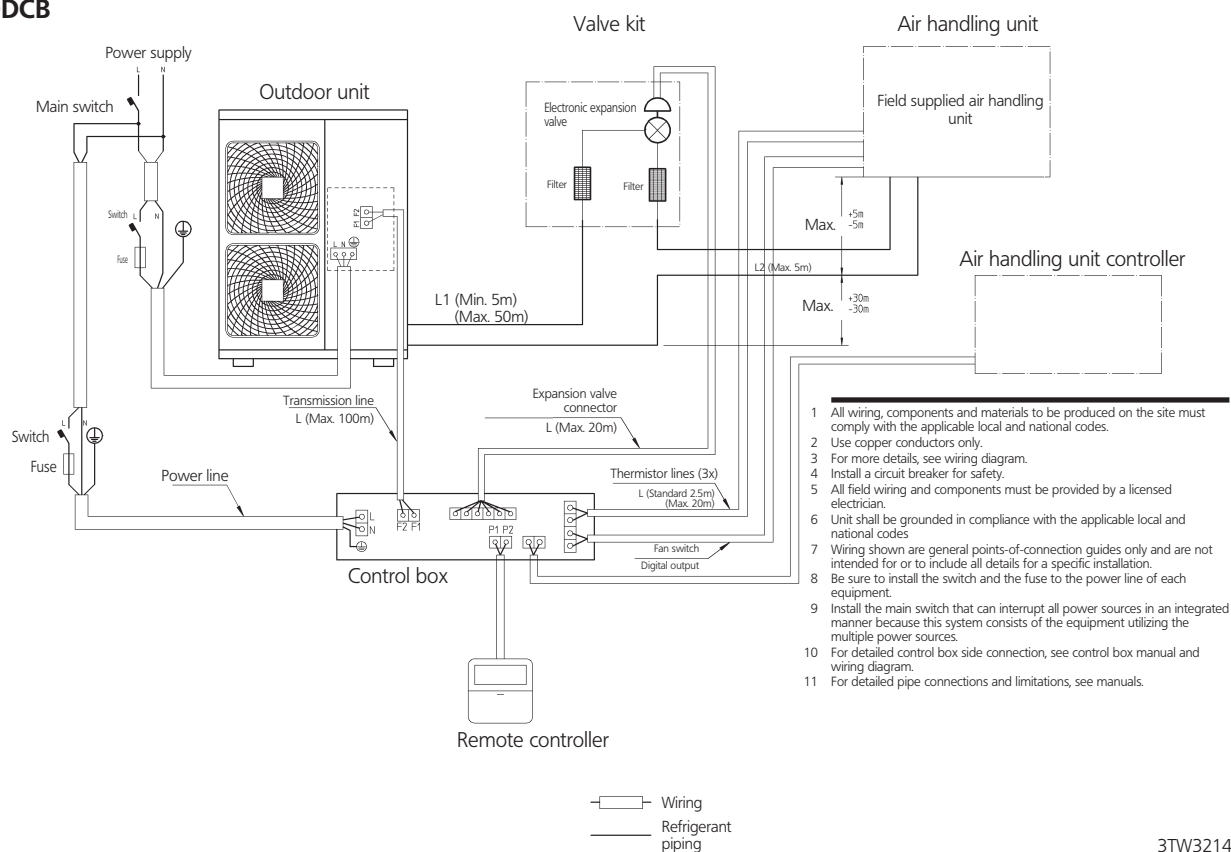


8 External connection diagrams

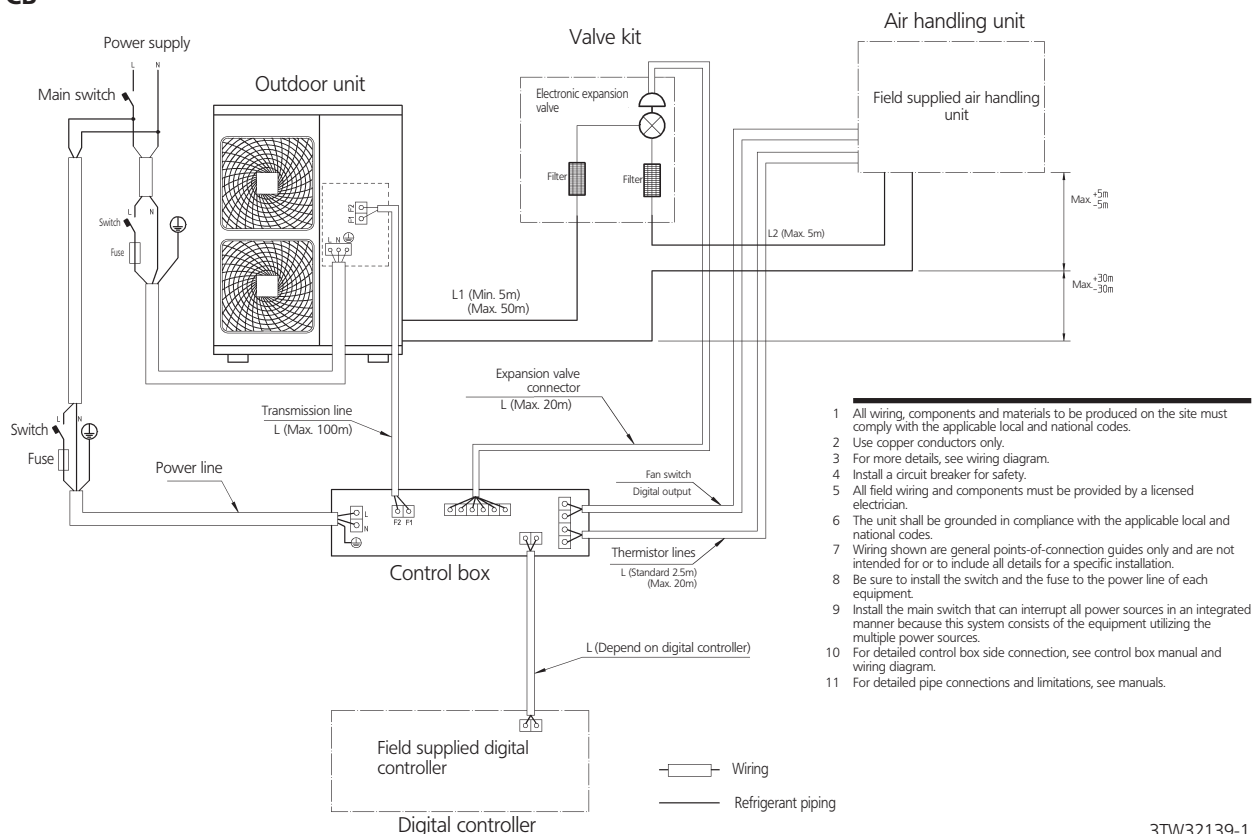
8 - 1 External Connection Diagrams

8

EKEQDCB

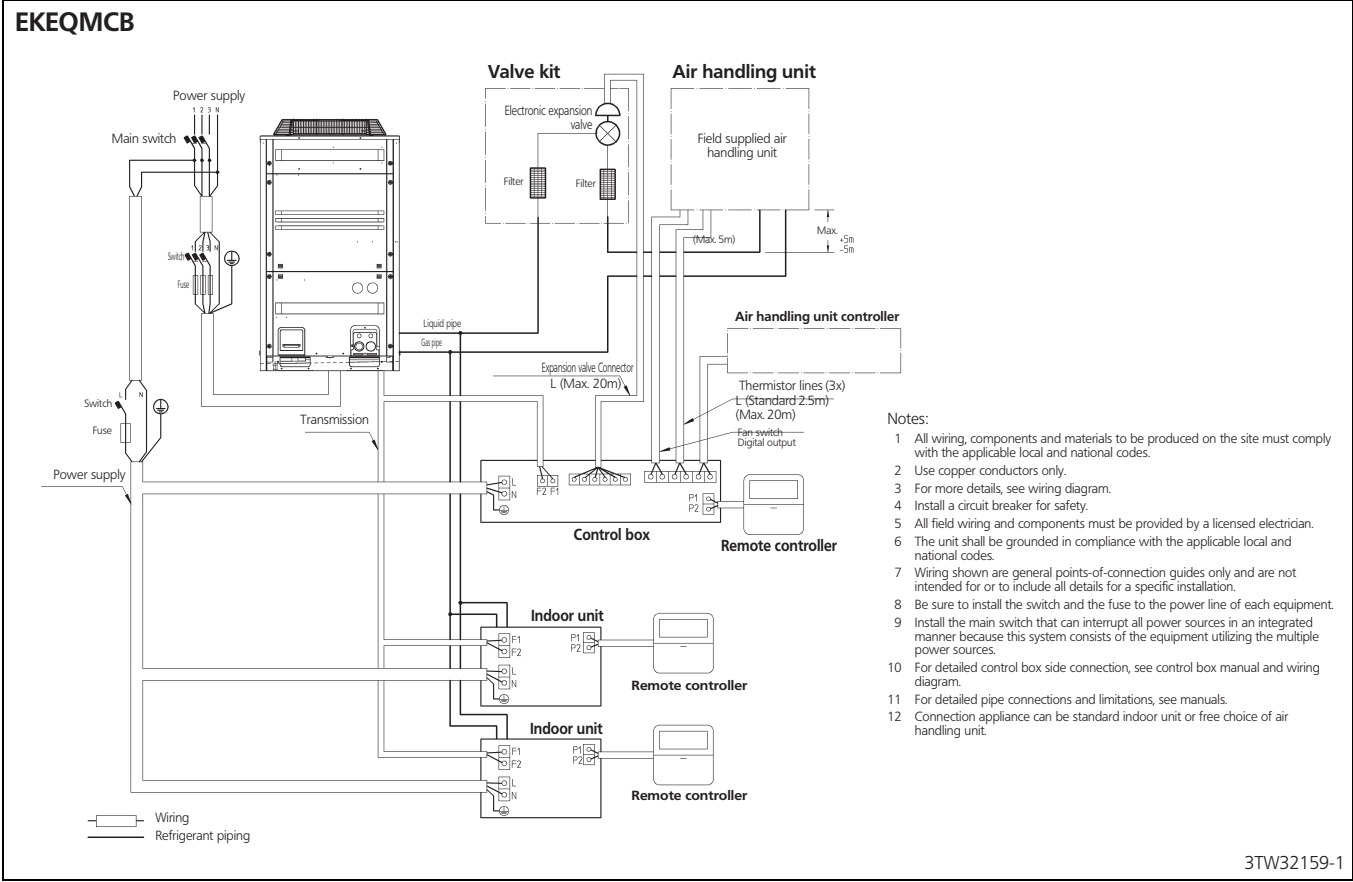


EKEQFCB



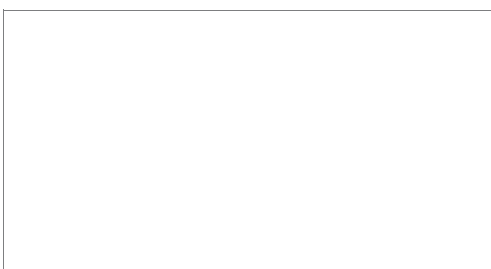
8 External connection diagrams

8 - 1 External Connection Diagrams





Daikin Europe N.V. Naamloze Vennootschap - Zandvoordestraat 300, B-8400 Oostende - Belgium - www.daikin.eu - BE 0412 120 336 - RPR Oostende



EEDEN

XXX-06/16



The present leaflet is drawn up by way of information only and does not constitute an offer binding upon Daikin Europe N.V.. Daikin Europe N.V. has compiled the content of this leaflet to the best of its knowledge. No express or implied warranty is given for the completeness, accuracy, reliability or fitness for particular purpose of its content and the products and services presented therein. Specifications are subject to change without prior notice. Daikin Europe N.V. explicitly rejects any liability for any direct or indirect damage, in the broadest sense, arising from or related to the use and/or interpretation of this leaflet. All content is copyrighted by Daikin Europe N.V.