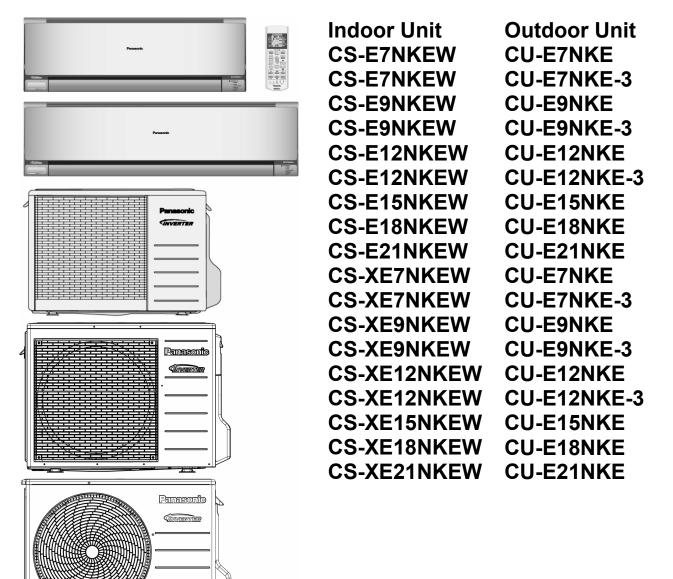
Service Manual Air Conditioner



WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the products dealt with in this service information by anyone else could result in serious injury or death.

PRECAUTION OF LOW TEMPERATURE

In order to avoid frostbite, be assured of no refrigerant leakage during the installation or repairing of refrigerant circuit.



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1. Safety Precautions

- Read the following "SAFETY PRECAUTIONS" carefully before perform any servicing.
- Electrical work must be installed or serviced by a licensed electrician. Be sure to use the correct rating of the power plug and main circuit for the model installed.
- The caution items stated here must be followed because these important contents are related to safety. The
 meaning of each indication used is as below. Incorrect installation or servicing due to ignoring of the instruction
 will cause harm or damage, and the seriousness is classified by the following indications.

	WARNING	This indication shows the possibility of causing death or serious injury.
\triangle	CAUTION	This indication shows the possibility of causing injury or damage to properties.

• The items to be followed are classified by the symbols:

\bigcirc	This symbol denotes item that is PROHIBITED from doing.

 Carry out test run to confirm that no abnormality occurs after the servicing. Then, explain to user the operation, care and maintenance as stated in instructions. Please remind the customer to keep the operating instructions for future reference.

1.	Do not modify the machine, part, material during repairing service.	
2.	If wiring unit is supplied as repairing part, do not repair or connect the wire even only partial wire break. Exchange the whole wiring unit.	
3.	Do not wrench the fasten terminal. Pull it out or insert it straightly.	
4.	Engage authorized dealer or specialist for installation and servicing. If installation or servicing done by the user is defective, it will cause water leakage, electrical shock or fire.	!
5.	Install according to this installation instructions strictly. If installation is defective, it will cause water leakage, electric shock or fire.	
6.	Use the attached accessories parts and specified parts for installation and servicing. Otherwise, it will cause the set to fall, water leakag or electrical shock.	e, fire
7.	Install at a strong and firm location which is able to withstand the set's weight. If the strength is not enough or installation is not properly the set will drop and cause injury.	done,
8.	For electrical work, follow the local national wiring standard, regulation and the installation instruction. An independent circuit and single must be used. If electrical circuit capacity is not enough or defect found in electrical work, it will cause electrical shock or fire.	outlet
9.	This equipment is strongly recommended to install with Earth Leakage Circuit Breaker (ELCB) or Residual Current Device (RCD). Other it may cause electrical shock and fire in case equipment breakdown or insulation breakdown.	rwise,
10	. Do not use joint cable for indoor/outdoor connection cable. Use the specified indoor/outdoor connection cable, refer to installation instru CONNECT THE CABLE TO THE INDOOR UNIT and connect tightly for indoor/outdoor connection. Clamp the cable so that no external will be acted on the terminal. If connection or fixing is not perfect, it will cause heat up or fire at the connection.	
11	. Wire routing must be properly arranged so that control board cover is fixed properly. If control board cover is not fixed perfectly, it will ca heat-up or fire at the connection point of terminal, fire or electrical shock.	ause
12	. When install or relocate air conditioner, do not let any substance other than the specified refrigerant, eg. air etc. mix into refrigeration cycle (piping). (Mixing of air etc. will cause abnormal high pressure in refrigeration cycle and result in explosion, injury etc.).	
13	. Do not install outdoor unit near handrail of veranda. When installing air-conditioner unit at veranda of high rise building, child may climb outdoor unit and cross over the handrail and causing accident.	up to
14	. This equipment must be properly earthed. Earth line must not be connected to gas pipe, water pipe, earth of lightning rod and telephone. Otherwise, it may cause electric shock in case equipment breakdown or insulation breakdown.	\bigcirc
15	. Keep away from small children, the thin film may cling to nose and mouth and prevent breathing.	\bigcirc
16	. Do not use unspecified cord, modified cord, joint cord or extension cord for power supply cord. Do not share the single outlet with other electrical appliances. Poor contact, poor insulation or over current will cause electrical shock or fire.	\bigcirc
17	. Tighten the flare nut with torque wrench according to specified method. If the flare nut is over-tightened, after a long period, the flare may break and cause refrigerant gas leakage.	\bigcirc
18	. For R410A models, when connecting the piping, do not use any existing (R22) pipes and flare nuts. Using such same may cause abnormally high pressure in the refrigeration cycle (piping), and possibly result in explosion and injury. Use only R410A materials. Thickness of copper pipes used with R410A must be more than 0.8mm. Never use copper pipes thinner than 0.8mm. It is desirable that the amount of residual oil is less than 40 mg/10m.	\Diamond

⚠	WARNING
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 During installation, install the refrigerant piping properly before run the compressor. (Operation of compressor without fixing refrigeration piping and valves at opened condition will caused suck-in of air, abnormal high pressure in refrigeration cycle and result in explosion, injury etc).
 During pump down operation, stop the compressor before remove the refrigeration piping. (Removal of compressor while compressor is

 \bigcirc

operating and valves are opened will cause suck-in of air, abnormal high pressure in refrigeration cycle and result in explosion, injury etc.)

21. After completion of installation or service, confirm there is no leakage or refrigerant gas. It may generate toxic gas when the refrigerant contacts with fire.

22. Ventilate if there is refrigerant gas leakage during operation. It may cause toxic gas when refrigerant contacts with fire.

23. Do not insert your fingers or other objects into the unit, high speed rotating fan may cause injury.

24. Must not use other parts except original parts described in catalog and manual.

25. Using of refrigerant other than the specified type may cause product damage, burst and injury etc.

1.	Do not install the unit at place where leakage of flammable gas may occur. In case gas leaks and accumulates at surrounding of the unit, it may cause fire.	\bigcirc
2.	Carry out drainage piping as mentioned in installation instructions. If drainage is not perfect, water may enter the room and damage the furniture.	
3.	Tighten the flare nut with torque wrench according to specified method. If the flare nut is over-tightened, after a long period, the flare may break and cause refrigerant gas leakage.	
4.	Do not touch outdoor unit air inlet and aluminium fin. It may cause injury.	\bigcirc
5.	Select an installation location which is easy for maintenance.	
6.	Pb free solder has a higher melting point than standard solder; typically the melting point is $50^{\circ}F - 70^{\circ}F$ ($30^{\circ}C - 40^{\circ}C$) higher. Please a high temperature solder iron. In case of the soldering iron with temperature control, please set it to $700 \pm 20^{\circ}F$ ($370 \pm 10^{\circ}C$). Pb free solder will tend to splash when heated too high (about $1100^{\circ}F / 600^{\circ}C$).	use
7.	 Power supply connection to the air conditioner. Connect the power supply cord of the air conditioner to the mains using one of the foll methods. Power supply point shall be the place where there is ease for access for the power disconnection in case of emergency. In some cour permanent connection of this room air conditioner to the power supply is prohibited. i. Power supply connection to the receptacle using a power plug. Use an approved 15/16A (3/4~1.75HP) or 16A (2.0HP) or 20A (2.5H 25A (3.0HP) power plug with earth pin for the connection to the socket. ii. Power supply connection to a circuit breaker for the permanent connection. Use an approved 16A (3/4~2.0HP), 20A (2.5HP) or 25A (3.0HP) circuit breaker for the permanent connection. It must be a double pole switch with a minimum 3.0 mm contact gap. 	ntries,
8.	Do not release refrigerant during piping work for installation, servicing, reinstallation and during repairing a refrigerant parts. Take care of the liquid refrigerant, it may cause frostbite.	\bigcirc
9.	Installation or servicing work: It may need two people to carry out the installation or servicing work.	
10	. Do not install this appliance in a laundry room or other location where water may drip from the ceiling, etc.	\bigcirc
11	. Do not sit or step on the unit, you may fall down accidentally.	\bigcirc
12	. Do not touch the sharp aluminium fins or edges of metal parts. If you are required to handle sharp parts during installation or servicing, please wear hand glove. Sharp parts may cause injury.	\bigcirc

2. Specifications

Model -		Indoor	CS-E7NKEW, CS-XE7NKEW			CS-E9	NKEW, CS-XE	NKEW
		Outdoor		CU-E7NKE		CU-E9NKE		
	Performance Test (Condition	EUROVENT			EUROVENT		
Phase, Hz				Single, 50			Single, 50	
F	ower Supply	V		230			230	
			Min.	Mid.	Max.	Min.	Mid.	Max.
		kW	0.75	2.05	2.40	0.85	2.50	3.00
	Capacity	BTU/h	2560	6990	8180	2900	8530	10200
		Kcal/h	650	1760	2060	730	2150	2580
I	Running Current	А	-	2.2	-	-	2.5	-
	Input Power	W	240	470	580	245	535	730
An	nual Consumption	kWh	-	235	-	-	268	-
ing		W/W	3.13	4.36	4.14	3.47	4.67	4.11
Cooling	EER	BTU/hW	10.67	14.87	14.10	11.84	15.94	13.97
-		Kcal/hW	2.71	3.74	3.55	2.98	4.02	3.53
	Power Factor	%	-	93	-	-	93	-
		dB-A	37 / 24 / 20			39 / 25 / 20		
Indoo	or Noise (H / L / QLo)	Power Level dB	53 / -			55 / -		
		dB-A	45 / -			46 / -		
Ou	tdoor Noise (H / L)	Power Level dB	60 / -			61 / -		
		kW	0.75	2.80	4.00	0.85	3.40	5.00
	Capacity	BTU/h	2560	9550	13600	2900	11600	17100
		Kcal/h	650	2410	3440	730	2920	4300
I	Running Current	A	-	3.0	-	-	3.4	-
	Input Power	W	230	635	1.02k	240	735	1.30k
b		W/W	3.26	4.41	3.92	3.54	4.63	3.85
Heating	COP	BTU/hW	11.13	15.04	13.33	12.08	15.78	13.15
т		Kcal/hW	2.83	3.80	3.37	3.04	3.97	3.31
	Power Factor	%	-	92	-	-	94	-
Indoc	or Noise (H / L / QLo)	dB-A		38 / 25 / 20		40 / 27 / 20		
indoc		Power Level dB		54 / -			56 / -	
Ou	tdoor Noise (H / L)	dB-A		46 / -			47 / -	
	(Power Level dB		61 / -			62 / -	
Low Temp. : Capacity (kW) / I.Power (W) / COP				2.90 / 900 / 3.22	2	3	.62 / 1.15k / 3.1	5
Extr Low Temp. : Capacity (kW) / I.Power (W) / COP			2.35 / 930 / 2.53			2	.88 / 1.18k / 2.4	4
Max Current (A) / Max Input Power (W)			4.7 / 1.02k				5.8 / 1.30k	
	Starting Curren	t (A)		3.0			3.4	
	Туре		Her	metic Motor (Ro	tary)	Herr	metic Motor (Ro	tary)
Compres	sor Motor Type		E	rushless (6 pole	es)	В	rushless (6 pole	es)
	Output Power	W		650			700	

	Туре			Cross-Flow Fan	Cross-Flow Fan	
	Material			ASG20K1	ASG20K1	
	Motor Type			Transistor (8-poles)	Transistor (8-poles)	
	Input Power		W	94.8	94.8	
		Itput Pov		W	40	40
			Cool	rpm	560	600
an		QLo	Heat	rpm	600	640
Indoor Fan			Cool	rpm	640	700
opu		Lo	Heat	rpm	700	790
			Cool	rpm	845	930
	Speed	Ме	Heat	rpm	895	1015
			Cool	rpm	1050	1160
		Hi	Heat	rpm	1090	1240
		01.11	Cool	rpm	1080	1210
		SHi	Heat	rpm	1120	1250
		Туре			Propeller Fan	Propeller Fan
ЯU		Material			PP	PP
Outdoor Fan	Motor Type				Induction (6-poles)	Induction (6-poles)
utdo	In	put Pow	er	W	-	-
õ	Output Power		W	25	25	
	Speed Hi		rpm	750	770	
	Moisture Removal		L/h (Pt/h)	1.3 (2.7)	1.5 (3.2)	
		QLo	Cool	m ³ /min (ft ³ /min)	5.15 (182)	5.00 (177)
		QLU	Heat	m ³ /min (ft ³ /min)	5.60 (198)	5.00 (177)
		Lo	Cool	m³/min (ft³/min)	6.10 (215)	6.15 (217)
		20	Heat	m ³ /min (ft ³ /min)	6.80 (240)	6.65 (235)
	Indoor	Ме	Cool	m ³ /min (ft ³ /min)	8.50 (300)	8.70 (307)
	Airflow		Heat	m ³ /min (ft ³ /min)	9.10 (321)	9.20 (325)
		Hi	Cool	m ³ /min (ft ³ /min)	10.9 (385)	11.3 (400)
			Heat	m ³ /min (ft ³ /min)	11.4 (400)	11.7 (415)
		SHi	Cool	m ³ /min (ft ³ /min)	11.60 (410)	11.70 (413)
		_	Heat	m ³ /min (ft ³ /min)	12.00 (424)	12.10 (427)
	Dutdoor	Hi	Cool	m ³ /min (ft ³ /min)	33.9 (1195)	29.8 (1050)
	Airflow		Heat	m ³ /min (ft ³ /min)	33.9 (1195)	29.8 (1050)
Re	frigeration		ol Device		Check Valve & Capillary Tube	Check Valve & Capillary Tube
	Cycle	-	erant Oil	cm ³	FV50S (320)	FV50S (320)
		-	rant Type	g (oz)	R410A, 830 (29.3)	R410A, 950 (33.5)
			I/D / O/D)	mm (inch)	290 (11-7/16) / 542 (21-11/32)	290 (11-7/16) / 542 (21-11/32)
Di	imension		I/D / O/D)	mm (inch)	870 (34-9/32) / 780 (30-23/32)	870 (34-9/32) / 780 (30-23/32)
			(I/D / O/D)	mm (inch)	214 (8-7/16) / 289 (11-13/32)	214 (8-7/16) / 289 (11-13/32)
	Weight		′D / O/D)	kg (lb)	9 (20) / 32 (71)	9 (20) / 33 (73)
	Pipe Diam		. ,	mm (inch)	6.35 (1/4) / 9.52 (3/8)	6.35 (1/4) / 9.52 (3/8)
		ndard lei	-	m (ft)	5 (16.4)	5 (16.4)
Piping	Length ra			m (ft)	3 (9.8) ~ 15 (49.2)	3 (9.8) ~ 15 (49.2)
Pi		-	different	m (ft)	15.0 (49.2)	15.0 (49.2)
			Amount	g/m (oz/ft)	20 (0.2)	20 (0.2)
	Length fo	or Additi	onal Gas	m (ft)	7.5 (24.6)	7.5 (24.6)

Drain Hose	Inner Diameter	mm	16	5.7	1	6.7
	Length	mm	650		650	
	Fin Material		Aluminium	(Pre Coat)	Aluminium	n (Pre Coat)
Indoor Heat	Fin Type		Slit	Fin	Sli	t Fin
Exchanger	Row x Stage x FPI		2 x 15	5 x 17	2 x 1	5 x 21
	Size (W x H x L)	mm	610 x 31	5 x 25.4	610 x 3	15 x 25.4
	Fin Material		Alum	inium	Alun	ninium
Outdoor Heat	Fin Type		Corruga	ated Fin	Corrug	ated Fin
Exchanger	Row x Stage x FPI		1 x 20) x 19	2 x 2	24 x 17
	Size (W x H x L)	mm	22 x 508	3 x 708.4	36.4 x 504	4 x 713:684
Air Filter	Material		Polypro	pelene	Polypropelene	
All Filler	Туре		One-touch		One-touch	
Pov	ver Supply		Outdoor Power Supply		Outdoor Power Supply	
Power	Supply Cord	А	Nil		Nil	
Tł	nermostat		Electronic Contol		Electronic Contol	
Prote	ction Device		Electron	ic Contol	Electronic Contol	
			Dry Bulb	Wet Bulb	Dry Bulb	Wet Bulb
	Cooling	Maximum	32	23	32	23
Indoor Operation	Cooling	Minimum	16	11	16	11
Range	Heating	Maximum	30	-	30	-
	Heating	Minimum	16	-	16	-
	Cooling	Maximum	43	26	43	26
Outdoor Operation	0	Minimum	5	4	5	4
Range	Heating	Maximum	24	18	24	18
	пеашу	Minimum	-5	-6	-5	-6

Cooling capacities are based on indoor temperature of 27°C Dry Bulb (80.6°F Dry Bulb), 19.0°C Wet Bulb (66.2°F Wet Bulb) and outdoor air 1. temperature of 35°C DRY BULB (95°F Dry Bulb), 24°C Wet Bulb (75.2°F Wet Bulb) Heating capacities are based on indoor temperature of 20°C Dry Bulb (68°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F

2. Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb)

3.

Heating low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor 2/1°C Heating extreme low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor -7/-8°C Specifications are subjected to change without prior notice for further improvement. 4. 5.

Model			Indoor	CS-E12	NKEW, CS-XE1	2NKEW	CS-E15	NKEW, CS-XE1	5NKEW	
	Outdoor				CU-E12NKE			CU-E15NKE		
	F	erformance Test (Condition	EUROVENT			EUROVENT			
	Phase Hz				Single, 50			Single, 50		
	Power Supply V				230			230		
	v			Min.	Mid.	Max.	Min.	Mid.	Max.	
			kW	0.85	3.50	4.00	0.85	4.20	5.00	
	(Capacity	BTU/h	2900	11900	13600	2900	14300	17100	
			Kcal/h	730	3010	3440	730	3610	4300	
	Runr	ning Current	А	-	4.0	-	-	5.7	-	
	Inp	out Power	W	250	855	1.13k	260	1.26k	1.57k	
	Annual	Consumption	kWh	-	428	-	-	630	-	
ing			W/W	3.40	4.09	3.54	3.27	3.33	3.18	
Cooling		EER	BTU/hW	11.60	13.92	12.04	11.15	11.35	10.89	
Ũ			Kcal/hW	2.92	3.52	3.04	2.81	2.87	2.74	
	Po	wer Factor	%	-	93	-	-	96	-	
	Indoor Noise (H / L / QLo)		dB-A	42 / 28 / 20			43 / 31 / 25			
			Power Level dB	58 / -			59 / -			
	Outdoor Noise (H / L)		dB-A	48 / -			49 / -			
			Power Level dB	63 / -			64 / -			
	Capacity		kW	0.85	4.00	6.00	0.85	5.30	6.80	
			BTU/h	2900	13600	20500	2900	18100	23200	
			Kcal/h	730	3440	5160	730	4560	5850	
	Runr	ning Current	А	-	4.3	-	-	6.6	-	
	Inp	out Power	W	245	930	1.71k	255	1.44k	1.94k	
Ð			W/W	3.47	4.30	3.51	3.33	3.68	3.51	
Heating		COP	BTU/hW	11.84	14.62	11.99	11.37	12.57	11.96	
Ĭ			Kcal/hW	2.98	3.70	3.02	2.86	3.17	3.02	
	Po	wer Factor	%	-	94	-	-	95	-	
	Indoor No	oise (H / L / QLo)	dB-A	42 / 33 / 20			43 / 35 / 29			
			Power Level dB		58 / -		59 / -			
	Outdoo	r Noise (H / L)	dB-A		50 / -			51 / -		
	Culdoc		Power Level dB		65 / -			66 / -		
I	Low Temp. : Capacity (kW) / I.Power (W) / COP			4	4.47 / 1.48k / 3.0	2	4	l.92 / 1.72k / 2.8	6	
Ex	Extr Low Temp. : Capacity (kW) / I.Power (W) / COP			3.37 / 1.49k / 2.26			4	l.11 / 1.73k / 2.3	8	
	Max Current (A) / Max Input Power (W)				7.8 / 1.71k			9.0 / 1.94k		
		Starting Curren	t (A)		4.3			6.6		
		Туре		Her	metic Motor (Ro	tary)	Her	metic Motor (Ro	tary)	
Co	Compressor Motor Typ			E	Brushless (6-pole	s)	В	rushless (6-pole	es)	
L		Output Power	W		700			700		

	Туре			Cross-Flow Fan	Cross-Flow Fan	
	Material			ASG20K1	ASG20K1	
	Motor Type			Transistor (8-poles)	Transistor (8-poles)	
		put Pow		W	94.8	94.8
		Itput Pov		W	40	40
	Cool		Cool	rpm	600	700
an		QLo Heat		rpm	640	870
Indoor Fan			Cool	rpm	800	840
opu	-	Lo	Heat	rpm	980	1050
			Cool	rpm	1030	1050
	Speed	Ме	Heat	rpm	1140	1200
			Cool	rpm	1260	1270
		Hi	Heat	rpm	1300	1350
		<u></u>	Cool	rpm	1290	1310
		SHi	Heat	rpm	1310	1370
		Туре	l.		Propeller Fan	Propeller Fan
u		Materia			PP	PP
Outdoor Fan	Motor Type				DC Motor (8-poles)	Induction (6-poles)
utdoc	In	put Pow	er	W	-	-
õ	Ou	Itput Pov	ver	W	40	30
	Speed Hi		rpm	900	910	
	Moisture Removal		L/h (Pt/h)	2.0 (4.2)	2.4 (5.1)	
		QLo	Cool	m ³ /min (ft ³ /min)	5.10 (180)	6.10 (215)
		QLU	Heat	m ³ /min (ft ³ /min)	5.40 (191)	8.00 (282)
		Lo	Cool	m ³ /min (ft ³ /min)	7.35 (260)	7.70 (272)
		LO	Heat	m ³ /min (ft ³ /min)	9.20 (325)	10.05 (355)
	Indoor	Ме	Cool	m ³ /min (ft ³ /min)	9.90 (350)	10.10 (357)
4	Airflow	ivie	Heat	m ³ /min (ft ³ /min)	11.00 (388)	11.70 (413)
		Hi	Cool	m ³ /min (ft ³ /min)	12.5 (440)	12.5 (440)
			Heat	m ³ /min (ft ³ /min)	12.8 (450)	13.4 (475)
		SHi	Cool	m ³ /min (ft ³ /min)	13.10 (463)	13.30 (470)
		0111	Heat	m ³ /min (ft ³ /min)	13.30 (470)	13.60 (480)
	Dutdoor	Hi	Cool	m ³ /min (ft ³ /min)	33.3 (1175)	33.3 (1175)
4	Airflow		Heat	m ³ /min (ft ³ /min)	33.3 (1175)	33.3 (1175)
Dof	frigeration	Contro	ol Device		Check Valve & Capillary Tube	Check Valve & Capillary Tube
	Cycle	Refrig	erant Oil	cm ³	FV50S (320)	FV50S (400)
		Refrige	rant Type	g (oz)	R410A, 1.01k (35.7)	R410A, 1.01k (35.7)
		Height(I/D / O/D)	mm (inch)	290 (11-7/16) / 619 (24-3/8)	290 (11-7/16) / 619 (24-3/8)
Di	mension	Width (I/D / O/D)	mm (inch)	870 (34-9/32) / 824 (32-15/32)	870 (34-9/32) / 824 (32-15/32)
		Depth	(I/D / O/D)	mm (inch)	214 (8-7/16) / 299 (11-25/32)	214 (8-7/16) / 299 (11-25/32)
١	Weight	Net (I	′D / O/D)	kg (lb)	9 (20) / 34 (75)	9 (20) / 33 (73)
	Pipe Diam	eter (Lio	quid / Gas)	mm (inch)	6.35 (1/4) / 9.52 (3/8)	6.35 (1/4) / 12.70 (1/2)
	Star	ndard le	ngth	m (ft)	5 (16.4)	5 (16.4)
Piping	Length ra	ange (m	in – max)	m (ft)	3 (9.8) ~ 15 (49.2)	3 (9.8) ~ 15 (49.2)
Pip	I/D & O/E	D Height	different	m (ft)	15.0 (49.2)	15.0 (49.2)
	Additior	nal Gas	Amount	g/m (oz/ft)	20 (0.2)	20 (0.2)
	Length fo	or Additi	onal Gas	m (ft)	7.5 (24.6)	7.5 (24.6)

Drain Hose	Inner Diameter	mm	16	3.7	1	6.7	
Drain Hose	Length	mm	6	50	6	50	
	Fin Material		Aluminium	(Pre Coat)	Aluminium	n (Pre Coat)	
Indoor Heat	Fin Type		Slit	Fin	Sli	t Fin	
Exchanger	Row x Stage x FPI		2 x 1	5 x 21	2 x 1	5 x 21	
	Size (W x H x L)	mm	610 x 31	5 x 25.4	610 x 3	15 x 25.4	
	Fin Material		Alum	inium	Alun	ninium	
Outdoor Heat	Fin Type		Corruga	ated Fin	Corrug	ated Fin	
Exchanger	Row x Stage x FPI		2 x 28	3 x 17	2 x 28 x 17		
	Size (W x H x L)	mm	36.4 x 5	88 x 607	36.4 x 5	588 x 607	
Air Filter	Material		Polypro	opelene	Polypr	opelene	
	Туре		One-	touch	One	-touch	
Pov	wer Supply		Outdoor Po	ower Supply	Outdoor P	ower Supply	
Power	r Supply Cord	А	Ν	lil	I	Nil	
۲t	nermostat		Electron	ic Contol	Electror	nic Contol	
Prote	ection Device		Electron	ic Contol	Electror	nic Contol	
			Dry Bilb	Wet Bulb	Dry Bulb	Wet Bulb	
	Cooling	Maximum	32	23	32	23	
Indoor Operatior	ů,	Minimum	16	11	16	11	
Range		Maximum	30	-	30	-	
	Heating	Minimum	16	-	16	-	
	Cooling	Maximum	43	26	43	26	
Outdoor Operation	0	Minimum	5	4	5	4	
Range	Heating	Maximum	24	18	24	18	
	neating	Minimum	-5	-6	-5	-6	

Cooling capacities are based on indoor temperature of 27°C Dry Bulb (80.6°F Dry Bulb), 19.0°C Wet Bulb (66.2°F Wet Bulb) and outdoor air temperature of 35°C DRY BULB (95°F Dry Bulb), 24°C Wet Bulb (75.2°F Wet Bulb) Heating capacities are based on indoor temperature of 20°C Dry Bulb (68°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F 1.

2. Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb)

Heating low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor 2/1°C Heating extreme low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor -7/-8°C Specifications are subjected to change without prior notice for further improvement. 3.

4. 5.

<u> </u>		lodel	Indoor	CS-E7	NKEW, CS-XE7	NKEW	CS-E9	NKEW, CS-XES	ONKEW	
	IV	lodel	Outdoor		CU-E7NKE-3			CU-E9NKE-3		
	F	Performance Test (Condition		EUROVENT			EUROVENT		
	Dour	ar Supply	Phase, Hz		Single, 50		Single, 50			
	POWE	er Supply	V		230			230		
				Min.	Mid.	Max.	Min.	Mid.	Max.	
			kW	0.75	2.05	2.40	0.85	2.50	3.00	
	(Capacity	BTU/h	2560	6990	8180	2900	8530	10200	
			Kcal/h	650	1760	2060	730	2150	2580	
	Runi	ning Current	А	-	2.2	-	-	2.5	-	
	Inj	out Power	W	240	470	580	245	535	730	
	Annua	Consumption	kWh	-	235	-	-	268	-	
ing			W/W	3.13	4.36	4.14	3.47	4.67	4.11	
Cooling		EER	BTU/hW	10.67	14.87	14.10	11.84	15.94	13.97	
			Kcal/hW	2.71	3.74	3.55	2.98	4.02	3.53	
	Po	wer Factor	%	-	93	-	-	93	-	
			dB-A		37 / 24 / 20			39 / 25 / 20	I.	
	Indoor No	oise (H / L / QLo)	Power Level dB		53 / -			55 / -		
	0.11		dB-A		45 / -		46 / -			
	Outdoo	r Noise (H / L)	Power Level dB		60 / -		61 / -			
			kW	0.75	2.80	4.00	0.85	3.40	5.00	
	(Capacity	BTU/h	2560	9550	13600	2900	11600	17100	
			Kcal/h	650	2410	3440	730	2920	4300	
	Runi	ning Current	A	-	3.0	-	-	3.4	-	
	Inj	out Power	W	230	635	1.02k	240	735	1.30k	
b			W/W	3.26	4.41	3.92	3.54	4.63	3.85	
Heating		COP	BTU/hW	11.13	15.04	13.33	12.08	15.78	13.15	
Т			Kcal/hW	2.83	3.80	3.37	3.04	3.97	3.31	
	Po	wer Factor	%	-	92	-	-	94	-	
	Indoor No	oise (H / L / QLo)	dB-A		38 / 25 / 20			40 / 27 / 20		
		(,	Power Level dB		54 / -			56 / -		
	Outdoc	or Noise (H / L)	dB-A		46 / -			47 / -		
			Power Level dB		61 / -			62 / -		
Lc	ow Temp.	: Capacity (kW) /	I.Power (W) / COP		2.90 / 900 / 3.22	2	3	.62 / 1.15k / 3.1	5	
Extr) / I.Power (W) / COP		2.35 / 930 / 2.53	3	2	.88 / 1.18k / 2.4	4	
	Max C	urrent (A) / Max In	. ,		4.7 / 1.02k			5.8 / 1.30k		
		Starting Curren	it (A)		3.0		3.4			
		Туре		Her	metic Motor (Ro	tary)	Hermetic Motor (Rotary)			
Com	pressor	Motor Type		E	Brushless (6-pole	es)	Bi	ushless (6-pole	es)	
		Output Power	W		650			700		

		Туре			Cross-Flow Fan	Cross-Flow Fan			
		Material			ASG20K1	ASG20K1			
		lotor Typ			Transistor (8-poles)	Transistor (8-poles)			
		put Pow		W	94.8	94.8			
	Ou	Itput Pov	wer	W	40	40			
			Cool	rpm	560	600			
an		QLo	Heat	rpm	600	640			
Indoor Fan			Cool	rpm	640	700			
opu		Lo	Heat	rpm	700	790			
			Cool	rpm	845	930			
	Speed	Ме	Heat	rpm	895	1015			
			Cool	rpm	1050	1160			
		Hi	Heat	rpm	1090	1240			
		01.15	Cool	rpm	1080	1210			
		SHi	Heat	rpm	1120	1250			
		Туре			Propeller Fan	Propeller Fan			
ЯU		Material			PP	PP			
Outdoor Fan	М	lotor Typ	be		Induction (6-poles)	Induction (6-poles)			
utdo	In	put Pow	er	W	-	-			
õ	Ou	Itput Pov	wer	W	25	25			
	Speed		Hi	rpm	750	770			
	Moistu	re Remo	oval	L/h (Pt/h)	1.3 (2.7)	1.5 (3.2)			
		QLo	Cool	m ³ /min (ft ³ /min)	5.15 (182)	5.00 (177)			
		QLU	Heat	m ³ /min (ft ³ /min)	5.60 (198)	5.00 (177)			
		Lo	Cool	m³/min (ft³/min)	6.10 (215)	6.15 (217)			
		20	Heat	m ³ /min (ft ³ /min)	6.80 (240)	6.65 (235)			
	Indoor	Ме	Cool	m ³ /min (ft ³ /min)	8.50 (300)	8.70 (307)			
	Airflow		Heat	m ³ /min (ft ³ /min)	9.10 (321)	9.20 (325)			
		Hi	Cool	m ³ /min (ft ³ /min)	10.9 (385)	11.3 (400)			
			Heat	m ³ /min (ft ³ /min)	11.4 (400)	11.7 (415)			
		SHi	Cool	m ³ /min (ft ³ /min)	11.60 (410)	11.70 (413)			
		_	Heat	m ³ /min (ft ³ /min)	12.00 (424)	12.10 (427)			
	Dutdoor	Hi	Cool	m ³ /min (ft ³ /min)	33.9 (1195)	29.8 (1050)			
	Airflow		Heat	m ³ /min (ft ³ /min)	33.9 (1195)	29.8 (1050)			
Re	frigeration		ol Device		Check Valve & Capillary Tube	Check Valve & Capillary Tube			
	Cycle	-	erant Oil	cm ³	FV50S (320)	FV50S (320)			
		-	rant Type	g (oz)	R410A, 830 (29.3)	R410A, 950 (33.5)			
			I/D / O/D)	mm (inch)	290 (11-7/16) / 542 (21-11/32)	290 (11-7/16) / 542 (21-11/32)			
Di	imension		I/D / O/D)	mm (inch)	870 (34-9/32) / 780 (30-23/32)	870 (34-9/32) / 780 (30-23/32)			
<u> </u>			(I/D / O/D)	mm (inch)	214 (8-7/16) / 289 (11-13/32)	214 (8-7/16) / 289 (11-13/32)			
	Weight		′D / O/D)	kg (lb)	9 (20) / 32 (71)	9 (20) / 35 (77)			
	Pipe Diam		. ,	mm (inch)	6.35 (1/4) / 9.52 (3/8)	6.35 (1/4) / 9.52 (3/8)			
		ndard lei	-	m (ft)	5 (16.4)	5 (16.4)			
Piping	Length ra			m (ft)	3 (9.8) ~ 15 (49.2)	3 (9.8) ~ 15 (49.2)			
Pi		-	different	m (ft)	15.0 (49.2)	15.0 (49.2)			
			Amount	g/m (oz/ft)	20 (0.2)	20 (0.2)			
	Length fo	or Additi	onal Gas	m (ft)	7.5 (24.6)	7.5 (24.6)			

Drain Hose	Inner Diameter	mm	16	6.7	10	6.7		
Drain nose	Length	mm	65	50	6	50		
	Fin Material		Aluminium	(Pre Coat)	Aluminium	ı (Pre Coat)		
Indoor Heat	Fin Type		Slit	Fin	Slit	t Fin		
Exchanger	Row x Stage x FPI		2 x 15	5 x 17	2 x 1	5 x 21		
	Size (W x H x L)	mm	610 x 31	5 x 25.4	610 x 3	15 x 25.4		
	Fin Material		Alum	inium	Alum	ninium		
Outdoor Heat	Fin Type		Corruga	ated Fin	Corrug	ated Fin		
Exchanger	Row x Stage x FPI Size (W x H x L) Filter		1 x 20) x 19	2 x 24 x 17			
	Size (W x H x L)	mm	22 x 50	8 x 708	36.4 x 504	4 x 713:684		
Air Filtor	Material		Polypro	pelene	Polypr	opelene		
	Туре		One-	touch	One	touch		
Pov	ver Supply		Outdoor Po	wer Supply	Outdoor Po	ower Supply		
Power	Supply Cord	А	Ν	lil	1	Nil		
Tł	nermostat		Electron	ic Contol	Electror	iic Contol		
Prote	ction Device		Electron	ic Contol	Electror	iic Contol		
			Dry Bulb	Wet Bulb	Dry Bulb	Wet Bulb		
	Cooling	Maximum	32	23	32	23		
Indoor Operation	Ű	Minimum	16	11	16	11		
Range		Maximum	30	-	30	-		
	Heating	Minimum	16	-	16	-		
	Cooling	Maximum	43	26	43	26		
Outdoor Operatior	Ű	Minimum	5	4	5	4		
Range	Heating	Maximum	24	18	24	18		
	пеашу	Minimum	-15	-16	-15	-16		

1. Cooling capacities are based on indoor temperature of 27°C Dry Bulb (80.6°F Dry Bulb), 19.0°C Wet Bulb (66.2°F Wet Bulb) and outdoor air temperature of 35°C DRY BULB (95°F Dry Bulb), 24°C Wet Bulb (75.2°F Wet Bulb) Heating capacities are based on indoor temperature of 20°C Dry Bulb (68°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F

2. Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb)

3.

Heating low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor 2/1°C Heating extreme low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor -7/-8°C Specifications are subjected to change without prior notice for further improvement. 4. 5.

			Indoor		CS-E12NKEW, CS-XE12NKEW	
	N	lodel	Outdoor		CU-E12NKE-3	
	F	Performance Test (Condition		EUROVENT	
		0	Phase, Hz		Single, 50	
	Powe	er Supply	V		230	
				Min.	Mid.	Max.
			kW	0.85	3.50	4.00
	(Capacity	BTU/h	2900	11900	13600
			Kcal/h	730	3010	3440
	Run	ning Current	А	-	4.1	-
	In	put Power	W	250	905	1.18k
	Annua	I Consumption	kWh	-	453	-
ing			W/W	3.40	3.87	3.39
Cooling		EER	BTU/hW	11.60	13.15	11.53
			Kcal/hW	2.92	3.33	2.92
	Po	wer Factor	%	-	96	-
			dB-A		42 / 28 / 20	
	Indoor No	oise (H / L / QLo)	Power Level dB		58 / -	
	.		dB-A		48 / -	
	Outdoo	or Noise (H / L)	Power Level dB		63 / -	
			kW	0.85	4.40	6.70
	(Capacity	BTU/h	2900	15000	22800
			Kcal/h	730	3780	5760
	Run	ning Current	A	-	5.1	-
	In	put Power	W	245	1.09k	1.93k
б			W/W	3.47	4.04	3.47
Heating		COP	BTU/hW	11.84	13.76	11.81
т			Kcal/hW	2.98	3.47	2.98
	Po	wer Factor	%	-	93	-
	Indoor No	oise (H / L / QLo)	dB-A		42 / 33 / 20	
		(,	Power Level dB		58 / -	
	Outdoo	or Noise (H / L)	dB-A		50 / -	
			Power Level dB		65 / -	
-		,	I.Power (W) / COP		4.85 / 1.67k / 2.90	
Ext) / I.Power (W) / COP		3.75 / 1.68k / 2.23	
	Max C	urrent (A) / Max In			8.9 / 1.93k	
		Starting Curren	it (A)		5.1	
		Туре			Hermetic Motor (Rotary)	
Cor	mpressor	Motor Type			Brushless (6-poles)	
		Output Power	W		700	

		Туре			Cross-Flow Fan
		Material			ASG20K1
		otor Typ			Transistor (8-poles)
		put Pow		W	94.8
		tput Pov		W	40
	Ou	ipui i oi	Cool	rpm	600
с		QLo	Heat	rpm	640
Indoor Fan			Cool	rpm	800
popr		Lo	Heat	rpm	980
-			Cool	rpm	1030
	Speed	Me	Heat	rpm	1140
			Cool	rpm	1260
		Hi	Heat		1300
			Cool	rpm	1290
		SHi	Heat	rpm	1310
-		Turne	пеа	rpm	
		Туре			Propeller Fan
Fan		Materia			PP
oor		otor Typ			DC Motor (6-poles)
Outdoor Fan		put Pow		W	•
Γ		tput Pov		W	30
	Speed		Hi	rpm	830
	Moistu	re Remo		L/h (Pt/h)	2.0 (4.2)
		QLo	Cool	m ³ /min (ft ³ /min)	5.10 (180)
			Heat	m ³ /min (ft ³ /min)	5.40 (191)
		Lo	Cool	m ³ /min (ft ³ /min)	7.35 (260)
			Heat	m ³ /min (ft ³ /min)	9.20 (325)
	Indoor	Ме	Cool	m ³ /min (ft ³ /min)	9.90 (350)
	Airflow		Heat	m ³ /min (ft ³ /min)	11.00 (388)
		Hi	Cool	m ³ /min (ft ³ /min)	12.5 (440)
			Heat	m ³ /min (ft ³ /min)	12.8 (450)
		SHi	Cool	m ³ /min (ft ³ /min)	13.10 (463)
		0	Heat	m³/min (ft³/min)	13.30 (470)
	Dutdoor	Hi	Cool	m ³ /min (ft ³ /min)	31.0 (1095)
	Airflow		Heat	m ³ /min (ft ³ /min)	31.0 (1095)
		Contro	ol Device		Check Valve & Capillary Tube
Re	frigeration Cycle	Refrig	jerant Oil	cm ³	FV50S (320)
	,	Refrige	erant Type	g (oz)	R410A, 970 (34.2)
		Height((I/D / O/D)	mm (inch)	290 (11-7/16) / 542 (21-11/32)
Di	imension	Width ((I/D / O/D)	mm (inch)	870 (34-9/32) / 780 (30-23/32)
		Depth	(I/D / O/D)	mm (inch)	214 (8-7/16) / 289 (11-13/32)
	Weight	Net (I	/D / O/D)	kg (lb)	9 (20) / 35 (77)
	Pipe Diam	eter (Lio	quid / Gas)	mm (inch)	6.35 (1/4) / 9.52 (3/8)
1	Star	ndard le	ngth	m (ft)	5 (16.4)
Ъ	Length ra		-	m (ft)	3 (9.8) ~ 15 (49.2)
Piping	-		t different	m (ft)	15.0 (49.2)
		-	Amount	g/m (oz/ft)	20 (0.2)
1			onal Gas	m (ft)	7.5 (24.6)
L	J		'	17	v - 1

Ducia	Inner Diameter	mm	16	5.7
Drain Hose	Length	mm	65	50
	Fin Material		Aluminium	(Pre Coat)
Indoor Heat	Fin Type		Slit	Fin
Exchanger	Row x Stage x FPI		2 x 15	5 x 21
	Size (W x H x L)	mm	610 x 31	5 x 25.4
	Fin Material		Alumi	inium
Outdoor Heat	Fin Type		Corruga	ated Fin
Exchanger	Row x Stage x FPI		2 x 24	4 x 17
	Size (W x H x L)	mm	36.4 x 504	x 713:684
Air Filter	Material		Polypro	ppelene
	Туре		One-I	touch
Pov	wer Supply		Outdoor Po	wer Supply
Power	r Supply Cord	А	Ν	lil
Tł	nermostat		Electroni	ic Contol
Prote	ection Device		Electroni	ic Contol
			Dry Bulb	Wet Bulb
	Cooling	Maximum	32	23
Indoor Operatior	-	Minimum	16	11
Range	Heating	Maximum	30	-
	Heating	Minimum	16	-
	Cooling	Maximum	43	26
Outdoor Operatior	J. J	Minimum	5	4
Range	Heating	Maximum	24	18
	пеашу	Minimum	-15	-16

Cooling capacities are based on indoor temperature of 27°C Dry Bulb (80.6°F Dry Bulb), 19.0°C Wet Bulb (66.2°F Wet Bulb) and outdoor air temperature of 35°C DRY BULB (95°F Dry Bulb), 24°C Wet Bulb (75.2°F Wet Bulb) Heating capacities are based on indoor temperature of 20°C Dry Bulb (68°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F 1.

2. Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb)

Heating low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor 2/1°C Heating extreme low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor -7/-8°C Specifications are subjected to change without prior notice for further improvement. 3.

4. 5.

	Mod		Indoor	CS-E18	NKEW, CS-XE	18NKEW	CS-E21	NKEW, CS-XE2	21NKEW	
	IVIOO	ei	Outdoor		CU-E18NKE			CU-E21NKE		
	Perf	ormance Test (Condition		EUROVENT			EUROVENT		
	Dowor	unnlu	Phase, Hz		Single, 50			Single, 50		
	Power S	supply	V		230			230		
				Min.	Mid.	Max.	Min.	Mid.	Max.	
			kW	0.98	5.00	6.00	0.98	6.30	7.10	
	Сар	bacity	BTU/h	3340	17100	20500	3340	21500	24200	
			Kcal/h	840	4300	5160	840	5420	6110	
	Running	g Current	А	-	6.6	-	-	9.9	-	
	Input	Power	W	280	1.47k	2.03k	280	2.21k	2.54k	
	Annual Co	onsumption	kWh	-	735	-	-	1105	-	
ling			W/W	3.50	3.40	2.96	3.50	2.85	2.80	
Cooling	E	ER	BTU/hW	11.93	11.63	10.10	11.93	9.73	9.53	
			Kcal/hW	3.00	2.93	2.54	3.00	2.45	2.41	
	Power	r Factor	%	-	97	-	-	97	-	
			dB-A		44 / 37 / 34			45 / 37 / 34	•	
	Indoor Noise	e (H / L / QLo)	Power Level dB		60 / -			61 / -		
	<u> </u>		dB-A		47 / -		48 / -			
	Outdoor Noise (H / L)		Power Level dB		61 / -			62 / -		
			kW	0.98	5.80	8.00	0.98	7.20	8.50	
	Сар	bacity	BTU/h	3340	19800	27300	3340	24600	29000	
			Kcal/h	840	4990	6880	840	6190	7310	
	Running	g Current	А	-	6.9	-	-	9.4	-	
	Input	Power	W	340	1.54k	2.60k	340	2.10k	2.75k	
бL			W/W	2.88	3.77	3.08	2.88	3.43	3.09	
Heating	C	OP	BTU/hW	9.82	12.86	10.50	9.82	11.71	10.55	
			Kcal/hW	2.47	3.24	2.65	2.47	2.95	2.66	
	Power	Factor	%	-	97	-	-	97	-	
	Indoor Noise	e (H / L / QLo)	dB-A		44 / 37 / 34			45 / 37 / 34		
		(Power Level dB		60 / -			61 / -		
	Outdoor N	loise (H / L)	dB-A		47 / -			49 / -		
		()	Power Level dB		61 / -			63 / -		
			I.Power (W) / COP	-	5.80 / 2.35k / 2.4	7	6	6.16 / 2.43k / 2.5	53	
Extr) / I.Power (W) / COP		4.98 / 2.41k / 2.0)7	5	5.24 / 2.54k / 2.0	06	
		ent (A) / Max In	、 <i>,</i>		11.4 / 2.60k			12.1 / 2.75k		
		Starting Curren	it (A)		6.9			9.9		
		Туре			metic Motor (Ro	37	Hermetic Motor (Rotary)			
Com		Motor Type		E	Brushless (4-pole	es)	В	rushless (4-pole	es)	
	C	Dutput Power	W		900			900		

		Туре			Cross-Flow Fan	Cross-Flow Fan		
-		Material			ASG20K1	ASG20K1		
-		lotor Typ	e		Transistor (8-poles)	Transistor (8-poles)		
-		put Powe		W	94.8	94.8		
-	Ou	Itput Pow	/er	w	40	40		
-			Cool	rpm	880	880		
an		QLo	Heat	rpm	990	960		
Indoor Fan			Cool	rpm	960	970		
Indo		Lo	Heat	rpm	1070	1040		
	Oracad		Cool	rpm	1080	1145		
	Speed	Me	Heat	rpm	1190	1240		
			Cool	rpm	1200	1320		
		Hi	Heat	rpm	1310	1440		
		SHi	Cool	rpm	1390	1460		
		300	Heat	rpm	1430	1480		
		Туре			Propeller Fan	Propeller Fan		
		Material			PP	PP		
Outdoor Fan	М	lotor Typ	е		Induction (6-poles)	Induction (6-poles)		
door	In	put Powe	er	W	-	-		
Outc	Ou	Itput Pow	/er	W	40	40		
	Speed	Hi	Cool	rpm	640	700		
	Opeeu		Heat	rpm	640	680		
	Moistu	re Remo	val	L/h (Pt/h)	2.8 (5.9)	3.5 (7.4)		
		QLo	Cool	m³/min (ft³/min)	11.40 (403)	10.60 (374)		
		QLU	Heat	m³/min (ft³/min)	13.00 (459)	11.20 (395)		
		Lo	Cool	m³/min (ft³/min)	12.65 (447)	11.95 (422)		
		20	Heat	m ³ /min (ft ³ /min)	14.25 (503)	12.40 (437)		
	Indoor	Ме	Cool	m³/min (ft³/min)	14.45 (510)	14.60 (516)		
	Airflow		Heat	m³/min (ft³/min)	16.05 (567)	15.45 (546)		
		Hi	Cool	m ³ /min (ft ³ /min)	16.3 (575)	17.3 (610)		
			Heat	m³/min (ft³/min)	17.9 (630)	18.5 (655)		
		SHi	Cool	m³/min (ft³/min)	18.1 (639)	19.1 (675)		
			Heat	m³/min (ft³/min)	18.5 (653)	19.4 (685)		
	Dutdoor	Hi	Cool	m ³ /min (ft ³ /min)	39.2 (1385)	41.7 (1470)		
/	Airflow		Heat	m ³ /min (ft ³ /min)	37.9 (1340)	40.4 (1425)		
Dof	rigeration	Contro	l Device		Expansion Valve	Expansion Valve		
	Cycle	Refrige	erant Oil	cm ³	FV50S (450)	FV50S (450)		
		Refrige	rant Type	g (oz)	R410A, 1.22k (43.1)	R410A, 1.28k (45.2)		
		• •	I/D / O/D)	mm (inch)	290 (11-7/16) / 695 (27-3/8)	290 (11-7/16) / 695 (27-3/8)		
Dii	mension	Width (I	/D / O/D)	mm (inch)	1070 (42-5/32) / 875 (34-15/32)	1070 (42-5/32) / 875 (34-15/32)		
		• •	I/D / O/D)	mm (inch)	240 (9-15/32) / 320 (12-5/8)	240 (9-15/32) / 320 (12-5/8)		
١	Neight	Net (I/	D / O/D)	kg (lb)	12 (26) / 46 (101)	12 (26) / 47 (104)		
	Pipe Diam		,		6.35 (1/4) / 12.70 (1/2)	6.35 (1/4) / 12.70 (1/2)		
		ndard ler	0	m (ft)	5.0 (16.4)	5.0 (16.4)		
Piping	Length ra			m (ft)	3 (9.8) ~ 20 (65.6)	3 (9.8) ~ 20 (65.6)		
Pi	I/D & O/E	-		m (ft)	15.0 (49.2)	15.0 (49.2)		
		nal Gas A		g/m (oz/ft)	20 (0.2)	20 (0.2)		
	Length fo	or Additic	onal Gas	m (ft)	7.5 (24.6)	7.5 (24.6)		

Drain Hose	Inner Diameter	mm	16	6.7	1	6.7			
Drain Hose	Length	mm	6	50	6	50			
	Fin Material		Aluminium	(Pre Coat)	Aluminium	n (Pre Coat)			
Indoor Heat	Fin Type		Slit	Fin	Sli	t Fin			
Exchanger	Row x Stage x FPI		2 x 1	5 x 17	2 x 1	5 x 17			
	Size (W x H x L)	mm	810 x 31	5 x 25.4	810 x 3	15 x 25.4			
	Fin Material		Aluminium	(Pre Coat)	Aluminium	n (Pre Coat)			
Outdoor Heat	Fin Type		Corruga	ated Fin	Corrug	ated Fin			
Exchanger	Row x Stage x FPI Size (W x H x L) m Filter		2 x 3	1 x 19	2 x 31 x 19				
	Size (W x H x L)	mm	36.4 x 651 x	854.5:824.5	36.4 x 651 x	x 854.5:824.5			
Air Filtor	Material		Polypro	opelene	Polypr	opelene			
All Filler	Туре		One-	touch	One	-touch			
Pov	wer Supply		Outdoor Po	ower Supply	Outdoor P	ower Supply			
Power	r Supply Cord	А	Ν	lil	1	Nil			
Tł	nermostat		Electron	ic Contol	Electror	nic Contol			
Prote	ection Device		Electron	ic Contol	Electror	nic Contol			
			Dry Bulb	Wet Bulb	Dry Bulb	Wet Bulb			
	Cooling	Maximum	32	23	32	23			
Indoor Operatior	Cooling	Minimum	16	11	16	11			
Range		Maximum	30	-	30	-			
	Heating	Minimum	16	-	16	-			
	Cooling	Maximum	43	26	43	26			
Outdoor Operatior	6	Minimum	5	4	5	4			
Range		Maximum	24	18	24	18			
	Heating	Minimum	-5	-6	-5	-6			

1. Cooling capacities are based on indoor temperature of 27°C Dry Bulb (80.6°F Dry Bulb), 19.0°C Wet Bulb (66.2°F Wet Bulb) and outdoor air temperature of 35°C DRY BULB (95°F Dry Bulb), 24°C Wet Bulb (75.2°F Wet Bulb) Heating capacities are based on indoor temperature of 20°C Dry Bulb (68°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F

2. Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb)

3.

Heating low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor 2/1°C Heating extreme low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor -7/-8°C Specifications are subjected to change without prior notice for further improvement. 4. 5.

• Multi Split Combination Possibility:

- A single outdoor unit enables air conditioning of up to two separate rooms for CU-2E15LBE, CU-2E18LBE.
- A single outdoor unit enables air conditioning of up to three separate rooms for CU-3E18LBE.
 - A single outdoor unit enables air conditioning of up to four separate rooms for CU-4E23LBE, CU-4E27CBPG.

CONNE	CTAP	E INDOOR UNIT							OUT	FDOOR	UNIT						
			CU-2E	15LBE	CU-2E	18LBE	CL	J-3E18L	BE		CU-	4E23LB	E		CU-4E2	7CBPG	ì
Туре		ROOM	A	в	A	В	А	в	с	A	В	с	D	A	В	С	D
	2.0kW	CS-E7NKEW CS-XE7NKEW	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	2.5kW	CS-E9NKEW CS-XE9NKEW	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Wall	3.2kW	CS-E12NKEW CS-XE12NKEW	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
vvali	4.0kW	CS-E15NKEW CS-XE15NKEW	_	_	_	_	•	•	•	•	•	•	•	•	•	●	•
	5.0kW	CS-E18NKEW CS-XE18NKEW	_	_	_	_	•	•	•	•	•	•	•	•	•	•	•
	6.0kW	CS-E21NKEW CS-XE21NKEW	_	_	_	_		_	_	•	•	•	•	_	_		-
		range of indoor units		4.0kW 1 .6kW	to		4.0kW .4kW	to		m 4.5k\ 9.0kW			om 4.5k ^v o 11.0kV			om 4.5k 13.6kV	
		m maximum e length (m)		20			20			25			25			25	
	Allowab	le elevation (m)		10			10			15			15			15	
D .		allowable pipe ength (m)		30			30			50			60			70	
Pipe length	maxim	oipe length for um chargeless ength (m)		20			20	20				30			40		
	ar	ditional gas nount over ess length (g/m)		20		2			20		20 20				20		
		I												I	Note: "	• " : Av	ailable

Remarks for CU-2E15LBE / CU-2E18LBE

1. At least two indoor units must be connected.

 The total nominal cooling capacity of indoor units that will be connected to outdoor unit must be within connectable capacity range of indoor unit. (as shown in the table above)

Example: The indoor units' combination below is possible to connect to CU-2E15LBE. (Total nominal capacity of indoor units is between 4.0kW to 5.6kW)

1) Two CS-E7NKEW only (Total nominal cooling capacity is 4.0kW)

2) One CS-E7NKEW and one CS-E9NKEW. (Total nominal cooling capacity is 4.5kW)

Remarks for CU-3E18LBE / CU-4E23LBE / CU-4E27CBPG

1. At least two indoor units must be connected.

2. The total nominal cooling capacity of indoor units that will be connected to outdoor unit must be within connectable capacity range of indoor unit. (as shown in the table above)

Example: The indoor units' combination below is possible to connect to CU-3E18LBE. (Total nominal capacity of indoor units is between 4.5kW to 9.0kW)

1) Two CS-E9NKEW only (Total nominal cooling capacity is 5.0kW)

2) Three CS-E12NKEW. (Total nominal cooling capacity is 9.6kW)

• Outdoor Unit : CU-2E15LBE

	Indoor unit capacity	1		Coolin	ng Capacit	ty(kW)			Inr	out Por	vor (V	V)	F	ER	ANNUAL ENERGY	Current,	MOISTURE REMOVAL VOLUME
	Cooling	Total	Room A Room	B		Total	min	\sim max	Rating	min	~	max	W/W	CLASS	CONSUMPTION (kWh)	230V (A)	1/h
	1 20	20	2.00	5		2.00	1.1	~ 2.9	520	220	\sim	750	3,85	A	260	2.45	1.3
1		25	2.50		1	2.50	1.1	~ 3.5	670	220	~	1000	3.73	A	335	3.15	1.5
Room	25 28 32	28	2.80		12	2.80	1.1	~ 3.5	750	220	~	1000	3.73	A	375	3. 50	1.6
	32	32	3.20			3. 20	1.1	~ 4.0	920	220	~	1220	3.48	A	460	4.30	1.8
	20 + 20	40	2.00 2.00	0	4	4.00	1.5	~ 5.0	1090	250	~	1350	3.66	A	545	5.10	1.3 + 1.3
	20 + 25	45	2.00 2.50	0 [4	4.50	1.5	~ 5.2	1230	250	~	1520	3.66	A	615	5.75	1.3 + 1.5
2	20 + 28	48	1.85 2.65	5		4.50	1.5	~ 5.2	1230	250	~	1520	3.66	A	615	5.75	1.2 + 1.6
Room	20 + 32 25 + 25	52	1.75 2.75	5	1	4.50	1.5	~ 5.2	1230	250	<u>~</u>	1520	3.66	A	615	5.75	1.1 + 1.6
100m	25 + 25	50	2.25 2.25	5		4.50	1.5	~ 5.2	1230	250		1520	3.66	A	615	5.75	1.5 + 1.5
	25 + 28	53	2.10 2.40			4.50	1.5	~ 5.2	1230	250		1520	3.66	<u>A</u>	615	5.75	1.4 + 1.5
	28 + 28	56	2.25 2.25	5	4	4.50	1.5	~ 5.2	1230	250	\sim	1520	3.66	A	615	5.75	1.5 + 1.5
					0	(1 W)			T	. D	(11	Ň		00	ADDING DUBDON	Current	MOTOTUDE DEMOVAL VOLUME
	Indoor unit capacity	Total	D. AD.	Heatin	ng Capacit					out Pow			CI W/W	OP	ANNUAL ENERGY	Current,	MOISTURE REMOVAL VOLUME
	Heating	Total	Room A Room	Heatin B	1	Total	min	$\sim \max$	Rating	min	~	max	W/W	OP CLASS	CONSUMPTION (kWh)	230V (A)	MOISTURE REMOVAL VOLUME 1/h
	Heating	20	3.20	Heatin B	1	Total 3. 20	min 0.7	~ 4.8	Rating 850	min 170	$\tilde{\sim}$	max 1410	W/W 3.76		CONSUMPTION (kWh) 425	230V (A) 3.75	
	Heating	20 25	3.20 3.60	Heatin B		Total 3. 20 3. 60	0.7	~ 4.8 ~ 5.5	Rating 850 1030	min 170 170	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	max 1410 1700	W/W 3.76 3.50		CONSUMPTION (kWh) 425 515	230V (A) 3.75 4.55 5.10	
	Heating	20 25 28	3.20 3.60 4.00	Heatin B		fota1 3. 20 3. 60 4. 00	0.7 0.7 0.7	$\begin{array}{c} \sim \ 4.8 \\ \sim \ 5.5 \\ \sim \ 5.5 \end{array}$	Rating 850 1030 1150	min 170 170 170	~ ~ ~ ~	max 1410 1700 1700	W/W 3.76 3.50 3.48		CONSUMPTION (kWh) 425 515 575	230V (A) 3.75 4.55 5.10	
	Heating 20 25 28 32	20 25	3. 20 3. 60 4. 00 4. 50	B		Total 3. 20 3. 60	0.7	$ \begin{array}{c} \sim 4.8 \\ \sim 5.5 \\ \sim 5.5 \end{array} $	Rating 850 1030	min 170 170 170 170	~ ~ ~ ~ ~	max 1410 1700	W/W 3.76 3.50	CLASS A B B	CONSUMPTION (kWh) 425 515	230V (A) 3.75 4.55	
	Heating 20 225 28 32 20 + 20 20 + 25 20 + 25	20 25 28 32 40	3.20 3.60 4.00 4.50 2.70 2.70	B 		Fotal 3. 20 3. 60 4. 00 4. 50 5. 40 5. 40	0.7 0.7 0.7	$ \begin{array}{c} \sim 4.8 \\ \sim 5.5 \\ \sim 5.5 \\ \sim 6.2 \end{array} $	Rating 850 1030 1150 1250	min 170 170 170	~ ~ ~ ~ ~ ~	max 1410 1700 1700 1810	W/W 3.76 3.50 3.48 3.60	CLASS A B B	CONSUMPTION (kWh) 425 515 575 625 585 585	230V (A) 3.75 4.55 5.10 5.55 5.20	
1 Room	Heating 20 25 28 32 20 + 20 20 + 20 20 + 25 50 20 - 25 20 20 - 25 20 - 2	20 25 28	3. 20 3. 60 4. 00 4. 50	B 		Fotal 3. 20 3. 60 4. 00 4. 50 5. 40	0.7 0.7 0.7	$ \begin{array}{c} \sim \ 4.8 \\ \sim \ 5.5 \\ \sim \ 5.5 \\ \sim \ 6.2 \\ \sim \ 7.0 \end{array} $	Rating 850 1030 1150 1250 1170	min 170 170 170 170 210	~ ~ ~ ~ ~ ~	max 1410 1700 1700 1810 1670	W/W 3.76 3.50 3.48 3.60 4.62	CLASS A B B	CONSUMPTION (kWh) 425 515 575 625 585 585 585	230V (A) 3.75 4.55 5.10 5.55 5.20 5.20 5.20 5.20	
1 Room	Heating 20 25 28 32 20 + 20 20 + 20 20 + 25 50 20 - 25 20 20 - 25 20 - 2	20 25 28 32 40 45	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	B 		Fotal 3. 20 3. 60 4. 00 4. 50 5. 40 5. 40	0.7 0.7 0.7		Rating 850 1030 1150 1250 1170 1170	min 170 170 170 170 210 210	~ ~ ~ ~ ~ ~	max 1410 1700 1700 1810 1670 1670	W/W 3.76 3.50 3.48 3.60 4.62 4.62	CLASS A B B	CONSUMPTION (kWh) 425 515 575 625 585 585	230V (A) 3.75 4.55 5.10 5.55 5.20 5.20	
1 Room	Heating 20 25 28 32 20 + 20 20 + 20 20 + 25 50 20 - 25 20 20 - 25 20 - 2	20 25 32 40 45 48	3. 20 3. 60 4. 00 4. 50 2. 70 2. 70 2. 40 3. 00 2. 25 3. 15	B 		Fotal 3. 20 3. 60 4. 00 4. 50 5. 40 5. 40	0.7 0.7 0.7		Rating 850 1030 1150 1250 1170 1170 1170 1170	min 170 170 170 210 210 210 210 210	~ ~ ~ ~ ~ ~ ~ ~ ~	max 1410 1700 1700 1810 1670 1670 1670	W/W 3.76 3.50 3.48 3.60 4.62 4.62 4.62	CLASS A B B	CONSUMPTION (kWh) 425 515 575 625 585 585 585 585 585	230V (A) 3.75 4.55 5.10 5.55 5.20 5.20 5.20 5.20 5.20 5.20 5.20	
1 Room	Heating 20 25 28 32 20 + 20 20 + 25 20 + 25	20 25 32 40 45 48 52	3. 20 3. 60 4. 00 4. 50 2. 70 2. 70 2. 40 3. 00 2. 25 3. 18 2. 10 3. 30	B 		Fotal 3. 20 3. 60 4. 00 4. 50 5. 40 5. 40 5. 40 5. 40 5. 40 5. 40	0.7 0.7 0.7	$ \begin{array}{c} \sim 4.8 \\ \sim 5.5 \\ \sim 5.5 \\ \sim 6.2 \\ \sim 7.0 \end{array} $	Rating 850 1030 1150 1250 1170 1170 1170 1170	min 170 170 170 170 210 210 210	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	max 1410 1700 1700 1810 1670 1670 1670 1670	W/W 3.76 3.50 3.48 3.60 4.62 4.62 4.62 4.62	CLASS A B B	CONSUMPTION (kWh) 425 515 575 625 585 585 585 585 585 585	230V (A) 3.75 4.55 5.10 5.55 5.20 5.20 5.20	

• Outdoor Unit : CU-2E18LBE

	Indoor unit capacity	T 1			Cooling Ca	pacity(kW)			Inp	out Po	wer (W)		EF	ER	ANNUAL ENERGY	Current,	MOISTURE REMOVAL VOLUME
	Cooling	Total	Room A	Room B		Total	min	\sim max	Rating	min	\sim m	1X	W/W	CLASS	CONSUMPTION (kWh)	230V (A)	1/h
	20	20	2.00			2.00	1.1	~ 2.9	520	220	~ 75	0	3.85	A	260	2.45	1.3
1	25	25	2.50			2.50	1.1	~ 3.5	670	220	~ 100	00	3.73	A	335	3.15	1.5
Room	20 25 28 32	28	2.80			2.80	1.1	~ 3.5	750	220	~ 100	00	3.73	A	375	3. 50	1.6
	32	32	3.20			3.20	1.1	~ 4.0	920	220	~ 12	20	3.48	A	460	4.30	1.8
	20 + 20	40	2.00	2.00		4.00	1.5	~ 5.0	1090	250	~ 13	50	3.66	A	545	5.10	1.3 + 1.3
	20 + 25	45	2.00	2.50		4.50	1.5	~ 5.2	1230	250	~ 15		3.66	A	615	5.75	1.3 + 1.5
	20 + 28	48	1.85	2.65		4.50	1.5	~ 5.2	1230	250	~ 15	20	3.66	A	615	5.75	1.2 + 1.6
	20 + 32	52	1.85	2.95		4.80	1.5	~ 5.3	1310	250	~ 15		3.66	A	655	6.10	1.2 + 1.7
2	25 + 25	50	2.40	2.40		4.80	1.5	~ 5.2	1310	250	~ 15		3.66	A	655	6.10	1.5 + 1.5
Room		53	2.25	2.55		4.80	1.5	~ 5.2	1310	250	~ 15		3.66	A	655	6.10	1.5 + 1.6
	25 + 32 28 + 28	57	2.20	2.80		5.00	1.5	~ 5.3	1490	250	~ 154		3.36	A	745	6.95	1.4 + 1.6
		56	2.40	2.40		4.80	1.5	~ 5.2	1310	250	~ 15		3.66	A	655	6.10	1.5 + 1.5
	28 + 32 32 + 32	60	2.35	2.65		5.00	1.5	~ 5.3	1490	250	~ 154		3.36	A	745	6.95	1.5 + 1.6
	32 + 32	64	2.60	2.60		5.20	1.5	~ 5.4	1520	250	~ 150	30 3	3.42	A	760	7.10	1.6 + 1.6
	00 . 00		2.00	2.00		0.20	1.0	- 0.4	1020	200	100						
			2.00				1.0	0.4									
	Indoor unit capacity				Heating Ca	pacity(kW)			Inp	out Pov	wer (W)		CC		ANNUAL ENERGY	Current,	MOISTURE REMOVAL VOLUME
	Indoor unit capacity Heating	Total	Room A		Heating Ca	pacity(kW)	min	~ max	Inp Rating	out Pow min	${\sim \atop \sim ma}$	ax	W/W	OP CLASS	CONSUMPTION (kWh)	Current, 230V (A)	MOISTURE REMOVAL VOLUME 1/h
	Indoor unit capacity Heating 20	Total 20	Room A 3.20		Heating Ca	pacity(kW) Total 3.20	min 0.7	$\sim \max_{\sim 4.8}$	Inp Rating 850	out Pow min 170	$rac{\mathrm{wer} (W)}{\sim m_{0}}$	ax 10	W/W 3.76		CONSUMPTION (kWh) 425	Current, 230V (A) 3.75	
1	Indoor unit capacity Heating 20	Total 20 25	Room A 3. 20 3. 60		Heating Ca	pacity(kW) Total 3.20 3.60	min 0.7 0.7	$\sim \max$ ~ 4.8 ~ 5.5	Inp Rating 850 1030	out Pow min 170 170	wer (W) \sim ma \sim 14 \sim 17	ax 10	W/W 3.76 3.50		CONSUMPTION (kWh) 425 515	Current, 230V (A) 3.75 4.55	
1 Room	Indoor unit capacity Heating 20 25 28	Total 20 25 28	Room A 3. 20 3. 60 4. 00		Heating Ca	pacity(kW) Total 3.20 3.60 4.00	min 0.7 0.7	$\sim \max$ ~ 4.8 ~ 5.5 ~ 5.5	Inp Rating 850 1030 1150	0ut Pov min 170 170 170	wer (W) ~ ma ~ 14 ~ 170 ~ 170	ax 10 10	W/W 3.76 3.50 3.48		CONSUMPTION (kWh) 425 515 575	Current, 230V (A) 3.75 4.55 5.10	
1 Room	Indoor unit capacity Heating 20 25 28 32	Total 20 25 28 32	Room A 3. 20 3. 60 4. 00 4. 50	Room B	Heating Ca	pacity(kW) Total 3.20 3.60 4.00 4.50	min 0.7 0.7		Inp Rating 850 1030 1150 1250	min 170 170 170 170 170	$\frac{\text{wer (W)}}{\sim 14}$ $\frac{\sim 14}{\sim 170}$ $\frac{\sim 170}{\sim 18}$	ax 10 10 10 10	W/W 3.76 3.50 3.48 3.60		CONSUMPTION (kWh) 425 515 575 625	Current, 230V (A) 3.75 4.55 5.10 5.55	
1 Room	Indoor unit capacity Heating 20 25 28 32 32 20 + 20	Total 20 25 28	Room A 3. 20 3. 60 4. 00	Room B	Heating Ca	pacity(kW) Total 3.20 3.60 4.00 4.50 5.40	min 0.7 0.7		Inp Rating 850 1030 1150 1250 1170	min 170 170 170 170 170 210	$\frac{\text{wer (W)}}{\sim \text{ ma}}$ $\frac{\sim 14}{\sim 170}$ $\frac{\sim 170}{\sim 180}$ $\frac{\sim 160}{\sim 160}$	ax 10 10 10 10 10 10 10	W/W 3.76 3.50 3.48 3.60 4.62		CONSUMPTION (kWh) 425 515 575 625 585	Current, 230V (A) 3.75 4.55 5.10 5.55 5.20	
1 Room	Indoor unit capacity 20 25 28 20 20 + 20 20 + 25 20 + 25 20 + 25	Total 20 25 28 32 40 45	Room A 3. 20 3. 60 4. 00 4. 50 2. 70 2. 40	Room B 	Heating Ca	pacity(kW) Total 3.20 3.60 4.00 4.50 5.40 5.40	min 0.7 0.7	$ \begin{array}{c} \sim \max \\ \sim 4.8 \\ \sim 5.5 \\ \sim 5.5 \\ \sim 6.2 \\ \sim 7.0 \\ \sim 7.0 \end{array} $	Inp Rating 850 1030 1150 1250 1170 1170	min 170 170 170 170 210 210	wer (W) ~ 14 ~ 170 ~ 170 ~ 170 ~ 180 ~ 160 ~ 160	ax 10 10 10 10 10 10 10 10 10 10	W/W 3.76 3.50 3.48 3.60 4.62 4.62		CONSUMPTION (kWh) 425 515 625 585 585 585	Current, 230V (A) 3.75 4.55 5.10 5.55 5.20 5.20	
1 Room	Indoor unit capacity 20 25 28 32 32 29 32 20 4 25 20 20 4 20 20 20 20 20 20 20 20 20 20	Total 25 28 32 40 45 48	Room A 3. 20 3. 60 4. 00 4. 50 2. 70 2. 40 2. 25	Room B 2.70 3.00 3.15	Heating Ca	pacity(kW) Total 3.20 3.60 4.00 4.50 5.40 5.40 5.40 5.40	min 0.7 0.7 0.7 1.1 1.1 1.1	$ \begin{array}{c} \sim & \max \\ \sim & 4.8 \\ \sim & 5.5 \\ \sim & 5.5 \\ \sim & 6.2 \\ \sim & 7.0 \\ \sim & 7.0 \\ \sim & 7.0 \\ \sim & 7.0 \end{array} $	Inp Rating 850 1150 1250 1170 1170 1170	but Pov min 170 170 170 210 210 210	$\frac{\text{wer (W)}}{\sim \text{ma}}$ ~ 14 ~ 170 ~ 170 ~ 180 ~ 160 ~ 160 ~ 160	ax 10 00 10 70 70 70	W/W 3.76 3.50 3.48 3.60 4.62 4.62 4.62 4.62		CONSUMPTION (kWh) 425 515 575 625 585 585 585 585 585	Current, 230V (A) 3.75 4.55 5.10 5.55 5.20 5.20 5.20	
1 Room	Indoor unit capacity Heating 20 25 28 32 20 + 20 20 + 25 20 + 25 20 + 28 20 + 28 20 + 32	Total 20 25 28 32 40 45 48 52	Room A 3. 20 3. 60 4. 00 4. 50 2. 70 2. 40 2. 25 2. 15	Room B 2.70 3.00 3.15 3.45	Heating Ca	pacity(kW) Total 3.20 3.60 4.00 4.50 5.40 5.40 5.40 5.40 5.60	min 0.7 0.7 0.7 1.1 1.1 1.1	$ \begin{array}{c} \sim & \max \\ \sim & 4.8 \\ \sim & 5.5 \\ \sim & 5.5 \\ \sim & 6.2 \\ \sim & 7.0 \\ \sim & 7.0 \\ \sim & 7.0 \\ \sim & 7.2 \end{array} $	Inp Rating 850 1150 1250 1170 1170 1170 1170 1230	but Pov min 170 170 170 210 210 210 210 210	$ \frac{\text{wer (W)}}{\sim \text{ ma}} \frac{14}{\sim 170} \\ \sim 170} \\ \sim 170} \\ \sim 180} \\ \sim 160} \\ \sim 160} \\ \sim 160} \\ \sim 160} \\ \sim 172 \\ \sim 172$	ax 10 10 10 10 10 10 10 10 10 10	W/W 3.76 3.50 3.48 3.60 4.62 4.62 4.62 4.62 4.55		CONSUMPTION (kWh) 425 515 575 625 585 585 585 585 615	Current, 230V (A) 3.75 4.55 5.10 5.55 5.20 5.20 5.20 5.20 5.45	
2	Indoor unit capacity Heating 25 28 32 32 20 + 20 20 + 25 20 + 25 20 + 32 20 + 32 20 + 32 20 + 32 25 + 25	Total 20 25 32 40 45 45 	Room A 3. 20 3. 60 4. 00 4. 50 2. 70 2. 40 2. 25 2. 15 2. 80	Room B 2.70 3.00 3.15 3.45 2.80	Heating Ca	pacity(kW) Total 3.20 4.00 4.50 5.40 5.40 5.40 5.40 5.60 5.60	min 0.7 0.7 0.7 1.1 1.1 1.1		Inc Rating 850 1030 1150 1250 1170 1170 1170 1230 1250	but Pow min 170 170 170 210 210 210 210 210 210 210	$ \begin{array}{c} \text{wer} & (\text{W}) \\ \hline \sim & \text{ma} \\ \sim & 14 \\ \sim & 170 \\ \sim & 170 \\ \sim & 180 \\ \sim & 160 \\ \sim & 160 \\ \sim & 160 \\ \sim & 172 \\ \sim & 172 \\ \sim & 174 \end{array} $	AX 10 10 10 10 10 10 10 10 10 10	W/W 3.76 3.50 3.48 3.60 4.62 4.62 4.62 4.62 4.55 4.48		CONSIMPTION (kWh) 425 515 575 625 585 585 585 585 615 625	Current, 230V (A) 3, 75 5, 10 5, 55 5, 20 5, 20 5, 20 5, 20 5, 45 5, 45 5, 55	
1 Room 2 Room	Indoor unit capacity Heating 20 25 28 32 20 + 20 20 + 22 20 + 22 20 + 22 20 + 22 20 + 22 20 + 32 20 + 32 20 + 32 25 + 28	Total 20 25 28 32 40 45 -45 -52 -50 -53	Room A 3. 20 3. 60 4. 00 4. 50 2. 70 2. 40 2. 25 2. 15 2. 80 2. 65	Room B 2.70 3.00 3.15 3.45 2.80 2.95	Heating Ca	pacity(kW) Total 3.20 4.00 4.50 5.40 5.40 5.40 5.60 5.60 5.60	min 0.7 0.7 0.7 1.1 1.1 1.1		Inp Rating 850 1030 1150 1250 1170 1170 1170 1230 1250 1250	but Pow min 170 170 210 210 210 210 210 210 210 210	$\begin{array}{c} \text{wer} \ (\text{W}) \\ \hline \sim & \text{ma} \\ \sim & 14 \\ \sim & 170 \\ \sim & 170 \\ \sim & 160 \\ \sim & 160 \\ \sim & 160 \\ \sim & 160 \\ \sim & 172 \\ \sim & 172 \\ \sim & 174 \\ \sim & 174 \end{array}$	AX 10 10 10 10 10 10 10 10 10 10	W/W 3.76 3.50 3.48 3.60 4.62 4.62 4.62 4.62 4.55 4.48 4.48		CONSUMPTION (kWh) 425 515 575 625 585 585 585 685 615 625 625 625	Current, 230V (A) 3.75 4.55 5.10 5.55 5.20 5.20 5.20 5.20 5.45 5.55 5.55	
2	Indoor unit capacity Heating 25 28 20 + 20 20 + 25 20 + 25 20 + 25 20 + 32 20 + 32 20 + 32 25 + 25 25 + 25 25 + 28 25 + 28 25 + 28	Total 20 25 28 32 45 -45 -45 -48 52 -50 -53 -57	Room A 3. 20 3. 60 4. 00 4. 50 2. 70 2. 40 2. 25 2. 15 2. 15 2. 80 2. 65 2. 45	Room B 2.70 3.00 3.15 3.45 2.80 2.95 3.15	Heating Ca	pacity(kW) Total 3.20 3.60 4.00 4.50 5.40 5.40 5.40 5.60 5.60 5.60 5.60 5.60	min 0.7 0.7 0.7 1.1 1.1 1.1	$ \begin{array}{c} \sim \max \\ \sim 4.8 \\ \sim 5.5 \\ \sim 5.5 \\ \sim 6.2 \\ \sim 7.0 \\ \sim 7.0 \\ \sim 7.0 \\ \sim 7.2 \\ $	Inc Rating 850 1030 1150 1250 1170 1170 1170 1170 1250 1250 1250 1250 1250	but Pow min 170 170 170 210 210 210 210 210 210 210 210	$ \frac{\text{wer (W)}}{\sim 14} \\ \hline 170 \\ \hline 171 \\ \hline 171$	ax 10 10 10 10 10 10 10 10 10 10	W/W 3.76 3.50 3.48 3.60 4.62 4.62 4.62 4.62 4.62 4.62 4.55 4.48 4.55		CONSUMPTION (kWh) 425 515 575 625 585 585 615 615 625 625 615	Current, 230V (A) 3.75 4.55 5.10 5.55 5.20 5.20 5.20 5.45 5.55 5.55 5.55 5.45	
2	Indoor unit capacity Heating 20 25 28 32 20 + 20 20 + 25 20 + 25 20 + 32 25 + 25 25 + 25 25 + 25 25 + 25 25 + 28 25 + 32 25 + 32 28 + 32	Total 20 28 32 40 45 48 52 53 57 56	Room A 3. 20 3. 60 4. 00 4. 50 2. 70 2. 25 2. 15 2. 15 2. 80 2. 65 2. 45 2. 80	Room B 2.70 3.00 3.15 3.45 2.80 2.95 3.15 2.80	Heating Ca	pacity(kW) Total 3.20 4.00 5.40 5.40 5.40 5.60 5.60 5.60 5.60 5.60	min 0.7 0.7 0.7 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1	$ \begin{array}{c} \sim & \max \\ \sim & 4.8 \\ \sim & 5.5 \\ \sim & 5.5 \\ \sim & 5.5 \\ \sim & 7.0 \\ \sim & 7.0 \\ \sim & 7.0 \\ \sim & 7.2 \\ $	Ing Rating 850 1030 1150 1150 1170 1170 1170 1170 1250 1250 1250 1250	but Pov min 170 170 170 210 210 210 210 210 210 210 210 210 21	wer (W) ~ mm ~ 14: ~ 177 ~ 18: ~ 16: ~ 16: ~ 16: ~ 16: ~ 17: ~ 17: ~ 17: ~ 17: ~ 17: ~ 17: ~ 17: ~ 17: ~ 16: ~ 17: ~ 17: ~ 16: ~ 17: ~ 17: ~ 16: ~ 17: ~	ax 10 10 10 10 10 10 10 10 10 10	W/W 3.76 3.50 3.48 3.60 4.62 4.62 4.62 4.62 4.62 4.55 4.48 4.55 4.48 4.55 4.48		CONSUMPTION (kWh) 425 515 575 625 585 585 585 625 625 625 625 625 625 625 625 625 625 625 625 625 625 625	Current, 230V (A) 3,75 4,55 5,10 5,55 5,20 5,20 5,20 5,20 5,45 5,55 5,55 5,55 5,55 5,55	
2	Indoor unit capacity Heating 25 28 20 + 20 20 + 25 20 + 25 20 + 25 20 + 32 20 + 32 20 + 32 25 + 25 25 + 25 25 + 28 25 + 28 25 + 28	Total 20 25 28 32 45 -45 -45 -48 52 -50 -53 -57	Room A 3. 20 3. 60 4. 00 4. 50 2. 70 2. 40 2. 25 2. 15 2. 15 2. 80 2. 65 2. 45	Room B 2.70 3.00 3.15 3.45 2.80 2.95 3.15	Heating Ca	pacity(kW) Total 3.20 3.60 4.00 4.50 5.40 5.40 5.40 5.60 5.60 5.60 5.60 5.60	min 0.7 0.7 0.7 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1	$ \begin{array}{c} \sim \max \\ \sim 4.8 \\ \sim 5.5 \\ \sim 5.5 \\ \sim 6.2 \\ \sim 7.0 \\ \sim 7.0 \\ \sim 7.0 \\ \sim 7.2 \\ $	Inc Rating 850 1030 1150 1250 1170 1170 1170 1170 1250 1250 1250 1250 1250	but Pow min 170 170 170 210 210 210 210 210 210 210 210	$ \frac{\text{wer (W)}}{\sim 14} \\ \hline 170 \\ \hline 171 \\ \hline 171$	ax 10 00	W/W 3.76 3.50 3.48 3.60 4.62 4.62 4.62 4.62 4.62 4.62 4.55 4.48 4.55		CONSUMPTION (kWh) 425 515 575 625 585 585 615 615 625 625 615	Current, 230V (A) 3.75 4.55 5.10 5.55 5.20 5.20 5.20 5.45 5.55 5.55 5.55 5.45	

• Outdoor Unit : CU-3E18LBE

I	ndoor unit capacity	Tatal			Coolin	g Capacity(kW)		Inp	out Po	ower (W)	E	ER	ANNUAL ENERGY	Current,	MOISTURE REMOVAL VOLUME
	Cooling			A Room B	Room C		min		Rating	min		max	W/W	CLASS	CONSUMPTION (kWh)	230V (A)	1/h
	20 25 28 32	20	2.00			2.00	1.8	~ 2.9	500	340		810	4.00	A	250	2.5	1. 3
[25	25	2.50		I	2.50	1.8	~ 2.9	630	340		810	4.00	A	315	3.0	1.5
1	28	28	2.80			2.80	1.8	~ 2.9	700	340		810	4.00	A	350	3. 3	1.6
Room	32	32 40	3.20			3.20	1.8	~ 3.8	800	340		1360	4.00	A	400 620	3.7 5.6	1.8
	40		4.00		1	4.00	1.8	~ 4.3	1240	340		1990	3.23	A	620	5.6	2. 3
	50	50	5.00			5.00	1.9	~ 5.7	1550	340		2130	3.23	A	775	6.8	2.7
L	20 + 20	40	2.00			4.00	1.9	~ 6.2	1010	350	~	2100	3.96	A	505	4.5	1.3 + 1.3
	20 + 25	45	2.00			4.50	1.9	~ 6.2	1270	350	~	2100	3.55	A	635 675	5.6	1.3 + 1.5
	20 + 28	48	2.00			4.80	1.9	~ 6.2	1350	350	~	2100	3.55	A	675	6.0	1.3 + 1.6
Li	20 + 32	52	2.00			5. 20	1.9	~ 6.3	1490	350		2110	3.49	A	745	6.6	1.3 + 1.8
L	20 + 40	60	1.73			5.20	1.9	~ 6.4	1450	350		2110	3.59	A	725 645	6.4	1.1 + 2.0
	20 + 50	70	1.49			5. 20	1.9	~ 6.8	1290	360		2150	4.03	A	645	5. 7	0.9 + 2.2
	25 + 25 25 + 28	50	2.50			5.00	1.9	~ 6.2	1540	350		2100	3.25	A	770	6.8	1.5 + 1.5
	25 + 28	53	2.45			5. 20	1.9	~ 6.2	1540	350		2100	3.38	A	770	6.8	1.5 + 1.6
[]	25 + 32	57	2.28			5.20	1.9	~ 6.3	1480	350		2110	3.51	A	740	6.5	1.5 + 1.7
2 [25 + 40	65	2.00			5.20	1.9	~ 6.4	1440	350		2110	3.61	A	720	6.4	1.3 + 1.8
Room []	25 + 50	75	1.73			5.20	1.9	~ 6.8	1290	360		2150	4.03	A	645	5.7	1.1 + 2.0
	28 + 28	56	2.60	2.60		5. 20	1.9	~ 6.2	1540	350		2100	3.38	A	770	6.8	1.6 + 1.6
L	28 + 28 28 + 32	60	2.43	2.77		5. 20	1.9	~ 6.3	1480	350		2110	3.51	<u>A</u>	740	6.5	1.5 + 1.6
	28 + 40 28 + 50	68	2.14			5.20	1.9	~ 6.4	1440	350		2110	3.61	A	720	6.4	1.4 + 1.7
	28 + 50	78	1.87	3.33		5.20	1.9	~ 6.8	1290	360		2150	4.03	A	645	5.7	1.2 + 1.9
Li	32 + 32 32 + 40	64 72	2.60			5.20		~ 6.4	1450	350		2120	3.59	A	725	6.4	1.6 + 1.6
	32 + 40	72	2.31	2.89		5. 20	1.9	~ 6.5	1410	350		2120	3.69	A	705	6.3	1.5 + 1.7
11	32 + 50	82 80	2.03	3.17		5.20	1.9	~ 6.9	1250	360		2150	4.16	A	625	5.5	1.3 + 1.8
	40 + 40	80	2.60			5.20	1.9	~ 6.5	1410	350		2120	3.69	A	705	6.2	1.6 + 1.6
	40 + 50	90	2.31	2.89		5.20	1.9	~ 6.9	1250	360	~		4.16	A	625	5.5	1.5 + 1.7
	20 + 20 + 20	60	1.73	1.73	1.73	5.19	1.9	~ 7.2	1220	360		2170	4.25	<u>A</u>	610	5.3	1.1 + 1.1 + 1.1
L	20 + 20 + 25	65	1.60		2.00	5. 20	1.9	\sim 7.2	1220	360		2170	4.26	<u>A</u>	610	5.3	1.0 + 1.0 + 1.3
	20 + 20 + 28	68	1.53	1.53	2.14	5.20	1.9	\sim 7.2	1220	360		2170	4.26	A	610	5.3 5.3	1.0 + 1.0 + 1.4
	20 + 20 + 32	72	1.44		2.32	5. 20	1.9	~ 7.2	1210	360		2180	4.30	A	605 605	5.3	0.9 + 0.9 + 1.5
	20 + 20 + 40	80	1.30		2.60	5. 20	1.8	\sim 7.3	1210	360		2180	4.30	<u> </u>	605	5.3	0.8 + 0.8 + 1.6
	20 + 20 + 50	90	1.16		2.88	5.20	1.8	~ 7.3	1200	360		2180	4.33	<u>A</u>	600	5.3	0.7 + 0.7 + 1.7
	20 + 25 + 25	70	1.48		1.86	5.20	1.9	~ 7.2	1220	360		2170	4.26	<u> </u>	610		0.9 + 1.2 + 1.2
	20 + 25 + 28	73	1.42		2.00	5.20	1.9	\sim 7.2	1220	360		2170	4.26	A	610	5.3	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$
	20 + 25 + 32	77	1.35	1.69	2.16	5.20	1.9	~ 7.2	1210	360		2180	4.30	<u>A</u>	605 600	5.3	
	20 + 25 + 40	85	1.22	1.53	2.45	5.20	1.8	~ 7.3	1200	360 360		2180	4.33	<u>A</u>	610	5.3	0.8 + 1.0 + 1.5 0.9 + 1.2 + 1.2
3	20 + 28 + 28	76	1.36	1.92	1.92	5.20	1.9	~ 7.2	1220	360		2170	4.26	<u>A</u>	605	5.3	0.9 + 1.2 + 1.2 0.8 + 1.2 + 1.3
toom -	20 + 28 + 32	80	1.30	1.82	2.08	5.20	1.9	~ 7.2	1210	360		2180	4.30	<u>A</u>	600	5.3	
	20 + 28 + 40	88	1.18	1.65	2.37	5.20	1.8	~ 7.3	1200			2180	4.33	<u>A</u>	600	5. 3	
	20 + 32 + 32	84	1.24	1.98	1.98	5.20	1.8	~ 7.3	1200	360		2180	4.33	<u>A</u>	610		
14	25 + 25 + 25	75	1.73	1.73	1.73	5.19	1.9	~ 7.2	1220	360		2170	4.25	<u>A</u>	<u>610</u> 610	5.3	1.1 + 1.1 + 1.1 1.1 + 1.1 + 1.2
	25 + 25 + 28	78	1.67	1.67	1.86	5.20	1.9	~ 7.2	1220	360 360		2170	4.26	<u>A</u>	610	5.3	1.1 + 1.1 + 1.2 1.0 + 1.0 + 1.3
	25 + 25 + 32	82	1.59	1.59	2.02	5.20	1.9	$- \frac{7.2}{7.2}$	1210			2180	4.30	<u>A</u>	600	5. 3 5. 3	0.9 + 0.9 + 1.5
	25 + 25 + 40	90	1.44	1.44	2.32	5.20	1.8	~ 7.3	1200	360		2180 2170	4.33 4.26	<u>A</u>	610	5. 3	1.0 + 1.2 + 1.2
	25 + 28 + 28	81	1.60	1.80	1.80	5.20	1.9	~ 7.2	1220	360	~	21/0		A			
	25 + 28 + 32	85	1.53	1.71	1.96	5.20	1.9	~ 7.2	1210	360	~	2180	4.30	<u>A</u>	605 600	5.3	1.0 + 1.1 + 1.3
	25 + 32 + 32	89	1.46	1.87	1.87	5.20	1.8	~ 7.3	1200	360		2180	4.33	<u>A</u>		5.3	0.9 + 1.2 + 1.2
	28 + 28 + 28	84	1.73	1.73	1.73	5.19		~ 7.2	1220	360	~ 2	2170	4.25	A	610	5.3	1.1 + 1.1 + 1.1
2	28 + 28 + 32	88	1.65	1.65	1.90	5.20	1.9	\sim 7.2	1210	360	~ 2	2180	4.30	A	605	5.3	1.1 + 1.1 + 1.2

	Indoor unit capacity	m (1			Heatin	g Capacit	y(kW)			Inp	ut Por	wer (W)	C	OP	ANNUAL ENERGY	Current,	MOISTURE REMOVAL VOLUME
	Heating	Total	Room A	A Room B				min	\sim max	Rating	min	\sim max	W/W	CLASS	CONSUMPTION (kWh)	230V (A)	1/h
		20	3.20			3	. 20	1.2	~ 4.1	740	300	\sim 1230	4.32	A	370	3.7	
-	20 25	25	3.60	1			. 60]	1.2	~ 4.3	940	300	~ 1230	3.83	A	470	4.5	
1	28	28	4.00				. 00	1.2	~ 4.3	1050	300	\sim 1230	3.81	A	470 525	5.0	
Room	28 32	32	4.50	+		4	. 50	1.2	~ 5.8	1230	300	\sim 2100	3.66	A	615	5.8	
	40	40	5.60	1			. 60	1.2	~ 6.8	1720	300	~ 2930	3.26	C	860	7.7	
	50	50	6.80	+		e	. 80	1.2	~ 6.9	2100	300	~ 2520	3.24	C	1050	9.2	
	20 + 20	40	2.90	2.90		E	. 80	1.4	~ 7.0	1450	310	~ 2550	4.00	A	725 860	<u>6.4</u> 7.6	
-	20 + 25	45	2.84	3.56		e	. 40	1.4	~ 7.0	1720	310	~ 2550	3.72	A	860	7.6	
-	20 + 28	48	2.67	3.73				1.4	~ 7.0	1720	310	~ 2550	3.72	A	860	7.6	
	20 + 32	52	2.62	4.18			80	1.4	~ 7.3	1840	310	~ 2520	3.70	A	920	8.2	
	20 + 40	60	2.27	4.53			. 80	1.4	~ 7.3	1800	310	~ 2510	3.78	A	900	7.9	
ŀ	20 + 50		1.94				80	1.4	~ 8.0	1520	310	~ 2200	4.47	A	760	6.7	
	25 + 25		3.40				80	1.4	~ 7.0	1930	310	~ 2550	3.52	В	965	8.5	
ŀ	25 + 28		3.21	3.59				1.4	~ 7.0	1930	310	~ 2550	3.52	B	965	8.5	
ŀ	25 + 32	57	2.98				. 80	1.4	~ 7.3	1840	310	\sim 2520	3.70	Ā	920	8.1	
2	$\frac{25}{25} + \frac{52}{40}$	65	2.62	4.18				1.4	\sim 7.3	1800	310	~ 2510	3.78	A	900	8.0	
B	25 + 40 25 + 50		2.27	4.53				1.4	~ 8.0	1520	310	~ 2200	4.47	A	760	6.7	
Room	20 + 00		3.40				. 80		~ 7.0	1930	310	~ 2550	3. 52	<u>B</u>	965	8.5	
-	28 + 28 28 + 32		3.17				. 80	1.4	~ 7.3	1840	310	~ 2520	3.70	<u>B</u>	920	8.1	
-	28 + 32						. 80		~ 7.3	1800	310	~ 2510	3.78	<u>^</u>	920 900	8.0	
-	28 + 40	68	2.80					1.4	$\sim \frac{1.3}{8.0}$	1520	310		4.47	<u>A</u>	760	6.7	
-	28 + 50	78	2.44							1750	310	$\sim \frac{2200}{2490}$	3.89	<u>^</u>	875	7.7	
-	32 + 32	64	3.40					1.4			310		3.89	<u>h</u>	875	7.8	
	32 + 32 32 + 40 32 + 50	72	3.02	3.78			· • • •		~ 7.5	1750				<u>A</u>	750		
L	32 + 50	82	2.65	4.15			. 80	1.4	~ 8.0	1500	310	~ 2180	4.53	A	855	6.6 7.5	
	40 + 40	80	3.40				. 80	1.4	~ 7.6	1710	310	~ 2470	3.98	<u> </u>	750	<u>(. 5</u> 6, 6	
	40 + 50	90	3.02	3.78			. 80	1.4	~ 8.0	1500	310	~ 2170	4.53	A			
	20 + 20 + 20	60	2.26	2.26	2.26		. 78	1.5	~ 8.1	1510	320	~ 2120	4.49	<u>A</u>	755	6.7	
	20 + 20 + 25	65	2.09	2.09	2.62			1.5	~ 8.1	1510	320	\sim 2120	4.50	<u>A</u>	755 755	6.7	
ſ	20 + 20 + 28	68	2.00	2.00	2.80			1.5	~ 8.1	1510	320	\sim 2120	4.50	A	755	6.7	
	20 + 20 + 32	72	1.89	1.89	3.02		. 80	1.4	~ 8.3	1470	320	\sim 2110	4.63	A	735	6.5	
ſ	20 + 20 + 40	80	1.70	1.70	3.40		. 80	1.6	~ 8.3	1440	320	\sim 2110	4.72	<u> </u>	720	6.4	
[[20 + 20 + 50	90	1.51	1.51	3.78		. 80	1.6	~ 8.3	1400	320	\sim 2110	4.86	<u>A</u>	700	6.5	
F	20 + 25 + 25	70	1.94	2.43	2.43			1.5	~ 8.1	1510	320	\sim 2120	4.50	A	755	6.7	
1	20 + 25 + 28	73	1.86	2.33	2.61			1.5	~ 8.1	1510	320	~ 2120	4.50	A	755	6.7	
	20 + 25 + 32	77	1.76	2.21	2.83	6	. 80	1.4	~ 8.3	1470	320	~ 2110	4.63	A	735	6.5	
	20 + 25 + 40	85	1.60	2.00	3.20	6	. 80	1.6	~ 8.3	1400	320	~ 2110	4.86	A	700	6.5	
	20 + 28 + 28	76	1.78	2.51	2.51		. 80]	1.5	~ 8.1	1510	320	~ 2120	4.50	A	755	6.7	
0 F	20 + 28 + 32	80	1.70	2.38	2.72	6	. 80]	1.4	~ 8.3	1470	320	~ 2110	4.63	A	735	6.5	
	20 + 28 + 40	88	1.55	2.16	3.09	6	. 80	1.6	~ 8.3	1400	320	\sim 2110	4.86	A	700	6.5	
	20 + 32 + 32	84	1.62	2,59	2.59			1.6	~ 8.3	1410	320	~ 2100	4.82	A	705	6.3	
	25 + 25 + 25	75	2.26	2.26	2.26		78	1.5	~ 8.1	1510	320	~ 2120	4.49	A	755	6.7	
	25 + 25 + 28	78	2.18	2.18	2.44		. 80	1.5	~ 8.1	1510	320	~ 2120	4.50	A	755	6.7	
	25 + 25 + 26 25 + 25 + 32		2.07	2.07	2.66		. 80 1	1.4	~ 8.3	1470	320	~ 2110	4.63	A	735	6.5	
ł	25 + 25 + 32 25 + 25 + 40		1.89		3. 02		. 80 1	1.6	~ 8.3	1400	320	~ 2110	4.86	A	700	6.5	
ł	20 · 20 · 40		2.10		2.35			1.5	~ 8.1	1510	320	~ 2120	4.50	A	755	6.7	
	25 + 28 + 28		2.00		2.56		. 80	1.4	~ 8.3	1470	320	~ 2110	4.63	A	735	6.5	
ŀ	25 + 28 + 32		1. 92	2.44	2. 50					1410	320		4.82	<u>A</u>	705	6.3	
	25 + 32 + 32	89						1.5	~ 8.3 ~ 8.1	1510	320	$\sim \frac{2100}{2120}$	4.49	<u>A</u>	755	6.7	
	28 + 28 + 28	84	2.26		2.26		80		$\sim \frac{8.1}{8.3}$	1470	320	~ 2110	4.63	<u>A</u>	755 735	6.5	
	28 + 28 + 32	88	2.16	2.16	2.48	16	. 60	1.4	0.3	1470	340	- 2110	4.00	n	100	0.0	

• Outdoor Unit : CU-4E23LBE

. :	Indoor unit capacity Cooling	Total	Room A	Coolin	ng Capacity(kW C Room D Total	W) 1 mi:	n ~ max		t Power (W min \sim) max	EI W/W	ER CLASS	ANNUAL	ENERGY ION (kWh)	Current, 230V (A)	MOISTURE REMOVAL VOLUME 1/h
	20	20	2.00	KOOM B KOOM C	2.00	0 1.8	~ 2.9	500	$_{340} \sim$	810	4.00	A		50	2.5	1.3
	25 28	25 28	2.50	·	2.50	$ \begin{array}{c c} 0 & 1.8 \\ \hline 1.8 \\ \hline 1.8 \end{array} $	~ 2.9		$\frac{340}{340}$ \sim	810 810	4.00	<u>A</u>	31	15 50	$\frac{3.2}{3.5}$	1.5 1.6
1 Room	32	32	3.20		3.20	0 [1.8	~ 3.8	800	$_{340}$ ~	1360	4.00	A	40	00	3.9	1.8
I .	40 50	$-\frac{40}{50}$	4.00	f	4.00		~ 4.3 ~ 5.7			1990 2130	3.23	A	62 71		5.8 7.2	2.3
	60	60	6.00		6.00	1.9		2030	$_{340}$ \sim	2330	2.96	<u>A</u> C	10	15	9.2	3. 3
· ·	20 + 20 20 + 25	40-45	2.00	2.00 2.50	4.00	$\frac{1.9}{1.9}$		1010 1270	$\frac{340}{340} \sim \sim$	2150 2150	3.96	<u>A</u>	<u>50</u>	35	4.5 5.7	1.3 + 1.3 1.3 + 1.5
	20 + 28	48	2.00	2.80	4.80	0 [1.9	~ 6.4	1350	$_{340}$ \sim	2150	3.55	Ā	67	75	6.1	1.3 + 1.6
	20 + 32 20 + 40	52 60	2.00	3.20	5.20			1510 1810	$\frac{340}{330} \sim$	$\begin{array}{c} 2410\\ \overline{2410}\end{array}$	3. 44	<u>A</u>	75	55)5	6.8 8.1	1.3 + 1.8 1.3 + 2.3
	20 + 50	70	1.94	4.86	6.80) [2.0	~ 7.5	1800	$_{320} \sim$	2440	3.78	Â	90	00	8.1	1.3 + 2.6
	20 + 60 25 + 25	80 50	$\frac{1.70}{2.50}$	5.10 2.50	6.80		~ 7.5 ~ 6.8	1800 1380	$\begin{array}{ccc} 320 & \sim \\ 340 & \sim \end{array}$	2440 2400	3.78 3.61	A	90		8.1 6.2	1.1 + 2.8 1.5 + 1.5
	25 + 28	53	2.50 2.50	2.80	5.30) [1.9	~ 6.8	1470	$_{340} \sim$	2400	3.61	Ā	73	35	6.6 7.4	1.5 + 1.6
.	25 + 32 25 + 40	- 57	2.50 2.50	3.20 4.00	5.70 6.50		~ 6.9 ~ 6.9	1660 2070		2410 2410	3.43 3.13	A	83		7.4 9.2	1.5 + 1.8 1.5 + 2.3
	25 + 50	65 75	2.27	4.53	6.80	1.9	~ 7.5	1970	$_{320} \sim$	2440	3.45	Ă	98	35	8.8	1.5 + 2.5
	25 + 60 28 + 28	85 56	2.00	4.80	6.80 5.60			1970 1550		2440 2400	3.45	<u>A</u>	98	35 75	8.8 6.9	1.3 + 2.6 1.6 + 1.6
Room -	28 + 32	60	2.80 2.80	3. 20	6.00) [1.9	~ 6.9	1750	$_{340} \sim$	2410	3.43	A	87	75	7.8	1.6 + 1.8
	28 + 40 28 + 50	$\frac{68}{78}$	2.80	4.00 4.36	6.80 6.80			2170 1970	$\frac{330}{320} \sim$	2410 2440	3.13	B A	10 98		9.7 8.8	1.6 + 2.3 1.5 + 2.4
	28 + 60	88	2.44 2.16	4.64	6.80	0 [1.9	~ 7.5	1970	$_{320}$ \sim	2440	3.45	Ä	- 98	35	8.8	1.4 + 2.5
	32 + 32 32 + 40	$\frac{64}{72}$	3.20 3.02	3.20 3.78	6.40			1960 2070	$\frac{330}{330}$ \sim	2420 2420	3.27 3.29	<u>A</u>	98	30 35	8.8 9.3	$\frac{1.8}{1.7} + \frac{1.8}{2.2}$
	32 + 50	82	2.65	4.15	6.80	$\bar{2}$	~ 7.6	1890	$_{320} \sim$	2450	3.60	A	94	15	8.5	1.6 + 2.4
	32 + 60 40 + 40	<u>92</u> 80	2.37 3.40	4.43	6.80		\sim 7.6 \sim 7.1	1890 2270	$\begin{array}{ccc} 320 & \sim \\ 330 & \sim \end{array}$	2450 2420	3.60	<u>A</u> C	94 11		8.5 10.2	1.5 + 2.5 1.9 + 1.9
	40 + 50	90	3.02	3. 78	6.80	0 [2.0	~ 7.6	1890	$_{320} \sim$	2450	3.60	A	94	15	8.5 8.5	1.7 + 2.2
	40 + 60 50 + 50	$-\frac{100}{100}$	2.72 3.40	4.08	6.80		~ 8.1	1890 1780	$\frac{320}{310}$ \sim	2450 2460	3.60	<u>A</u>	94			1.6 + 2.3 1.9 + 1.9
-	50 + 60	110	3.09	3.71	6.80	2.1	~ 8.1	1780	$_{310}$ ~	2460	3.82	A	89	90	8.0	1.7 + 2.2
	20 + 20 + 20 20 + 20 + 25	$\frac{60}{65}$	2.00	2.00 2.00 2.50	6. 00 6. 50	īīīā	~ 8 0 1		$340 \sim 340 \sim$	2460 2460	3.63	<u>A</u>	82 91	5	7.4 8.2	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	20 + 20 + 28	68	2.00	2.00 2.80	6.80] [1.9	~ 0.0 [1910	$_{340} \sim$	2460	3.56	A	95	5	8.6	1.3 + 1.3 + 1.6
	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	72 80	1.89 1.70	1.89 3.02 1.70 3.40	6. 80 6. 80			1860	$_{340} \sim$	2460 2460	3.56 3.66	A	95 93	80	8.6 8.3	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	20 + 20 + 50	90	1.51	1.51 3.78	6.80	2.0	~ 8.5	1730	$_{340} \sim$	2460	3.93 3.93	A	86	55	7.8	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$
	20 + 20 + 60 20 + 25 + 25	100 70	1.36 1.94	1.36 4.08 2.43 2.43	6. 80 6. 80	$\frac{2.0}{1.9}$			$340 \sim$	2460	3.93	A	95	5	7.8 8.6	0.9 + 0.9 + 2.3 1.3 + 1.5 + 1.5
	20 + 25 + 28	73	1.86	2.33 2.61	6.80		~ 8.0		$340 \sim$	2460 2460	3.56	A	95 95		8.6 8.6	1.2 + 1.5 + 1.6
	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	77 85	1.76 1.60	2.21 2.83 2.00 3.20	6.80		~ 8.0 ~ 8.1 ~ 8.5 ~ 8.5 ~ 8.5 ~ 8.0			2460	3.56 3.66	<u>A</u>	93		8.3 7.8	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	20 + 25 + 50	95 105	1.43	1.79 3.58	6.80		~ 8.5	1730	$_{340} \sim$	2460 2460	3.93 3.93	A	86		7.8 7.8	0.9 + 1.2 + 2.1
	20 + 25 + 60 20 + 28 + 28	76	1.29 1.78	1.62 3.89 2.51 2.51	6.80	1.9	~ 8.0	1910	$_{340}$ \sim	2460	3.56	A	86 95	5	8.6	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	20 + 28 + 32 20 + 28 + 40	80 88	1.70 1.55	2.38 2.72 2.16 3.09	6, 80 6, 80		~ 8.0			2460 2460	3.56 3.66	<u>A</u>	95 93		8.6	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	20 + 28 + 50	98	1.39	1.94 3.47	6, 80	2.0	~ 8.5	1730	$_{340}$ \sim	2460	3.93	<u>A</u>	86	5	8.3 7.8	1.0 + 1.4 + 1.7 0.9 + 1.3 + 2.0
	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	108 84	1.26	1.76 3.78 2.59 2.59	6. 80 6. 80	2.0	~ 8.5 ~ 8.5 ~ 8.1 ~ 8.2			2460	3.93 3.66	<u>A</u>			7.8 8.3	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	20 + 32 + 40	92	1.62 1.47	2.37 2.96	6.80	1.9	~ 8.2	1860	$_{340}$ \sim	2460	3.66	<u>A</u> A	93	0	8.3	0.9 + 1.5 + 1.7
	20 + 32 + 50 20 + 40 + 40	102	1.33 1.36	2.13 3.34 2.72 2.72	6.80 6.80	2.0				2460	3.93 3.74	<u>A</u>	86 91		7.8 8.2	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
3	20 + 40 + 50	110	1.24	2.47 3.09	6.80	2.0	~ 8.5	1730	$340 \sim$	2460	3.93	Ă	86	5	7.8	0.8 + 1.5 + 1.7
D	25 + 25 + 25 25 + 25 + 28	75 78	2.26 2.18	2.26 2.26 2.18 2.44	6.78 6.80	1.9	~ 8.0 ~ 8.0			2460	3.55	<u>A</u> A	95 95		8.6 8.6	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$
	25 + 25 + 32	82	2.07	2.07 2.66	6.80	1.9	~ 8.0	1910	$340 \sim$	2460	3.56	A	95	5	8.6	1.3 + 1.3 + 1.6
-	$\frac{25}{25} + \frac{25}{25} + \frac{40}{50}$	90 100	1.89 1.70	1.89 3.02 1.70 3.40	6. 80 6. 80	$\frac{1.9}{2.0}$	$-\frac{\sim}{\sim} \frac{8.1}{8.5}$			2460	3.66	<u>A</u>	93 86		8.3 7.8	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	25 + 25 + 60	110	1.55	1.55 3.70	6.80	2.0	~ 8.5	1730	$340 \sim$	2460	3.93	Ă	86	5	7.8	1.0 + 1.0 + 2.2
-	25 + 28 + 28 25 + 28 + 32	<u>- 81</u> - 85	2.10	2.35 2.35 2.24 2.56	6. 80 6. 80	1 0				2460	3.56	<u>A</u> A	95 95		8.6 8.6	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$
	25 + 28 + 40	93	1.83	2.05 2.92	6.80	1.9	~ 8.1	1860	$_{340} \sim$	2460	3.66	A	93		8.3	1.2 + 1.3 + 1.7
	25 + 28 + 50 25 + 32 + 32	103 89	1.65 1.92	1.85 3.30 2.44 2.44	6.80 6.80	2.0		1860	$_{340} \sim$	2460 2460	3.93 3.66	<u>A</u>	86 93	ō	7.8 8.3	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$
	25 + 32 + 40	97 107	1.75	2.24 2.81 2.03 3.18	6.80	1.9 1.9 2.0	~ 8.2	1860	$_{340} \sim$	2460	3.66 3.93	A	93 86	0	8.3 7.8	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$
	25 + 40 + 40	105	1.59 1.62	2.59 2.59	6.80 6.80	1.9	~ 8.2	1820	$340 \sim 100$	460	3.74	A	91	ō	8.2	1.0 + 1.6 + 1.6
	28 + 28 + 28 28 + 28 + 32	<u>84</u> 88	2.26 2.16	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	6.78 6.80	1.9 1.9				$2460 \\ 2460$	3.55 3.56	<u>A</u>	95 95		8.6 8.6	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$
	28 + 28 + 40	96	1.98	1.98 2.84	6.80	1.9	~ 8.1	1860	$_{340} \sim$	2460	3.66	Ā	93	0	8.3	1.3 + 1.3 + 1.7
4	28 + 28 + 50 28 + 32 + 32	106 92	1.80 2.06	1.80 3.20 2.37 2.37	6. 80 6. 80					2460	3.93 3.66	<u>A</u>	86 93		7.8 8.3	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$
	28 + 32 + 40	100	1.90	2.18 2.72	6 80	1 0	~ 82	1860	$340 \sim 1$	2460	3.66	A	93	0	8.3	1 2 + 1 4 + 1 6
-	$\frac{28}{28} + \frac{32}{40} + \frac{50}{40}$	110 108	1.73 1.76	1.98 3.09 2.52 2.52	6.80	1.9	$\sim \frac{8.5}{8.2}$		$\begin{array}{ccc} 340 & \sim \\ 340 & \sim \end{array}$	400	3.93 3.74	<u>A</u>	⁸⁶ 91	ğ	(. 8 8. 2	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	32 + 32 + 32	96	2.26	2.52 2.52 2.26 2.26	6.78	1.9	~ 8.2	1820	$_{340}$ \sim .	460	3.73 3.74	A	91	0	7.8 8.2 8.2 8.2 8.2	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	32 + 32 + 40	104 80	2.09	2.09 2.62 1.70 1.70	6.80 1.70 6.80	1.9	~ 8.2 ~ 8.7		$\frac{340}{340} \sim \frac{2}{2}$	100 [4.02	A	91 84		8.2 7.6	1.4 + 1.4 + 1.6 1.1 + 1.1 + 1.1 + 1.1
	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	85	1.60	1.60 1.60	2.00 6.80	1.9	~ 8.7	1690	$_{340} \sim 3$	2460	4.02	A	84	5	7.6	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
-	20 + 20 + 20 + 20 + 28 20 + 20 + 20 + 32	- <u>88</u> 92	1.55 1.48	1.55 1.55 1.48 1.48	2.15 6.80 2.36 6.80	1.9	~ 8.1 ~ 8.8	1650		2470	4.02 4.12	<u>A</u>	84 82	5	7.4	0.9 + 0.9 + 0.9 + 1.5
- 6	20 + 20 + 20 + 40	100	1.36	1.36 1.36	2.72 6.80	1.9	~ 8.8	1650	$_{40} \sim$	2470	4.12	A	82 84	5		
	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	90	1.51	1.24 1.24 1.51 1.89	1.89 6.80	1.9	~ 8.7	1690	$_{340} \sim 2$	2460	4.05 4.02	A	84	5	7.6	$\begin{array}{c} 0,9 \ + 0,9 \ - 1,0,9 \ + 1,6 \\ 0,8 \ + 0,8 \ + 0,8 \ + 1,7 \\ 1,0 \ + 1,0 \ + 1,2 \ + 1,2 \\ 0,9 \ + 0,9 \ + 1,2 \ + 1,3 \\ 0,9 \ + 0,9 \ + 1,2 \ + 1,3 \\ 0,9 \ + 0,9 \ + 1,1 \ + 1,5 \\ 0,8 \ + 0,8 \ + 1,0 \ + 1,6 \\ 0,9 \ + 0,9 \ + 1,3 \ + 1,3 \\ 0,9 \ + 0,9 \ + 1,2 \ + 1,4 \\ 0,9 \ + 0,9 \ + 1,2 \ + 1,4 \\ 0,9 \ + 0,9 \ + 1,2 \ + 1,4 \\ 0,9 \ + 0,9 \ + 1,2 \ + 1,5 \\ \end{array}$
3	20 + 20 + 20 + 80 20 + 20 + 25 + 25 20 + 20 + 25 + 28 20 + 20 + 25 + 32 20 + 20 + 25 + 32 20 + 20 + 25 + 40 20 + 20 + 25 + 40 20 + 20 + 28 + 32 20 + 20 + 28 + 32	-93 97	$\frac{1.46}{1.40}$	1.46 1.83 1.40 1.75 1.30 1.61	2.05 6.80 2.25 6.80 2.59 6.80	1.9	~ 8.7	1690	$340 \sim 2$	460	4.02 4.12	<u>A</u>	84 82		7.6	0.9 + 0.9 + 1.2 + 1.3 0.9 + 0.9 + 1.1 + 1.5
13	20 + 20 + 25 + 40	105	1. 40	1. 30 1. 61	2. 59 6. 80	1.9	~ 8.8	1650	$40 \sim 2$	2470	4.12	A	82	5	7.4	0.8 + 0.8 + 1.0 + 1.6
3	20 + 20 + 28 + 28 20 + 20 + 28 + 32	96 100	1.42	1.42 1.98 1.36 1.90	1.98 6.80	1.9	~ 8.7 ~ 8.8	1690	40 ~ 3	460	4.02 4.12	<u>A</u>	84 82	5	7.4 7.6 7.4	0.9 + 0.9 + 1.3 + 1.3 0.9 + 0.9 + 1.2 + 1.4
6	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	108	1.26	1.26 1.76	2.52 6.80	1.9	~ 8.8	1650	$40 \sim 2$	470	4.12	A	82	5		
4	20 + 20 + 32 + 32 20 + 25 + 25 + 25	104 95	1.31	1.31 2.09 1.79 1.79	2.09 6.80 1.79 6.80	1.9	$\sim \frac{8.8}{2}$		$_{40} \sim 2$	430	4.12 4.02	A	82 84		7.4	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
Room -	20 + 25 + 25 + 25 + 28	90	1.39	1.73 11.73	1.95 6.80	1.9	~ 8.7	1690		460	4.02	A	84	5	7.6	0.9 + 1.1 + 1.1 + 1.3
3	20 + 25 + 25 + 32 20 + 25 + 25 + 40	102	1.33	1.67 1.67 1.55 1.55	2.13 6.80 2.47 6.80	1.9	~ 8.8	1650 1680	$egin{array}{cccc} 40 & \sim & 2\ 40 & \times & $	470 470	4.12 4.05	A	82 84		7.4	0.8 + 1.1 + 1.1 + 1.4
	20 + 25 + 25 + 40 20 + 25 + 28 + 28	$110 \\ 101$	1.23 1.34	1.68 1.89	1.89 6.80	1.9	~ 8.7	1690	$40 \sim 2$ $40 \sim 2$	460	4.02	A	84	5	7.6	$\begin{array}{c} 0.8 \\ 0.8 \\ 0.8 \\ + 1.1 \\ 0.8 \\ + 1.1 \\ 0.8 \\ + 1.0 \\ 0.8 \\ + 1.0 \\ 0.8 \\ + 1.0 \\ 0.8 \\ + 1.0 \\ 0.8 \\ + 1.2 \\ 0.8 \\ + 1.2 \\ 0.8 \\ + 1.2 \\ 0.8 \\ + 1.2 \\ 0.8 \\ + 1.1 \\ 0.8 \\ + 1.1 \\ 0.8 \\ + 1.1 \\ 0.8 \\ 0.8 \\ + 1.1 \\ 0.8 \\ 0$
	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	105	1.30	1.62 1.81	2.07 6.80	1.9	~ 8.8	1650	$40 \sim 2$	470	4.12 4.12	A	82 82	5	7.4	0.8 + 1.0 + 1.2 + 1.3
	20 + 25 + 32 + 32 20 + 28 + 28 + 28	104	1.24 1.31	1.56 2.00 1.83 1.83	2.00 6.80 1.83 6.80	1.9	\sim 8.8 \sim 8.7	1690	$\begin{array}{ccc} 40 & \sim & 2 \\ 40 & \sim & 2 \end{array}$	460	4.02	A A	84	5	7.4 7.6	0.6 + 1.0 + 1.3 + 1.3 0.8 + 1.2 + 1.2 + 1.2
		108	1.26	1.76 1.76	2.02 6.80	1.9	~ 8.8	1680 3	$40 \sim 2$	470	4.05	A	84	0	7.5	0.8 + 1.1 + 1.1 + 1.3
	25 + 25 + 25 + 25 + 25 25 + 25 + 25 + 28	100 103	1.70 1.65	1.70 1.70 1.65 1.65	1.70 6.80 1.85 6.80	-1.9	$- \approx -\frac{8.7}{8.7}$		$\begin{array}{ccc} 40 & \sim & 2 \\ 40 & \sim & 2 \end{array}$	460	4.02 4.02	<u>A</u>	84 84	5	7.6 7.6	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
			1 50	1.59 1.59	2.03 6.80	119	~ 8.8	1650	$40 \sim 2$	470	4.12	A	82	5	7.4	1 0 + 1 0 + 1 0 + 1 3
1.1.1.1	25 + 25 + 25 + 32	107	1.59	1.05 1.05					40	120	4 00				7	
	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	106	1.60	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	1.80 6.80 1.98 6.80	1.9	~ 8.7	1690] 3	$40 \sim 2$	460	4.02 4.05	A	84 84	5		$\begin{array}{c} 1.0 & + 1.0 & + 1.2 & + 1.2 \\ 1.0 & + 1.0 & + 1.1 & + 1.3 \\ 1.0 & + 1.1 & + 1.1 & + 1.1 \\ 1.0 & + 1.1 & + 1.1 & + 1.1 \end{array}$

	Indoor unit capacity Heating	Total	Room /	A Room B	Heating C Room C Room			$n \sim max$	In Rating	put mi	Power (W) in \sim max	W/W	COP CLASS	ANNUAL ENERGY CONSUMPTION (kWh)	Current, 230V (A)	MOISTURE REMOVAL VOLUME 1/h
	20	20 25 28	3.20			3.20) 1.2		740	-30 -30	$0 \sim 1230$			370	3.7	
1	28	28	4.00		<u> </u>	3.60	1.2	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1050	30	$0 \sim 1230$	3.81	A A	470 525 615	4. 7 5. 2	
	32	32 40	4.50			4.50	$\frac{1}{1}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1230 1720	30	$\begin{array}{cccc} 0 & \sim & 2100 \\ 0 & \sim & 2930 \end{array}$	3.66	<u>A</u>	615 860	6.0 8.0	
	50	50	6.80	ţ	¦	6.80	1.2	$2 \sim 6.9$	2100	30	$0 \sim 2520$	3.24	С	1050	9.7	
	60 20 + 20	60 40	8.50	2.90		8.50		$\frac{3}{7} \sim \frac{9.0}{9.8}$	2400 1450	62 61		3.54	B	1200 725	11.1 6.7	
	20 + 25	40	2.71	3.39	<u> </u>	6.10	$\frac{2}{2}$	$7 \sim 9.8$	1640	61	$0 \sim 2800$	4.00	Ā	820	7.6	
	20 + 28 20 + 32	-48	2.67	3.73		6.40		$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1720 1840	- 61 59		3.72	<u>A</u>	860 920	8.0 8.5	
	20 + 32 20 + 40	-60	2.69	4.31 5.47	+	8. 20		$7 \sim 9.9$ $7 \sim 9.9$	2210	- 59		3.71	A	1105	10.2	
	20 + 50	70	$ \begin{array}{c} 2.73 \\ 2.46 \\ 2.15 \end{array} $	6.14		8.60		$8 \sim 10.2$	2140	53	$0 \sim 2760$	4.02	A	1070	9.9	
	$\frac{20}{25} + \frac{60}{25}$	80	3.20	6.45	{ }	8.60		$\frac{8}{7} \sim \frac{10.2}{9.8}$	2290 1700	53 61		3.76	A	$\frac{1145}{850}$	10.6 7.8	
	25 + 28	53	3.30	3.70	f	7.00		$7 \sim 9.8$	1860	61	$0 \sim 2800$	3.77	Ă	930	8.6	
	25 + 32		3.55		ļ	8.10		$7 \sim 9.9$	2170	59		3.73	A	1085	10.0	
	$\frac{25}{25} + \frac{40}{50}$	65 75	$ \begin{array}{r} 3.31 \\ 2.87 \end{array} $	5.29	+	8.60		$7 \sim 9.9$ $8 \sim 10.2$	$\frac{2320}{2140}$	59	${}^{0}_{0} \sim {}^{2800}_{2760}$	3.71	A	1160 1070	10.7 9.9	
	25 + 60	85	2.53	6.07	1	8.60	2.8		2140	53	$0 \sim 2760$	4.02	Ă	1070	9.9	
n	$\frac{28 + 28}{28 + 32}$	56	2.53 4.00 3.97	4.00		8.00		$\begin{array}{ccc} 8 & \sim & 10.2 \\ 7 & \sim & 9.8 \end{array}$	2120 2280	61			A	1060	9.8	
	28 + 32 28 + 40	- <u>60</u> - <u>68</u>	3.54	4.53	+			$7 \sim 9.9 \\ 7 \sim 9.9$	2320	- 59 59		3.73	A	1140 1160	10.5	
	28 + 50	78	3.09	5.51		8.60		$8 \sim 10.2$	2140	53		4.02	A	1070	9.9	
	$\frac{28}{32} + \frac{60}{32}$	88 64	$\frac{2.74}{4.30}$	5.86	+	8.60			$\frac{2140}{2270}$	- 53 58		4.02	<u>A</u>	1070 1135	9.9 10.5	
	32 + 40	72	3.82	4.78	†	8.60	2.8	~ 10.0	2270	- 57	$0 \sim 2800$	3.79		1135	10.5	
	32 + 50	82	3.36 2.99	5.24		8.60		$s \sim 10.3$	2090	52	$0 \sim 2740$	4.11	A	1045	9.7	
	$\frac{32}{40} + \frac{60}{40}$	92 80	2.99	5.61	+	8.60			2090 2260	52 56		4.11	A	1045 1130	9.7 10.5	+
	40 + 50	90	3.82	4.78	k	8.60	2.8	$8 \sim 10.3$	2080	51	$0 \sim 2740$	4.13	Ä	1040	9.6	
	40 + 60 50 + 50	100	3.44	5.16		8.60			2080	51 48		4.13	A	1040 980	9.6 9.1	
	50 + 60	110	4.30	4. 30	<u> </u>	8.60	2.8	$3 \sim 10.5$	1960	48	$0 \sim 2650$	4.39	A	980	9.1	
	20 + 20 + 20	60	2.86	2.86	2.86	8.58	3. 3	$3 \sim 10.4$	2090	60	$0 \sim 2840$	4.11	A	1045	9.7	
	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	65 68	2.65	2.65	3.30 3.54	8.60		$3 \sim 10.4$ $3 \sim 10.4$	2090 2090	60 60	$0 \sim 2840$	4.11	A	1045	9.7 9.7	
	20 + 20 + 32	72	2.39	2.39	3.82	8.60	3.3	$3 \sim 10.4$	2070	59	$0 \sim 2820$	4.15	A	1035	9.6	
	20 + 20 + 40	80	2.15	2.15	4.30	8.60	3. 3	$3 \sim 10.5$	2060	59	$0 \sim 2810$	4.17	A	1030	9.5	
	20 + 20 + 50 20 + 20 + 60	90 100	$\frac{1.91}{1.72}$	1.91	4.78	8.60		$\begin{array}{ccc} 2 & \sim & 10.6 \\ 2 & \sim & 10.6 \end{array}$	$-\frac{1930}{1930}$	57 57	${}^{0}_{0} \sim {}^{2710}_{2710}$	4.46	A A	965 965	8.9 8.9	
	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	70	2.46	3.07	3.07	8.60	3. 3	$3 \sim 10.4$	2090	600	$0 \sim 2840$	4.11	Ä	1045	9.7	
	20 + 25 + 28	73 77	2.35	2.95	3.30	8.60		$3 \sim 10.4$	2090	600		4.11	A	1045	9.7	
	20 + 25 + 32 20 + 25 + 40	- 11	2.23	2.79	3.58	8.60	$\frac{3.3}{3.3}$	$\frac{3}{3} \sim \frac{10.4}{10.5}$	2070	590 590		4.15	<u>A</u>	1035	9.6	
	20 + 25 + 50	95	1.81	2.26	4.53	8.60	3.2	$2 \sim 10.6$	1930	570	$0 \sim 2710$	4.46	A	965	.8.9	
	20 + 25 + 60	105	1.64	2.05	4.91	8.60		$2 \sim 10.6$	1930 2090	570 600		4.46	<u>A</u>	965 1045	<u>8.9</u> 9.7	
	20 + 28 + 28 20 + 28 + 32	76	2.26	3.17	3.17	8.60	3.3	$3 \sim 10.4$ $3 \sim 10.4$	2090	- 590	$0 \sim 2840$ $0 \sim 2820$	4.11	<u>A</u>	1045	9.6	
	20 + 28 + 40	88	1.95	2.74	3.91	8.60	3.3	$3 \sim 10.5$	2060	590	$0 \sim 2810$	4.17	A	1030	9.5	
	20 + 28 + 50 20 + 28 + 60	98 108	1.75	2.46	4.39 4.78	8.60		$2 \sim 10.6$	1930 1930	570		4.46	<u>A</u>	965 965	8.9 8.9	
	20 + 32 + 32	84	1.59	3, 28	3. 28	8.60		$3 \sim 10.5$	2050	- 590		4.20	A	1025	9.5	
	20 + 32 + 40	92	1.87	2.99	3.74	8.60		$3 \sim 10.5$	2040	580		4.22	A	1020	9.4	
	20 + 32 + 50 20 + 40 + 40	102 100	$\frac{1.68}{1.72}$	2.70	4.22	8.60	3. 2		$-\frac{1910}{2030}$	- 570 580		4.50 4.24	<u>A</u>	955 1015	8.8 9.4	
	20 + 40 + 50	110	1.56	3.13	3.91	8.60	3.2	$2 \sim 10.6$	1910	570	$0 \sim 2680$	4.50	Ă	955	8.8	
	25 + 25 + 25	75	2.86	2.86	2.86	8.58		$_{10.4}$	2090	600	$20 \sim 2840$	4.11	A	1045	9.7	
	25 + 25 + 28 25 + 25 + 32	78 82	2.76	2.76	3.08	8.60	3.3	$\frac{3}{3} \sim \frac{10.4}{10.4}$	2090 2070	600 590	$20 \sim 2840$ $20 \sim 2820$	4.11 4.15	<u>A</u>	1045	9.7 9.6	
	25 + 25 + 40	90	2.39	2.39	3.82	8,60	3.3	$3 \sim 10.5$	2060	590	$2 \sim 2810$	4.17	A	1030	9.5	
	25 + 25 + 50 25 + 25 + 60	$\frac{100}{110}$	$\frac{2.15}{1.95}$	2.15	4.30 4.70	8.60	3.2	$2 \sim 10.6$ $2 \sim 10.6$	$-\frac{1930}{1930}$	570		4.46	<u>A</u>	965 965	8.9 8.9	
	25 + 25 + 60 25 + 28 + 28	81	2.66	2.97	2.97	8.60			2090	600		4.11	A	1045	9.7	
	25 + 28 + 32	85	2.53	2.83	3.24	8.60			2070	590	~ 2820	4.15	A	1035	9.6	
	25 + 28 + 40 25 + 28 + 50	93 103	2.31 2.09	2.59	3.70 4.17			$\frac{3}{2} \sim \frac{10.5}{10.6}$	2060	590		4.17	<u>A</u>	1030 965	9.5 8.9	
	25 + 32 + 32	89	2.42	3.09	3. 09	8.60		~ 10.5	2050	590	$) \sim 2800$	4.20	Ă	1025	9.5	
	$ \begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	97 107	2.21	2.84	3.55	8.60			2040 1910	580 570		4.22	A	1020 955	9.4 8.8	
	25 + 32 + 50 25 + 40 + 40	107	-2.01 2.04	2.57	4.02			~ 10.6 ~ 10.5	2030	-580		4. 50	<u>A</u>	1015	9.4	
	28 + 28 + 28	84	2.86	2.86	2.86	8.58	3.3	10.4	2090	600	~ 2840	4.11	A	1045	9.7	
	28 + 28 + 32 28 + 28 + 40	- 88 - 96	2.74	2.74	3.12 3.58	8.60		~ 10.4 ~ 10.5	2070	- 590		4.15	<u>A</u>	1035	9.6 9.5	
	28 + 28 + 50	106	2.27	2.27	4.06	8.60	3.2	\sim 10.6	1930	570	$) \sim 2710$	4.46	A	965	8.9	
	28 + 32 + 32	92		2.99	2.99	8.60			2050	590		4.20	A	1025	9.5	
	$ \begin{array}{r} 28 + 32 + 40 \\ 28 + 32 + 50 \end{array} $	100 110	2.41 2.19	2.75	3.44 3.91		3. 3	~ 10.5 ~ 10.6	$\frac{2040}{1910}$	570	$\sim \frac{2790}{2680}$	4.22	<u>A</u>	1020 955	9.4 8.8	
	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	108	2.22	2.50 3.19 2.86	3.19	8.60	3.3	~ 10.6 ~ 10.5 ~ 10.5 ~ 10.5 ~ 10.5	2030	580	$) \sim 2780$	4.24	A	1015	8.8 9.4	
	32 + 32 + 32 32 + 32 + 40	96 104	2.86	2.86	2.86 3.30		3.3	~ 10.5 ~ 10.5	1990 1980	580	~ 2770 ~ 2760	4.31	<u>A</u>	995 990	9.2 9.2	
	20 + 20 + 20 + 20	80	2.15	2.15	2.15 2.1	5 8.60	3.1	~ 10.6	1870	580	~ 2620	4.60	A	935	8.6	
	20 + 20 + 20 + 25	85	2.02	2.02	2.02 2.5	64 8.60	3 1	~ 10.6	1870	580	~ 2620	4.60	A	935	8.6 8.6	
	20 + 20 + 20 + 20 + 28 20 + 20 + 20 + 32	<u>88</u> 92	1.95 1.87	1.95 1.87	1.95 2.7 1.87 2.9	5 8.60 9 8.60	$-\frac{3.1}{3.0}$	~ 10.6 ~ 10.6	1870	580	~ 2620 ~ 2600	4.60		935 925	8.6 8.6	
	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	100	1.72	1.72	1.72 3.4	4 8.60	3.0	$ \begin{array}{c} \sim 10.6 \\ \sim 10.6 \end{array} $	1840	590	~ 2590	4.67	A	920	8.5	
	20 + 20 + 20 + 50	110	1.56	1.56	1.56 3.9	8,60	3.0	~ 10.6	1850	580	~ 2600	4.65	A	925	8.6 8.6 8.6 8.6 8.5	
	20 + 20 + 25 + 25 20 + 20 + 25 + 28	90 93	1.91 1.85	1.91	2.39 2.3 2.31 2.5		$\frac{3.1}{3.1}$	~ 10.6	-10/0	580	~ 2620 ~ 2620	4.60 4.60	A	935 935	8.6	
	20 + 20 + 25 + 32	97	1.77	1.77	2.22 2.8	84 8.60	3.0	\sim 10.6	1850	580	~ 2600	4.65	Ä	925	8.6	
	20 + 20 + 25 + 40	105	1.64	1.64	2.04 3.2	8 8.60	3.0	~ 10.6	1840 1870	590 580		4.67	A	920	8.5	
	20 + 20 + 28 + 28 20 + 20 + 28 + 32	96 100	1.79 1.72	1.79	2.51 2.5 2.41 2.7	5 8.60	3.0	~ 10.6 ~ 10.6	1870	-580		4.60	A	935 925	8.6 8.6	
	20 + 20 + 28 + 40	108	1.59	1.59	2.23 3.1	9 8.60	3.0	~ 10.6 ~ 10.6 ~ 10.6 ~ 10.6 ~ 10.6 ~ 10.6 ~ 10.6 ~ 10.6	1840	590	~ 2590	4.67	A	920	8.6 8.5 8.5	
	20 + 20 + 32 + 32 20 + 25 + 25 + 25	104	1.65	1.65	2.65 2.6	5 8.60	3.0	~ 10.6 $\sim 10^{6}$	1830 1870	590 580		4.70	<u>A</u>	915 935	8.5	
	20 + 25 + 25 + 25 20 + 25 + 25 + 28	- 95 98	1.82	2.26	2.26 2.2 2.19 2.4	6 8.60			1870	-580 580	~ 2620	4.60	A	935 935	8.6 8.6	
	20 + 25 + 25 + 32	102	1.68	2.11	2.11 2.7	0 8.60	120	a 10 6	1850	580	~ 2600	4.65	Ā	925	8.6	
	20 + 25 + 25 + 40	110	1.56	1.95	1.95 3.1	4 8.60	3.0	~ 10.6 ~ 10.6 ~ 10.6 ~ 10.6 ~ 10.6 ~ 10.6 ~ 10.6	1850	590 580		4.65	A	925	8.6	
	20 + 25 + 28 + 28 20 + 25 + 28 + 32	101 105	$\frac{1.70}{1.64}$	$\frac{2.14}{2.05}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	8 8.60	3.0	~ 10.6 ~ 10.6	1870 1850	-580 580		4.60	<u>A</u>	935 925	<u>8.6</u> 8.6	
	20 + 25 + 32 + 32	109	1.58	1.98	2.52 2.5	2 8.60	3.0	~ 10.6	1830	590	~ 2570	4.70	Ā	915	8.6 8.5	
	20 + 28 + 28 + 28	104	1.64	2.32	2.32 2.3	2 8.60	3.1	~ 10.6	1870	580	~ 2620	4.60	A	935	8.6	
	20 + 28 + 28 + 32 25 + 25 + 25 + 25	108 100	0 15	2.23	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			10.0	1850 1870	580 580		4.65	A	925 935	8.6 8.6	
	25 + 25 + 25 + 28	103	2.09	2.09	2.09 2.3	3 8.60	3.1	~ 10.6	1870	580	\sim 2620	4.60	Ā	935	8.6	
	25 + 25 + 25 + 32	107	2.01	2.01	2.01 2.5	7 8.60	3.0	~ 10.6	1850	580	~ 2600	4.65	A	925	8.6	
	25 + 25 + 28 + 28 25 + 25 + 28 + 32	110	2.03	1 95	2.19 2.2	1 8 60	3.1	~ 10.6	1850						0.0 8.6	
	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	106 110 109	2.03 1.95 1.97	2.03 1.95 2.21	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	7 8.60 1 8.60 1 8.60	3.1 3.0 3.1		1870 1850 1870	580 580 580	\sim 2620 \sim 2600	$ \begin{array}{r} 4.60 \\ \overline{4.65} \\ \overline{4.60} \end{array} $	A A A	935 925 935		8.6 8.6 8.6

• Outdoor Unit : CU-4E27CBPG

	Indoor unit capacity Cooling	Total	Room A Room B	Cooling Capac Room C Room D		$\frac{\min \sim m}{1.9 \sim 2}$	x Rating	ut Power (W) min ~ max 380 ~ 620		ER CLASS	ANNUAL ENERGY CONSUMPTION (kW) 220	Current, 230V (A)	MOISTURE REMOVAL VOLUME
1	20 25 28	20 25 28	2.00 2.50 2.80		2.50	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\frac{380}{380} \sim \frac{900}{900}$	4.52	- <u>A</u> - <u>A</u> - <u>A</u>	275	2.10 2.60 2.95 3.40	1.5 1.5 1.6
om 3	32 40	32	3.20 4.00		3.20 4.00	2.0 ~ 3.	$\begin{array}{c c} 4 & 620 \\ 9 & 720 \\ 4 & 1030 \end{array}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	4.52 4.44 3.88 3.11	- <u>A</u>	360 515	3.40 4.60 7.15	1.8 2.3
	50 20 + 20	50 40	5.00		5.00	2.1 ~ 5.	2 1610 0 890	$\frac{400}{400} \sim \frac{1800}{200}$	4.49	B	805 445	7.15 3.95	2.7 1.3 + 1.3
13	20 + 25 20 + 28	45	2.00 2.00 2.00 2.50 2.00 2.80		4.50	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{ccc} 400 & \sim & 1880 \\ 400 & \sim & 1880 \end{array}$	4.07	A	555 590	3. 95 4. 90 5. 20	1.3 + 1.5 1.3 + 1.6
	20 + 32 20 + 40	52 60 70	2.00 3.20 2.00 4.00 2.00 5.00		5.20 6.00 7.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	0 1320	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	3.94 3.41 2.80	- A	660 880 1250	5.80 7.75 11.00	1.3 + 1.8 1.3 + 2.3
	20 + 40 25 + 50 25 + 25 25 + 28 25 + 32 55 - 40	- <u>50</u> - <u>53</u>	2.00 5.00 2.50 2.50 2.50 2.80		5.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \frac{460}{400} \sim 2800 \\ \frac{400}{400} \sim 2780 $	3.61	- <u>A</u>	690 735	6.10	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	25 + 32 25 + 40	57	2.50 3.20	+	5.70		$ \begin{bmatrix} 1 & 1620 \\ 1 & 2180 \end{bmatrix} $	$\frac{400}{400} \sim \frac{2790}{2790}$	3.53	<u>A</u>	810 1090	6, 10 6, 50 7, 15 9, 60	1.5 + 1.8 1.5 + 2.3
2	$ \begin{array}{r} 25 + 40 \\ 25 + 50 \\ 28 + 28 \end{array} $	75	2.35 4.75 2.80 2.80		7.10	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2 2610 9 1550	$\begin{array}{cccc} 460 & \sim & 2800 \\ 400 & \sim & 2780 \end{array}$	2.72	- D A	1305 775	11.50 6.85 7.55	1.5 + 2.6 1.6 + 1.6
	28 + 32 28 + 40	60 68	2.80 3.20 2.80 4.00		6.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	0 1700 1 2280	$\frac{400}{400} \sim 2790$ $\frac{2}{2}$		A C	850 1140	7.55	1.6 + 1.8 1.6 + 2.3
a la	28 + 50 32 + 32	78 64 72	3.20 3.20		7.10 6.40	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2 2610 3 1860	$\frac{460}{400} \sim \frac{2800}{2810}$	3.44	D A	1305	10,00 11,50 8,15 10,60 12,30 11,50 11,70 12,50 6,65	1.6 + 2.5 1.8 + 1.8 1.7 + 2.3
	32 + 40 32 + 50	82	3.10 3.90 2.90 4.50 3.60 3.60		7.00	$2.5 \sim 7.$ 2.6 $\sim 7.$	3 2410 4 2820		2.90		1205 1410	10.60	1.7 + 2.3 1.7 + 2.5
1414	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	80 90	3.25 4.05		7.20	$2.5 \sim 7.$ 2.7 $\sim 7.$	3 2620 4 2670	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	2.75	D D D	1310 1335	11.50	2.1 + 2.1 1.8 + 2.3 2.2 + 2.2
1	20 + 20 + 20	100 60	2.00 2.00	2.00	7.50 6.00 6.50	$2.8 \sim 7.$ $2.2 \sim 7.$	5 2860 8 1510 1 1760	$\frac{480}{410} \sim \frac{2870}{2490}$ $\frac{410}{460} \sim \frac{2490}{2850}$	2.62 	- <u>A</u>	1430 755 880	6.65	
al al al a	20 + 20 + 25 20 + 20 + 28 20 + 20 + 32 20 + 20 + 32 20 + 20 + 40 20 + 20 + 60 20 + 25 + 45 20 + 25 + 28 20 + 25 + 32 20 + 25 + 32	65 68 72	2.00 2.00 2.00 2.00 2.05 2.05	2.50 2.80 3.20	6.80 7.30	$2.5 \sim 8.$ 2.5 $\sim 8.$	1 1840 2 1980	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	3.70-		920 990	6.65 7.75 8.10 10.30 10.80	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
- leafe	20 + 20 + 40 20 + 20 + 50	72 80 90	1.95 1.95	3 90 1	7.80	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2 2330 3 2460	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3.35 3.25	- <u>A</u>	1165 1230	10.30	1.3 + 1.3 + 2.3
and a second	20 + 25 + 25 20 + 25 + 28	70	1.80 1.80 2.10 2.65 2.00 2.55	2.65	7.40	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1 2140 1 2140	$\frac{460}{460} \sim \frac{2790}{2790}$	3. 46 - 3. 46 -		1070 1070	9.40 9.40	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
(and and	20 + 25 + 32 20 + 25 + 40	77	1.95 2.45	3.20	7.60	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2 2240	$\frac{460}{490} \sim \frac{2840}{2800}$		A B	1120 1255	9.40 9.40 9.85 11.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	20 + 25 + 32 20 + 25 + 40 20 + 25 + 50 20 + 26 + 50 20 + 28 + 28 20 + 28 + 32 20 + 28 + 40 20 + 28 + 40 20 + 32 + 50 20 + 32 + 40 20 + 32 + 50 20 + 32 + 50 20 + 32 + 50	85 95 76	1.70 2.10	4.20 2.75 3.05 3.65	8.00 7.40	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3 2460 1 2140	$\begin{array}{cccc} 490 & \sim & 2800 \\ 460 & \sim & 2790 \end{array}$	3.25	- <u>^</u>	1230 1070	10.80 9.40 9.85	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
a leaf	20 + 28 + 32 20 + 28 + 40	- 80	1.90 2.65	3.05 3.65	7.60	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2 2240 2 2510	$\begin{array}{cccc} 460 & \sim & 2840 \\ 490 & \sim & 2800 \end{array}$	3.39	B	1120 1255	9.85	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
a leal	20 + 28 + 50 20 + 32 + 32	98 84	1.60 2.30 1.90 3.00	3.00	8,00 7,90	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3 2460 3 2290		3.25	l:Â:I	1230 1145 1190	$\begin{array}{c} 3.33\\ 11.00\\ 10.80\\ 10.10\\ 10.10\\ 10.40\\ 10.90\\ 10.90\\ 10.40\\ 10.90\\ 10.40\\ 10.90\\ 10.40\\ 10.$	1.0 + 1.5 + 2.3 1.2 + 1.7 + 1.7
a la	20 + 32 + 40 20 + 32 + 50	92 102	1.70 2.80 1.55 2.50	3.50	8.00	$2.8 \sim 8.$ $2.8 \sim 8.$	1 2380 3 2470	$ \frac{490}{490} \sim 2840 $ $ \frac{2840}{2840} $	3.36	- <u>^</u>	1235	10.40	1.0 + 1.5 + 2.3 1.0 + 1.8 + 1.8
	20 1 10 1 10	100	1.60 3.20 1.45 2.90 1.30 3.35	3. 50 3. 20 3. 35 2. 60 3. 10 3. 60	8.00 8.00 8.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	4 2380 3 2470 4 2430	$\begin{array}{cccc} 490 & \sim & 2810 \\ 490 & \sim & 2810 \\ 490 & \sim & 2830 \end{array}$	3. 36 3. 24 3. 29	- <u>^</u>	1235		$\begin{array}{cccccccccccccccccccccccccccccccccccc$
- Indian	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	120 75 78	2.60 2.60	2.60	8.00 7.80 7.80	$2.9 \sim 8.$ $2.6 \sim 8.$ $2.6 \sim 8.$	1 2430 1 2450 1 2450	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3. 18	B - B	1225 1225 1225	10.80	1.6 + 1.6 + 1.6 1.5 + 1.5 + 1.6
- Indian	23 + 30 + 50 25 + 55 + 50 25 + 25 + 25 25 + 25 + 28 25 + 25 + 32 25 + 25 + 32 25 + 25 + 32 25 + 25 + 40 25 + 25 + 50 25 + 28 + 28 25 - 25 + 29	$-\frac{78}{82}$ $-\frac{78}{90}$	2.60 2.60 2.50 2.50 2.45 2.45 2.20 2.20	3. 10	7.80 8.00 8.00	$2.6 \sim 8.$ $2.7 \sim 8.$ $2.8 \sim 8.$	2 2450 2510 250	490 ~ 2810	3. 18 3. 19 3. 19	B - B	1255	10. 70 10. 80 11. 00 11. 00 10. 80 11. 00 10. 80 11. 00 10. 80 11. 00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
2 Index	25 + 25 + 40 25 + 25 + 50 25 + 28 + 28	90 100 81	2.40 2.70		8.00 8.00 7.80	$2.8 \sim 8.$ $2.8 \sim 8.$ $2.6 \sim 8.$	3 2460	$\frac{490}{460} \sim \frac{2790}{2820}$	3. 19 3. 25 3. 18 3. 19	- <u>Å</u>	1230	10.80	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
om	25 + 28 + 40	- 85 93	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	3.00	8.00 8.00	$2.7 \sim 8.$ $2.8 \sim 8.$	2 2510	$\begin{array}{cccc} 490 & \sim & 2810 \\ 490 & \sim & 2790 \end{array}$	3.19	B - B	1255	11.00 11.00	1.5 + 1.6 + 1.7 1.4 + 1.5 + 2.0
13	25 + 28 + 40 25 + 28 + 50 25 + 32 + 32	103	1.95 2.15 2.20 2.90	3.45 3.90 2.90	8.00	$2.8 \sim 8.$ $2.7 \sim 8.$	3 2460 4 2380	$\frac{490}{490} \sim \frac{2790}{2850}$	3.25		1230 1190	11.00 10.80 10.40	1.3 + 1.4 + 2.3
a last	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	89 97 107	1.85 2.40	2.90 3.30 3.75	8.00 8.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1 2380 1 2340	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3. 36 - 3. 42 -	À	1190 1170	$ \begin{array}{c} 10.40\\ 10.40\\ 10.30\\ 10.40\\ 10.30\\ 10.30\\ \end{array} $	$ \begin{array}{c} 1.3 + 1.4 + 2.3 \\ 1.4 + 1.7 + 1.7 \\ 1.3 + 1.6 + 1.9 \\ 1.2 + 1.5 + 2.2 \\ 1.2 + 1.7 + 1.7 \\ 1.2 + 1.6 + 2.0 \\ \end{array} $
- Index	25 + 40 + 50	105	1 90 3 05		8.00 8.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1 2380 1 2340	$\frac{490}{490} \sim \frac{2800}{2800}$	3. 36 -		1190 1170	10.40	1.1 + 1.6 + 2.0
- Indian		125	1.60 3.20 2.60 2.60	3.50 -3.20 -2.60 -2.90 -3.30 -3.80 -2.80	8.00 7.80	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	5 2340 2450	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3. 42 3. 18	- <u>A</u> - B	1170 1225		1.0 + 1.8 + 1.8 1.6 + 1.6 + 1.6
1 miles	$22_{8} + 50_{1} + 50_{2}$ $22_{8} + 28_{1} + 28_{2}$ $22_{8} + 28_{2} + 32_{2}$ $22_{8} + 28_{1} + 40_{2}$ $22_{8} + 28_{2} + 40_{2}$ $22_{8} + 32_{2} + 32_{2}$ $22_{8} + 32_{2} + 50_{2}$ $22_{8} + 32_{2} + 50_{2}$ $22_{8} + 40_{2} + 50_{2}$ $23_{8} + 40_{2} + 50_{2}$ $23_{8} + 40_{2} + 50_{2}$		$ \begin{bmatrix} 2 & 60 \\ 2 & 55 \\ 2 & 35 \\ 2 & 35 \\ 2 & 10 \\ 2 & 60 \\ 2 & 10 \\ 2 & 10 \\ 2 & 10 \\ 2 & 2 & 10 \\ 2 & 2 & 5 \\ 2 & 55 \\ $	2.90	8.00 8.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2 2510 2 2510	$\begin{array}{cccc} 490 & \sim & 2810 \\ 490 & \sim & 2790 \end{array}$	3. 19 3. 19	B	1255 1255	$\begin{array}{c} 10.80\\ 11.00\\ 11.00\\ 10.80\\ 10.40\\ 10.40\\ 10.30\\ 10.40\\ 10.30\\ 10.40\\ 10$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
lealer.	28 + 28 + 50 28 + 32 + 32	106 92	2.10 2.10 2.40 2.80		8.00 8.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3 2460 4 2380	$\begin{array}{cccc} 490 & \sim & 2790 \\ 490 & \sim & 2850 \end{array}$	3. 25	- <u>A</u>	1230 1190	10.80	$\begin{array}{c} 1 & 5 & + 1 & 5 & + 1 & 9 \\ 1 & 4 & + 1 & 4 & + 2 & 2 \\ 1 & 5 & + 1 & 6 & + 1 & 6 \\ 1 & 5 & + 1 & 6 & + 1 & 8 \\ 1 & 3 & + 1 & 5 & + 2 & 1 \\ 1 & 4 & + 1 & 7 & + 1 & 7 \end{array}$
1 and 1 and	$\frac{28}{28} + \frac{32}{32} + \frac{40}{50}$ $\frac{28}{28} + \frac{32}{32} + \frac{50}{50}$	100 110	2.00 2.35	3. 20 3. 65	8.00 8.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1 2380 1 2340	$\begin{array}{ccc} 490 & \sim & 2820 \\ 490 & \sim & 2830 \end{array}$	3.36	A	1190 1170	10.40	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	108 118	2.10 2.95 1.90 2.70 1.70 3.15	2.95 3.40 3.15	8.00 8.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1 2380 1 2340	$\begin{array}{cccc} 490 & \sim & 2800 \\ 490 & \sim & 2800 \end{array}$	3.36	⊨ Â : I	1190 1170	10.40	1.2 + 1.6 + 1.9
13	$ \begin{array}{r} 28 + 50 + 50 \\ 32 + 32 + 32 \end{array} $	128 96	1.70 3.15 2.66 2.66	3.15 2.66	8.00 7.98	$2.9 \sim 8.$ $2.8 \sim 8.$	5 2340 5 2300	$520 \sim 2800$ $490 \sim 2830$	3.42	- <u>^</u>	1170 1150 1195	10.10	
	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	104 114	2.66 2.66 2.45 2.45 2.25 2.25	2.66 3.10 3.50	8.00	$2.8 \sim 8.$ $2.8 \sim 8.$	1 2390 1 2390	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	3.35	⊧_â	1195	$\begin{array}{c} 10 & 30 \\ 10 & 30 \\ 10 & 30 \\ 10 & 10 \\ 10 & 10 \\ 10 & 50 \\$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
13	32 + 40 + 50	112	2.10 2.60	2.85	8.00	$2.8 \sim 8.$ $2.9 \sim 8.$ $2.9 \sim 8.$	1 2390 1 2350	$\frac{490}{490} \sim \frac{2820}{2820}$ $520 \sim 2810$	3.40	L Â L	1175	10.30	$\begin{array}{c} 1.4 + 1.6 + 1.9 \\ 1.2 + 1.7 + 1.7 \end{array}$
- 3	40 + 40 + 40	132 120 130	2.66 2.66	3.05 2.66 3.10	8.00 7.98 8.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	5 2350 1 2390 1 2390		3. 34	<u>A</u> +	1195 1195	10.50	1.6 + 1.6 + 1.6 1.5 + 1.5 + 1.7
	40 + 40 + 50 20 + 20 + 20 + 20 30 + 20 + 20 + 25	80	2.40 2.40 2.00 2.00 1.90 1.90	2.00 2.00	8.00	$2.7 \sim 8.$ 2.8 $\sim 8.$	3 2150 3 2140	$\frac{490}{490} \sim \frac{2840}{2880}$	3.72	<u>A</u>	1075	9.50 9.40 9.40 9.40 9.40	1, 3 + 1, 3 + 1, 3 + 1, 3
-leals	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	- 88 92	1.80 1.80 1.75 1.75	1.90 2.30 1.80 2.60 1.75 2.75	8.00 8.00	$2.8 \sim 8.$ 2.8 ~ 8.	3 2140	$\frac{490}{490} \sim \frac{2880}{2880}$	3.74 3.76 3.79	- <u>A</u>	1070	9.40	1.1 + 1.1 + 1.1 + 1.6
a leaf	20 + 20 + 20 + 40 20 + 20 + 20 + 50	100	1.60 1.60	1.60 3.20	8.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c c} 2110 \\ 2110 \\ 2110 \end{array}$	$\begin{array}{cccc} 490 & \sim & 2870 \\ 490 & \sim & 2840 \end{array}$	3.79	A	1055 1055		$\begin{array}{cccccccccccccccccccccccccccccccccccc$
12412		90 93 97	1.80 1.80 1.70 1.70	2.20 2.20 2.15 2.45 2.05 2.65	8.00 8.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3 2130 3 2130	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3.76 3.76	- <u>A</u>	1065 1065	9.40 9.40 9.30 9.30 9.20 9.30	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$
Indian	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	105	1,50 1,50	1.90 3.10	8.00 8.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2120 2090	$\begin{array}{cccc} 490 & \sim & 2870 \\ 490 & \sim & 2840 \end{array}$	3.77		1060 1045	9.30	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
loal and	20 + 20 + 25 + 50 20 + 20 + 28 + 28	115 96	1.40 1.40 1.65 1.65	2.35 2.35	8.00 8.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2110 2130	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3.79		1055	9.30	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
1	20 + 20 + 28 + 32 20 + 20 + 28 + 40	100 108	1.60 1.60 1.50 1.50	2.25 2.55 2.05 2.95	8.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccc} 490 & \sim & 2870 \\ 490 & \sim & 2840 \\ 520 & \sim & 2880 \end{array}$	3. 79	⊧- <u>^</u>	1060 1045 1055	9.20	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
lasta.	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	118	1.35 1.35 1.55 1.55 1.45 1.45	1.90 3.40 2.45 2.45 2.25 2.85	8,00 8,00 8,00	$2.9 \sim 8.$ $2.8 \sim 8.$	2090	$500 \sim 2830$ $500 \sim 2870$ $500 \sim 2840$	3.83	- <u>^</u>	1045	9.20	1.0 + 1.0 + 1.5 + 1.5 0.9 + 0.9 + 1.5 + 1.7
		112			8.00	$2.9 \sim 9.$	2040	$520 \sim 2860$ $520 \sim 2850$	3. 92	- <u>A</u>	1020	8.95	0.8 + 0.8 + 1.4 + 1.9 0.9 + 0.9 + 1.6 + 1.6
-leale	20 + 20 + 40 + 40 20 + 20 + 40 + 50 20 + 25 + 25 + 25	130	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	2.40 3.10 2.10 2.10	8.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2020	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3. 96 3. 77	- A	1010 1060	8.85 9.30	$\begin{array}{c} 0.8 + 0.8 + 1.5 + 1.7 \\ 1.1 + 1.4 + 1.4 + 1.4 \\ 1.0 + 1.3 + 1.3 + 1.5 \end{array}$
al and a	20 + 25 + 25 + 25 20 + 25 + 25 + 28 20 + 25 + 25 + 32	98 102	1.60 2.05	2.05 2.30	8.00 8.00 8.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3 2120	$\frac{490}{490} \sim \frac{2850}{2850}$	2 77	- <u>A</u>	1060	9.30	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
a last	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	110 120	1.45 1.80	1.80 2.95	8.00		9 2130 9 2110	$\begin{array}{cccccccccccccccccccccccccccccccccccc$		À	1065		0.9 + 1.1 + 1.1 + 1.9
a last	20 + 25 + 28 + 28 20 + 25 + 28 + 32	101	1.60 2.00	2.20 2.20	8.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3 2120 9 2100	$\frac{490}{490} \sim \frac{2850}{2850}$	3.77	- <u>^</u>	1060	9.30	
and and	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	113 123			8.00 8.00 8.00	$ \begin{array}{ccccccccccccccccccccccccccccccccccc$	2100 2130 2110		3. 76 3. 79 3. 76	- <u>^</u>	1065 1055 1065	9.40 9.30 9.40	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
Testan I	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	109	1.45 1.85 1.35 1.70	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	8,00	$2.8 \sim 8.$ $2.9 \sim 9.$	2130	$500 \sim 2850$ $520 \sim 2860$ $520 \sim 2840$	- 3.86 -	- <u>A</u> - <u>A</u> - <u>A</u>	1065	9.15	$\begin{array}{c} 0.5 \\ 0.8 \\ 1.1 \\ 1.2 \\$
1	20 + 25 + 32 + 50 20 + 25 + 40 + 40	127	1.25 1.55	$ \begin{bmatrix} 2 & 00 & 3 & 20 \\ 2 & 55 & 2 & 55 \\ 2 & 35 & 2 & 95 \\ 2 & 15 & 2 & 15 \\ \end{bmatrix} $	8.00	$2.9 \sim 9.$ $2.9 \sim 9.$ $2.9 \sim 9.$	2040	$520 \sim 2840$ $520 \sim 2870$ $520 \sim 2880$	3. 94 3. 92 3. 96 3. 77	A	1013	8.95	0.8 + 1.0 + 1.6 + 1.6 0.7 + 1.0 + 1.5 + 1.7
la de la	$\begin{array}{r} 20 + 25 + 40 + 50 \\ 20 + 28 + 28 + 28 \\ \end{array}$	135	1.20 1.50 1.55 2.15	2.35 2.95	8.00 8.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3 2120	$520 \sim 2880$ $490 \sim 2850$ $490 \sim 2850$		- <u>A</u> - <u>A</u>	1060	9.30	$\begin{array}{c} 0.6 \\ 0.8 \\ 0.8 \\ 1.10 $
	20 + 28 + 28 + 32 20 + 28 + 28 + 40	108	1.50 2.05 1.35 1.95	2.05 2.40 1.95 2.75 1.80 3.15	8.00 8.00 8.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	9 2100 2130 2130 2110 210	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	- <u>3. 76</u> - <u>3. 76</u> - <u>3. 79</u>	- <u>^</u>	1055	9.40	0.9 + 1.3 + 1.3 + 1.6 0.8 + 1.2 + 1.2 + 1.8
- Indian	20 + 28 + 28 + 50 20 + 28 + 32 + 32	126	1.25 1.80 1.40 2.00	2.30 2.30	8.00 8.00 8.00	$2.9 \sim 8.$ $2.8 \sim 8.$ $2.9 \sim 9.$	2130		3. 76	- <u>^</u>	1065	9.30 9.40 9.15 8.95 8.95	$\begin{array}{c} 0.8 + 1.2 + 1.2 + 1.2 + 1.8 \\ 0.9 + 1.3 + 1.5 + 1.6 \\ 0.8 + 1.2 + 1.4 + 1.6 \\ 0.8 + 1.1 + 1.3 + 1.7 \\ 0.8 + 1.1 + 1.5 + 1.5 \\ 0.9 + 1.4 + 1.4 + 1.4 \\ 0.8 + 1.1 + 1.5 + 1.5 \\ 0.9 + 1.4 + 1.4 + 1.4 \\ 0.8 + 1.1 + 1.5 \\ 0.9 + 1.4 + 1.4 + 1.4 \\ 0.8 + 1.4 + 1.4 \\ 0.8 +$
m	20 + 26 + 32 + 40 20 + 28 + 32 + 50 20 + 28 + 40 + 40	120 130 128	1.35 1.85 1.25 1.70	2.15 2.65 1.95 3.10 2.50 2.50	8.00 8.00 8.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$		$520 \sim 2840$ $520 \sim 2870$	3.94 -		1015 1020	8.95 8.95	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
- Inde	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	128	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	2.20 2.20	8.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2040	$500 \sim 2870$ $520 \sim 2840$	3.92		1020		$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	20 + 32 + 32 + 50 20 + 32 + 40 + 40	124 134 132	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	1.90 3.00 2.40 2.40	8,00 8,00 8,00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2 2000	$\frac{530}{520} \sim \frac{2870}{2860}$	3.96 4.00 3.83	Â	1000 1045	8.80	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
alast.	25 + 25 + 25 + 25 + 25 25 + 25 + 25 + 28	100	2.00 2.00	2.00 2.00 1.95 2.15 1.85 2.45	8.00 8.00 8.00 8.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3 2110	$\frac{490}{490} \sim \frac{2840}{2840}$	3.79	À	1055	9.30	1.3 + 1.3 + 1.3 + 1.3 1.3 + 1.3 + 1.3 + 1.4
a la	25 + 25 + 25 + 32 25 + 25 + 25 + 40	107	1.95 1.95 1.85 1.85 1.75 1.75	1.85 2.45 1.75 2.75	8.00 8.00 8.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2090 2120 2110	$\frac{490}{520} \sim \frac{2870}{2850}$		A	1045 1060 1055	9.20 9.30 9.30	1.2 + 1.2 + 1.2 + 1.3 1.1 + 1.1 + 1.1 + 1.6 1.0 + 1.0 + 1.0 + 1.8
1	25 + 25 + 25 + 50 25 + 25 + 28 + 28	125 106	1.60 1.60 1.90 1.90	1.60 3.20 2.10 2.10	8.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3 2110	$520 \sim 2850$ $490 \sim 2840$ $490 \sim 2840$	3.79	⊧:≵:I	1055	9.30 9.30	1.2 + 1.2 + 1.4 + 1.4 1.2 + 1.2 + 1.4 + 1.4
13	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	118	1.80 1.80 1.70 1.70	2.05 2.35	8.00	$2.8 \sim 8.$ $2.9 \sim 8.$ $2.0 \sim 8.$	2120	$ \begin{array}{rcl} 490 & \sim & 2870 \\ 520 & \sim & 2850 \\ 520 & \sim & 2850 \end{array} $	3. 83 3. 77 3. 79	- <u>A</u> <u>A</u>	1045	9,30	1.1 + 1.1 + 1.2 + 1.6 1.0 + 1.0 + 1.1 + 1.8
	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	128 114	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	1.75 3.15	8.00		2080	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3.85	- A - A A	1055 1040 1025	9.30 9.15 9.05	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
a la da da da	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	122	1.65 1.65 1.50 1.50	2.10 2.60	8.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	0 2050 0 2030 0 2040	$520 \sim 2880$ $520 \sim 2840$ $520 \sim 2860$	3. 85 3. 90 3. 94 3. 92 3. 79	- <u>A</u>	1015	8.95 8.95	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
"saladadadada	25 + 25 + 40 + 40 25 + 28 + 28 + 28	130	1.55 1.55 1.85 2.05	2.05 2.05	8.00	$3.0 \sim 9.$ $2.8 \sim 8.$ $2.8 \sim 8.$	2040 3 2110 3 2090	$520 \sim 2860$ $490 \sim 2840$ $490 \sim 2870$		- <u>A</u>	1055	9,30	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
a la da da da da da da da da	25 + 28 + 28 + 32	113	1.75 2.00	1.85 2.65	8.00	$\begin{array}{c} 2.8 \\ 2.8 \\ 2.9 \\ 2.9 \\ 2.9 \\ 2.9 \\ 2.8 \\ 2.9 \\ 2.8 \\ 2.9 \\$	9 2090 9 2120 9 2110	520 ~ 2850	3. 83	A	1045	9.20 9.30 9.30	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
a bala da	25 + 28 + 28 + 40	131	1.55 1.70 1.70 1.90	1.70 3.05 2.20 2.20 2.05 2.55	8.00	$\frac{2.9}{2.8} \sim \frac{8}{8}$	9 2110 9 2130 9 2070	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3.76	- <u>A</u>	1055	9.30 9.40 9.15 8.95 8.95 8.95 8.95 8.95 8.95 8.85	$\begin{array}{c} 1.1 + 1.2 + 1.2 + 1.6 \\ 1.0 + 1.1 + 1.1 + 1.1 + 1.7 \\ 1.1 + 1.2 + 1.4 + 1.4 \\ 1.0 + 1.2 + 1.3 + 1.6 \\ 1.0 + 1.2 + 1.3 + 1.6 \\ 1.0 + 1.1 + 1.2 + 1.7 \end{array}$
a had a dealer deale	$\begin{array}{r} 25 + 28 + 28 + 40 \\ 25 + 28 + 28 + 28 + 50 \\ 25 + 28 + 32 + 32 \end{array}$		1.60 1.80	2.05 2.55 1.90 2.95	8.00 8.00 8.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2030	520 ~ 2840	3. 86	- <u>A</u>	1035 1015 1020	8.95	$\begin{array}{c} 1.1 & +1.2 & +1.4 & +1.4 \\ 1.0 & +1.2 & +1.3 & +1.6 \\ 1.0 & +1.1 & +1.2 & +1.7 \\ 1.0 & +1.1 & +1.5 & +1.5 \\ 1.1 & +1.4 & +1.4 & +1.4 \end{array}$
والمعادمات والمعاد والمعاد والمعاد والمعاد والم	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	125 135	1. 50 1. 65		0 00	$2.9 \sim 9.$	2040	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3.92	F - 4			A. V. T. I. I. T. I. O. T. I. O.
والمعار مالمعالمه المعالمه المعالمه المعالمه المعالمة المعالمة	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	135 133 121	1.50 1.65 1.50 1.70 1.70 2.10	2.40 2.40 2.10 2.10	8.00	2.9 ~ 9.	2030	520 2000		+	1015		1.1 + 1.4 + 1.4 + 1.4 + 1.4
والمعارمات والمعار والمعار والمعار والمعار والمعار والمعار والمعار	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$135 \\ 133 \\ 121 \\ 129 \\ 112 $	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	8.00 8.00 8.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	8 2110	$\frac{520}{490} \sim \frac{2840}{2840}$	3.96	A A A A	1010	9.30	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
والمعادمات والمعادمات والمعادمات والمعادمات والمعادمات والمعاد والمعاد	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	135 $1\overline{3}\overline{3}$ $1\overline{2}\overline{1}$ $1\overline{2}\overline{9}$ $1\overline{1}\overline{2}$ $1\overline{1}\overline{2}$ $1\overline{1}\overline{6}$ $1\overline{2}\overline{4}$	1.50 1.65 1.50 1.70 1.70 2.10 1.50 2.00 2.00 2.00 1.95 1.95 1.80 1.80	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	8.00 8.00 8.00 8.00 8.00 8.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \frac{8}{9} = \frac{2110}{2090} $	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3. 96 3. 79 3. 83 3. 77	A A	1010 1055 1045 1060	9.30	$\begin{array}{c} 1.1 + 1.4 + 1.4 + 1.4 \\ 1.0 + 1.3 + 1.3 + 1.5 \\ 1.3 + 1.3 + 1.3 + 1.5 \\ 1.3 + 1.3 + 1.3 + 1.4 \\ 1.2 + 1.2 + 1.2 + 1.6 \\ 1.2 + 1.2 + 1.2 + 1.6 \\ 1.1 + 1.1 + 1.7 \end{array}$
بالمعالم عارم مارحما معالمها ومارحها معالمها معارمها معارمها معارمها معارمها معارمها ومارحه	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c} 135 \\ 1\overline{3}\overline{3} \\ 1\overline{2}\overline{1} \\ 1\overline{2}\overline{9} \\ 1\overline{1}\overline{2} \\ 1\overline{1}\overline{2} \\ 1\overline{1}\overline{6} \\ 1\overline{2}\overline{4} \\ 1\overline{3}\overline{4} \\ 1\overline{2}\overline{0} \end{array}$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	8.00 8.00 8.00 8.00 8.00 8.00 8.00 8.00	$\begin{array}{c} 2,9 \\ 2,9 \\ 2,8 \\ 2,8 \\ 2,8 \\ 2,8 \\ 2,8 \\ 2,8 \\ 2,8 \\ 2,9 \\$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3. 96 3. 79 3. 83 3. 77 3. 77 3. 79 3. 79 3. 79 3. 79 3. 85	A A A A A A A A	1010 1055 1045 1060 1055 1040	9.30 9.20 9.30 9.30 9.30 9.15	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$
بالمعالم فارد فارد فارد فارد فارد فارد فارد فارد		$\begin{array}{c} 135 \\ 1\overline{33} \\ 1\overline{21} \\ 1\overline{29} \\ 1\overline{12} \\ 1\overline{12} \\ 1\overline{12} \\ 1\overline{16} \\ 1\overline{24} \\ 1\overline{34} \end{array}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	8.00 8.00 8.00 8.00 8.00 8.00 8.00 8.00	$\begin{array}{c} 2 & 9 \\ 2 & 9 \\ 2 & 9 \\ 2 & 8 \\ 2 & 8 \\ 2 & 8 \\ 2 & 9 \\ 2 & 8 \\ 2 & 9 \\$	$\begin{array}{c} 8 \\ 9 \\ - \\ 2090 \\ - \\ 2120 \\ - \\ 2120 \\ - \\ 2080 \\ - \\ 2050 \\ - \\ 2040 \\ - \\ 2040 \\ - \\ - \\ 2040 \\ - \\ - \\ 2040 \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ $	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3. 96 3. 79 3. 83 3. 77 3. 77 3. 77 3. 77		1010 1055 1045 1060 1055	9.30	$\begin{array}{c c c c c c c c c c c c c c c c c c c $

2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	+ 25 + 28 + 32 + 40 + 50 + 25 + 28 + 28 + 28 + 32 + 32 + 32 + 40 + 50	20 20 225 228 239 240 50 50 50 57 56 56 56 56 56 56 56 57 55 56 56 56 56 57 55 56 56 56 57 57 55 56 56 57 57 55 56 57 57 55 56 57 57 55 56 56 57 57 55 56 56 57 57 55 56 56 56 57 57 55 56 56 56 57 57 55 56 56 56 57 57 55 56 56 56 57 57 57 55 56 56 56 57 57 57 57 57 57 57 57 57 57	$\begin{array}{c} Recome \ A Recome \ 1 \\ Recome \ A Recome \ A Recome \ 1 \\ Recome \ A Recome \ A Recome \ 1 \\ Recome \ A Re$	2, 877 3, 400 4, 600 5, 200 3, 200 5,	Room D Total B 3 3 S<		$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$		830 900 1290 1290 1560 1550 1510 15	$\begin{array}{c} 3 \\ 3 \\ 3 \\ 3 \\ 3 \\ 3 \\ 1 \\ 1 \\ 1 \\ 1 \\$		CONSUMPT 42 54 66 95 95 14 74 74 74 85 87 10 10 10 10 10 10 10 10 10 10	0 5 5 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	3. - 4. - 5. - 5. - 5. - 6. - 7. - 7. - 7. - 7. - 7. - 7. - 7. - 9. - 9. - 9. - 9. - 9. - 9. - 9. - 9	rent, V (A) 85 85 85 35 	
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3 00 00 20 20 20 20 20 20 20 20 20 20 20	-55 + 52 -55 + 62 -55 + 62 -55 + 62 -55 + 62 -55 + 62 -55 + 60 -55	90 70 77 85 95 76 80 88 98 84 92 102 100 110 120 120 75 78 82 90 102 100 81 85 93 88 84 80 88 84 92 102 100 110 120 80 80 80 80 80 80 80 80 80 80 80 80 80	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	5, 20 3, 20 3, 45 3, 80 4, 45 4, 95 3, 30 3, 70 4, 25 4, 80 3, 55	9.40 9.00 9.00 9.20 9.20 9.40	$\frac{3.2}{3.2} \sim \frac{10}{10}$		030 51 150 51	0~3	3220 3180	$\frac{4.38}{4.38}$ $\frac{4.38}{4.28}$	A	10	15 75	8.	50	
2 0 0 2 2 0 0 2 2 0 0 2 2 0 0 2 2 0 0 2 2 0 0 2 2 0 0 2 2 0 0 2 2 0 0 2 2 0 0 2 2 0 0 2 2 0 0 2 2 0 0 2 2 0 0 2 2 0 0 2 2 0 0 2 0 0 2 0 0 2 0 0 0 2 0 0 0 2 0	$\begin{array}{c} + 55 & + 23 \\ + 55 & + 30 \\ + 55 & + 40 \\ + 55 & + 40 \\ + 55 & + 40 \\ + 55 & + 32 \\ + 25 & + 30 \\ + 25 & + 30 \\ + 25 & + 30 \\ + 25 & + 30 \\ + 25 & + 30 \\ + 25 & + 30 \\ + 25 & + 30 \\ + 25 & + 30 \\ + 40 \\ + 40 \\ + 50 \\ + $	77 85 95 76 80 98 98 98 98 98 102 100 110 120 75 78 90 90 81 85 93 81 85 93 81 85 93 81 82 90 81 82 90 81 82 90 82 90 83 84 98 98 84 98 98 84 98 98 84 98 98 84 98 98 84 98 84 90 85 90 82 90 82 90 82 90 83 84 90 85 90 85 90 85 90 85 85 90 85 86 88 90 88 90 88 90 88 90 80 80 80 80 80 80 80 80 80 8	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3, 45 3, 80 4, 45 4, 95 3, 30 3, 70 4, 25 4, 80 3, 55	9.00 9.20 9.40	3.2 ~ 10	0.4 2	120 51 090 51	$0 \sim 3$	8180 8190	4.43	A	10	45	9.	30 20	
200523235555523235555523523555555555555	+50, 50 , 50 , 25 , 25 , 25 , 25 , 28	76 80 88 98 102 100 110 120 75 78 82 90 100 81 85 93 103 89	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	4. 45 4. 95 3. 30 3. 70 4. 25 4. 80 3. 55		3.2 ~ 10	0.4 20	090 51 110 51	0~3	8190 8180	$\frac{4.31}{4.31}$ $\frac{4.31}{4.36}$	A	10	55	9.	20 30	
200523235555523235555523523555555555555	+50, 50 , 50 , 25 , 25 , 25 , 25 , 28	76 80 88 98 102 100 110 120 75 78 82 90 100 81 85 93 103 89	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	3. 30 3. 70 4. 25 4. 80 3. 55		$\frac{3.2}{3.5} \sim 10$		160 51 080 56	0 ~ 3	8140 8150	4.35 -	A	10	40	- <u>9</u> . 9.	50 15 20	
200523235555523235555523523555555555555	+50, 50 , 50 , 25 , 25 , 25 , 25 , 28	88 98 92 102 100 110 120 75 78 82 90 90 100 81 85 93 103 89	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	4. 25 4. 80 3. 55	9.00 9.20	3.2 ~ 10	0.4 20	090 51 110 51	$\frac{0}{0} \approx \frac{3}{3}$	8190 8180	4 31	- <u>A</u>	10	55	1 9.	30	
200523235555523235555523523555555555555	+50, 50 , 50 , 25 , 25 , 25 , 25 , 28	84 92 102 100 110 120 75 78 82 90 100 81 85 93 103 89	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	3.55	9.40 9.40	3.2 ~ 10	0.4 2	160 51 080 56 130 50	0~3	8140 8150 8180	4.36 4.35 4.52 4.37	- <u>A</u>	10	40	- 9.	50 15	
200523235555523235555523523555555555555	+50, 50 , 50 , 25 , 25 , 25 , 25 , 28	102 100 110 75 78 82 90 100 81 85 93 103 89	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	4.10	9.30 9.40	3.2 ~ 10	0.5 2	150 50	$0 \sim 3$	3140	4.37	A	10	75	9.	40 50	
200523235555523235555523523555555555555	+50, 50 , 50 , 25 , 25 , 25 , 25 , 28	110 120 75 78 82 90 100 81 85 93 103 89	1.60 3.90 3.08 3.08 2.96 2.96	4.60	9.40	$-\frac{3.7}{3.6} - \frac{\sim}{\sim} \frac{10}{10}$	0.5 2	170 62 110 62	$\stackrel{0}{\sim}$ $\stackrel{\sim}{\sim}$ $\stackrel{3}{\sim}$	8140 8110	4.33	A	10	85 55	- 9.	55 30	
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0.000 255 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 26 26 27 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 <	$\begin{array}{c} & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & \\ & & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & &$	82 90 100 81 85 93 103 89	2.85 2.85	3.08	9.24	$\begin{vmatrix} 3, 2 \\ 3, 2 \end{vmatrix} \sim \begin{vmatrix} 0 \\ -10 \end{vmatrix}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	170 51 170 51	$\frac{0}{0}$ \sim $\frac{3}{3}$	8160 8160	4.26 -	A	10	85	9.	55	
0.000 255 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 252 25 25 26 26 27 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 <	$\begin{array}{c} & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & \\ & & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & &$	100 	2.60 2.60	3.70	9.40	3.2 ~ 10	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\frac{190}{140} - \frac{51}{53}$	$\stackrel{0}{\sim}$ $\stackrel{\sim}{\sim}$ $\stackrel{3}{\sim}$	8150 8130	4.29 4.39	A	10	95 70	- 9.	65 40	
0.000 255 25 252 25 25 26	$\begin{array}{c} & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & \\ & & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & &$	85 93 103 89	2.35 2.35 2.84 3.20	4.70	9.40 9.40 9.24	$\frac{3.8}{3.2} \sim 10$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	100 64 170 51	$\stackrel{0}{\sim}$ $\stackrel{\sim}{\sim}$ $\stackrel{3}{\sim}$	8120 8160	4.48 4.26	A	10	50 85	<u>9.</u> 9.	20 55	
255 55 25 55 55 25 55 55 25 55 55 55 55	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	103	2.75 3.10	3.55	<u>9.40</u> 9.40	$-\frac{3.2}{3.3}$ $-\frac{2}{\sim}$ $\frac{10}{10}$	0.4 2	190 51 140 53	${}^{0}_{0} \sim {}^{3}_{3}$	8150 8130	$\frac{4.29}{4.39}$	A	10	70	9. 9. 9.	65	
	+ 40 + 40	97	2.30 2.55 2.60 3.40	4.55	9.40 9.40	3.8 ~ 10	0.4 2	100 64 170 50	$\stackrel{0}{\sim}$ $\stackrel{\sim}{\sim}$ 3	8120 8150	$\frac{4.48}{4.33}$ - $\frac{4.48}{4.41}$ - $\frac{4.48}{4.$	- <u>A</u>	10	85	9.	55	
	+ 40 + 40	107	2.20 2.80	3.90	9.40 9.40	$-\frac{3.5}{3.9} - \frac{\sim}{\sim} \frac{10}{10}$	0.5 2	$130 \\ 150 \\ 66$	$0 \sim 3$	8150 8120 8120	4.37	A	10	75	9.	40 50	
	+ 50 + 50	105	2.20 3.60 2.05 3.25	3.60	9.40	$-\frac{3.8}{4.0} - \frac{\sim}{\sim} \frac{10}{10}$	0.5 2	060 64 100 68	0 ~ 3	8080 8080	$\frac{4.56}{4.48}$	- <u>A</u> 	10	50	- <u>9</u> . 9.	05 20 40	
	+ 28 + 28	125	1.90 3.75	4.10 3.75 3.08	9.40 9.24	3.2 ~ 10	0.4 2	140 70 170 51	$0 \sim 3$	8080 8160	$\frac{4.48}{4.39}$ $\frac{4.26}{4.26}$	- <u>A</u>	10	85	9.	55	
288 288 288 288 288 288 288 288 288 288	+ 28 + 32 + 28 + 40	- 88 - 96	3.00 3.00 2.75 2.75	3.40 3.90	9.40	$-\frac{3}{3}, \frac{2}{3}, \frac{2}{3}, \frac{2}{3}, \frac{2}{3}, \frac{2}{3}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\frac{190}{140} - \frac{51}{53}$	0 ~ 3	8150 8130	4.29 4.39	- <u>A</u> -	10	70	9.	65 40	
	$+ \frac{28}{28} + \frac{40}{40}$ + $\frac{28}{28} + \frac{50}{50}$ + $\frac{32}{22} + \frac{32}{32}$	106 92	2.50 2.50 2.90 3.25	4.40	9.40 9.40 9.40	13.8 ~ 10	0.4 2	$\frac{100}{170} - \frac{64}{50}$	0 ~ 3	8120 8150	4.48 4.33	- <u>A</u> - A	10	85	- <u>9</u> . - <u>9</u> .	20 55	
	+ 32 + 40 + 32 + 50	100	2.65 3.00 2.40 2.75 2.40 3.50	3.75	9.40	3.9 ~ 10	0.5 2	130 56 150 66	0 ~ 3	8120 8120		- <u>A</u> A	10	75	9.	55 40 50 05	
	+ 40 + 40 + 40 + 50	108	2.40 3.50 2.20 3.20 2.10 3.65	3.50	9.40 9.40	4.0 ~ 10	0.5 2	060 64 100 68	0~3	3080 3080	4.56	- <u>^</u> -	10	50	9.	. 20	
	+ 32 + 32	128	2.10 3.65 3.13 3.13	3.65	9.40 9.39	$\frac{4.2}{3.3} \sim \frac{10}{10}$	0.5 2	140 70 160 52	0~3	3080 3180	4.35	- <u>^</u>	10	80	9.	40 50	
32 32 32 32 40 20 20 20 20 20 20 20 20 20 2	+ 32 + 40 + 32 + 50	$104 \\ 114$	2.90 2.90	3.60 4.10	9.40	$\frac{3.7}{4.0} \sim \frac{10}{10}$	0.5 2	140 62 130 68	0 ~ 3	8150 8120	$\frac{4.39}{4.41}$	A A	10	65	9.	40 40	
320 400 200 200 200 200 200 200 200 200 2	+ 40 + 40 + 40 + 50	112	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	3.35	9.40	$\frac{3.9}{4.1} \sim \frac{10}{10}$	0.5 2	120 66 100 70	0 ~ 3	3120 3100	$\frac{4.43}{4.48}$	- <u>A</u>	10	50	9.	40 30 20	
	+ 50 + 50 + 40 + 40	132 120	2.30 3.55 3.13 3.13 2.90 2.90	3.55	9.40 9.39	4.0 ~ 10	0.5 2	060 70 100 68	0~3	3080 3080	4.56	À	10	50	9.	05 20 15	
	+ 40 + 50 + 20 + 20 + 20 + 20 + 20 + 25	130 80	2.35 2.35	2.35	9.40 2.35 9.40	3.2 ~ 10	0.5 20	080 70 080 55 060 55	$\frac{0}{0} \sim 3$	3080 3140 3120	4.52		10 10 10	40	9.	15	
20 20 20 20 20 20 20 20 20 20	+ 20 + 20 + 25 + 20 + 20 + 28	85 88	2.20 2.20 2.15 2.15	2.15	2.80 9.40 2.95 9.40 3.25 9.40	$3.2 \sim 10$ 3.2 ~ 10	0.5 2	060 55	0~3	3120	4.56	Â	10	30	9.	05	
20 20 20 20 20 20 20 20 20 20	$\begin{array}{c} + 20 + 20 + 28 \\ + 20 + 20 + 32 \\ + 20 + 20 + 32 \\ + 20 + 20 + 40 \\ + 20 + 20 + 50 \end{array}$	92 100	2.05 2.05 1.90 1.90	1 90	3.25 9.40	3.8 ~ 10	0.5 2	120 59 090 64	0 ~ 3	3180 3140	4.43	::Â:	10 10 10	45	- 9.	05 30 20 30	
20 20 20 20 20 20 20 20 20 20 20 20 20 2	+ 20 + 25 + 25	110 90	1.70 1.70 2.10 2.10	1.70	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$4.0 \sim 10$ 3.5 ~ 10	0.5 20	120 68 050 61 050 61	0 ~ 3	3110 3110 3110 3110	4.43 4.59 4.59	- Â-		25	9.	05	
20 20 20 20 20 20 20 20 20 20 20 20 20 2	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	93 97	2.00 2.00 1.95 1.95	2.40	2.85 9.40 3.10 9.40	3.7 ~ 1	0.5 2		0~3	3160 3110 3110	4. 48	- Â-	10 10 10	50	9.	20	
20 20 20 20 20 20 20 20 20 20 20 20 20 2	+ 20 + 25 + 40 + 20 + 25 + 50	105	1.80 1.80 1.65 1.65	2.20 2.00 2.75	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$3.9 \sim 10$ $4.1 \sim 10$ $3.5 \sim 10$	0.5 2	090 70 090 70 050 61	0 ~ 3	3100 3110 3110	4.50	Â	10	45	- 9.	10 20 05	
20	+ 20 + 28 + 32	96 100	1.95 1.95 1.90 1.90	2.60	3.00 9.40	3.7 ~ 1	0.5 2	100 - 62 070 - 66	0~3	3160	4.48	- Â-	10	50	9.	20 10	
20	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	108 118 104	1.75 1.75 1.60 1.60 1.80 1.80	2. 40 2. 20 2. 90	3.50 9.40 4.00 9.40 2.90 9.40	$\frac{3.9}{3.8} \sim 10$	0.5 2	090 70 110 64	0 ~ 3	3110 3100 3190	4.54 4.50 4.45	- <u>À</u> -	10	45	9.	20 30	
20	+ 20 + 32 + 40	112	1.70 1.70	2.65	3.35 9.40		0.5 2	080 68 110 70	0 ~ 3	3150 3080	4.52	À	10	40	9.	15	
20 20 20 20 20 20 20 20 20 20 20 20 20 2	+ 20 + 40 + 40	122 120	1.55 1.55 1.55 1.55 1.45 1.45	2.45	3.15 9.40	4.1 ~ 1	0.5 2	050 70		3110 3060	4.59	<u> </u>	10	25 40	9	05	
20 20 20 20 20 20 20	+ 25 + 25 + 25	95 98	2 05 2 45	2.45	2.45 9.40	3.8 ~ 1	0.5 2		0~~3	3080 -	4.61	Λ	10	20	- 8.	95 95 15	
20 20 20 20	+ 25 + 25 + 26 + 25 + 25 + 32	102	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2.45 2.40 2.30 2.15	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3.9 ~ 10	0.5 2	080 66 050 68		3130 3080	$\begin{array}{c} 4.61 \\ \overline{4.52} \\ \overline{4.59} \end{array}$		10	25	9.	05	
20	+ 25 + 25 + 40 + 25 + 25 + 50	120	1.55 1.95		3.95 2.60 9.40	4.2 ~ 1	0.5 2	080 70 040 64	0~3	3080 3080	4.52 4.61	Å	10	40	9.	15 95 15	
150 -	+ 25 + 28 + 32	105	1.80 2.25	2.60	2.85 9.40 3.35 9.40	$3.9 \sim 10$ 4.0 ~ 10	0.5 2	080 66 050 68	0 ~ 3	3130 3080	4.52	A A	10	25	9.	.05	
20	+ 25 + 28 + 50	123 109	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	2.35 2.15 2.75 2.55	3.80 9.40 2.75 9.40	$4.2 \sim 10$ $4.0 \sim 10$	0.5 2	080 70 090 68	$\stackrel{0}{\sim}$	3080 3180	4.52 4.59 4.52 4.50 4.56	<u>A</u>	10	45	9.	15 20	
20	+ 25 + 32 + 40 + 25 + 32 + 50	117	1.60 2.00	2.55	3.25 9.40 3.70 9.40	$\frac{4.1}{4.2} \sim 10^{-10}$	0.5 2	060 70 090 70	0~-3	3120 3080 -	4.50	- <u>A</u> -	10	45	9.	. 05 . 20	
20	+ 25 + 40 + 40	125	1.35 1.75	3.00	3.00 9.40	$\frac{4.2}{4.2} \sim \frac{10}{10}$	0.5 2	030 70 080 70	0 ~ 3	3080	4.63	A	10 10	40	- 8.	95 15	
20	+ 28 + 28 + 28 + 28 + 28 + 32	104	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	2, 80 2, 55 2, 45 2, 25 2, 10 2, 70	3,00 9,40 3,50 9,40 2,55 9,40 2,80 9,40 3,30 9,40 3,75 9,40 3,75 9,40	$\frac{3.8}{3.9} \sim \frac{10}{10}$	0.5 2	040 64 080 66	~ 3	3080 3130	4.61 4.52	A	10 10	40	8.	95 15	
20	+ 28 + 28 + 40	116	1.45 2.10	2.45 2.25 2.10	3.30 9.40 3.75 9.40	$\frac{4.0}{4.2} \sim \frac{1}{10}$	0.5 2	050 68 080 70	0~-3	3080	4.52 4.59 4.52 4.50	A	10	40	9.	.05 .15	
4 20	+ 28 + 32 + 32 + 28 + 32 + 40	112 120	1.65 2.35	2.70	2.70 9.40 3.15 9.40	4.0 ~ 1	0.5 2	090 68 060 70	$10 \sim 3$	3180 3120		A A A A	10 10	30	9.	. 20 . 05	
oom 20	+ 28 + 32 + 50	130	1.45 2.00	2,50	3.65 9.40 2.95 9.40	$\frac{4.2}{4.2} \sim \frac{1}{2}$	0.5 2	090 70 030 70	0 ~ 3	3080 3080	4.50 4.63	A	10 10	15	- <u>9</u> . 8.	20 95 30	
20	+32 + 32 + 32	116	1.60 2.60 1.45 2.45	2, 95 2, 60 2, 45 2, 25 2, 85	2.95 9.40 2.60 9.40 3.05 9.40	$\frac{4.0}{4.1} \sim 1$	0.6 2	110 68 080 70	10 ~ 3	3120 3080 1	4.45	A	10	40	9.	15	
20	+ 32 + 32 + 50 + 32 + 40 + 40	134	1.40 2.25	2. 25	3.50 9.40	$4.2 \sim 1$ $4.2 \sim 1$	0.6 2		10 ~ ~ 3 10 ~ ~ 3	3060			10 10	30	9.	30 05	
25	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	100	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2.35	$\begin{array}{cccccccccccccccccccccccccccccccccccc$		0.5 2	030 66 030 66	io ~ 3	3080 3080	4.63 4.63 4.56	A	10	15	8.	. 95 . 95	
25	+ 25 + 25 + 32 + 25 + 25 + 40	107	2.00 2.05 2.05 1.90 1.90	2.30 2.20 2.05	2.80 9.40 3.25 9.40	$\begin{array}{ccc} 4.0 & \sim 1 \\ 4.1 & \sim 1 \end{array}$	0.5 2	060 68 040 70	10 ~ 3	3100	4.56	A A A	10	30 20		. 05 . 95	
25	+ 25 + 25 + 50	125	1.90 1.90 2.20 2.20 2.15 2.15	1.90 2.50	3.70 9.40 2.50 9.40 2.75 9.40	$\frac{4.2}{3.9} \sim \frac{1}{10}$	0.5 2	070 70 030 66		3070 3080	4.61 4.54 4.63	A		15	8.	95	
25	+ 25 + 28 + 28	110	2.00 2.00	2.20	2.75 9.40 3.20 9.40	$\begin{array}{ccc} 4.0 & \sim 1 \\ 4.1 & \sim 1 \end{array}$	0.5 2	060 68 040 70	10 ~ 3	3100 3070	4.56	A	10	20	8.	.05 .95	
25	+ 25 + 28 + 28 + 25 + 28 + 32 + 25 + 28 + 40	128	1.85 1.85	2.05	3.65 9.40 2.65 9.40	$\begin{array}{ccc} 4.2 & \sim 1 \\ 4.0 & \sim 1 \end{array}$	0.5 2 0.5 2	070 70 070 68	10 ~ 3	3070 3140	4.54		10	35	9.	15	
25	$\begin{array}{r} + 25 + 28 + 28 \\ + 25 + 28 + 32 \\ + 25 + 28 + 32 \\ + 25 + 28 + 50 \\ + 25 + 28 + 50 \\ + 25 + 32 + 32 \end{array}$	122	1.80 1.80	2. 40	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			040 70 090 70	10 ~ 1	3080 3080	4.56	A	10		9.	. 95	
25	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	130	1.80 1.80	2,90	2.90 9.40	$\begin{array}{ccc} 4.2 & \sim 1 \\ 3.9 & \sim 1 \end{array}$	0.5 2		$ \stackrel{10}{\sim} \sim 3 $	3070 3080		- <u>A</u> -	10	15	- 8.	.85 .95 .05	
25	$\begin{array}{r} + 25 + 28 + 28 \\ + 25 + 28 + 32 \\ + 25 + 28 + 32 \\ + 25 + 28 + 40 \\ + 25 + 28 + 50 \\ + 25 + 32 + 32 \\ + 25 + 32 + 32 \\ + 25 + 32 + 40 \\ + 25 + 32 + 50 \\ + 25 + 32 + 50 \\ + 25 + 40 + 40 \\ + 28 + 28 + 28 \\ + 28 + 28 \\ + 28 + 28$	113	2.20 2.40 2.05 2.35 1.90 2.20	2.35	2.65 9.40 3.10 9.40	$\begin{array}{ccc} 4.0 & \sim 1 \\ 4.1 & \sim 1 \end{array}$	0.5 2	2060 68 2040 70		3100 3070 -	4.56	- <u>A</u> -	10	20	8.	. 95	
	$\begin{array}{cccccccccccccccccccccccccccccccccccc$		1,80 2.00	2.00	3.60 9.40	4.0 ~ 1	0.5 2	2070 70 2090 68	10 ~ 1	3070 3180 3120	4.54	- <u>A</u>	10 10	45	9.	. 15 . 20	
25	+ 28 + 28 + 32 + 28 + 28 + 40	131	2.00 2.30 1.90 2.10 1.70 1.95	2.40	3,00 9,40 3,50 9,40	$4.1 \sim 1$ $4.2 \sim 1$	0.5 2	2060 - 70 2090 - 70	0~	3080	4.50	- <u>A</u>	10	30 45	- 9.	. 05	
25	+ 28 + 28 + 32 + 28 + 28 + 40	117	1 1 70 1 2.00	2.85	2.85 9.40	4.2 ~ 1	0.5 2		$\stackrel{0}{\sim}$	3080 3100	4 63	- <u>A</u>		15 45	8.	95 20	
25	+ 28 + 28 + 32 + 28 + 28 + 40	117 125 135 133	1.80 2.35	2.35	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$4.1 \sim 1$ 3.9 ~ 1	0.6 2		$\frac{10}{50} \sim \frac{1}{2}$	3080 3080	4.50 4.52 4.63 4.63 4.61	- <u>Å</u> -	10	15	- 9.	. 15 . 95	
28	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	117 125 135 133 121 121 129		2. 25	2.35 9.40 2.65 9.40 3.10 9.40	$ \begin{array}{r} 4.0 \sim 1 \\ 4.1 \sim 1 \end{array} $	0.5 2	$\begin{bmatrix} 060 \\ 040 \end{bmatrix} = \begin{bmatrix} 68 \\ 70 \end{bmatrix}$	\sim	3100 3070 -	4.56	- <u>A</u>	10	30	9	05 95	
28	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	$\begin{array}{c} 117\\ 125\\ 135\\ 133\\ 121\\ 129\\ 112\\ 112\\ 112\\ 112\\ 116\\ 116\\ \end{array}$	2.25 2.25	1 95	3. 55 9. 40	4.2 ~ 1	0512	070 70						20			1
28	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	$\begin{array}{c} 117\\ 125\\ 135\\ 133\\ 121\\ 129\\ 112\\ 116\\ 124\\ 134\\ \end{array}$	2.10 2.10 1.95 1.95	2 50	2.50 9.40	4.0 ~ 1	0.5 2	2070 68	80 ~ 3	3070 3140	4.54	A - A	10	35 35	1 9.	. 95 . 15 . 15	
28	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	$\begin{array}{c} 117\\ 125\\ 135\\ 135\\ 121\\ 129\\ 112\\ 116\\ 124\\ 134\\ 120\\ 128\\ \end{array}$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	2 50	2.50 9.40 2.95 9.40 2.75 9.40	$\begin{array}{c} 4.0 \\ 4.2 \\ 4.2 \end{array} \sim 1 \\ 4.2 \end{array} \sim 1 \end{array}$	0.5 2 0.5 2 0.5 2	2070 - 68 2040 - 70 2020 - 70	$ \frac{80}{10} \sim \frac{1}{2} $	3140 3080 3070	4.54 4.54 4.61 4.65	A A A	10 10 10	35 35 20 10		. 15 . 95 . 85	
32	+ 28 + 28 + 32 + 28 + 28 + 40	$\begin{array}{c} 117\\ 125\\ 135\\ 135\\ 121\\ 129\\ 112\\ 116\\ 124\\ 134\\ 120\\ \end{array}$	2.10 2.10 1.95 1.95 2.20 2.20	2, 50 2, 35 2, 75 2, 45 2, 30	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccc} 4.2 & \sim 1 \\ 4.2 & \sim 1 \\ 4.1 & \sim 1 \\ 4.2 & \sim 1 \end{array}$	0.5 2 0.5 2 0.5 2 0.6 2 0.6 2	2070 68		3140 3080	4.54 4.54 4.61	A A A	<u>10</u> 10	35 20 10 45 35	9 8 8 9 9	. 15 . 95	

3. Features

• Inverter Technology

- Wider output power range
- Energy saving
- Quick Cooling
- o Quick Heating
- More precise temperature control
- Environment Protection
 - o Non-ozone depletion substances refrigerant (R410A)

• Long Installation Piping

- Long piping up to 15 meters (0.75 ~ 1.75HP) and 20 meters (2.0 ~ 2.25HP) during single split connection only
- Easy to use remote control

Quality Improvement

- o Random auto restart after power failure for safety restart operation
- o Gas leakage protection
- Prevent compressor reverse cycle
- Inner protector to protect compressor
- Noise prevention during soft dry operation

Operation Improvement

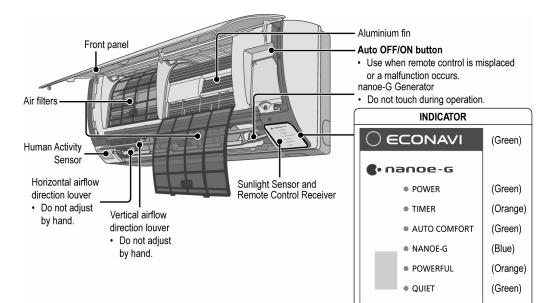
- o Quiet mode to reduce the indoor unit operating sound
- o Powerful mode to reach the desired room temperature quickly
- o 24-hour timer setting

Serviceability Improvement

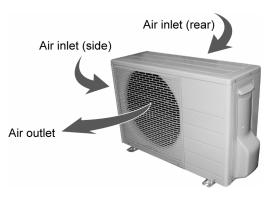
o Breakdown Self Diagnosis function

4. Location of Controls and Components

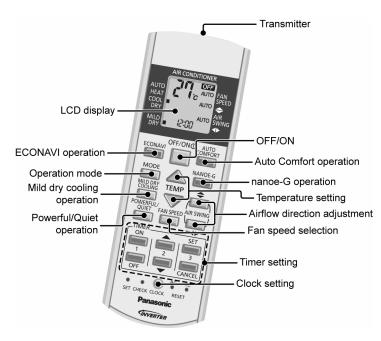
4.1 Indoor Unit



4.2 Outdoor Unit



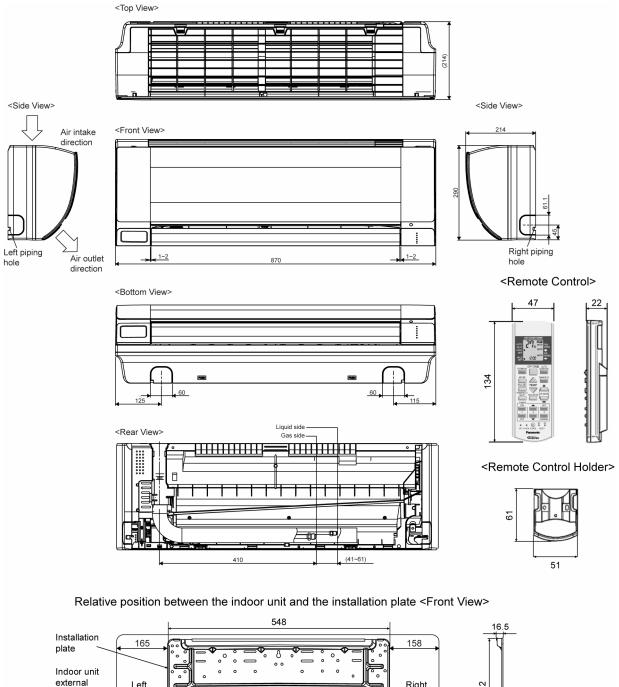
4.3 Remote Control

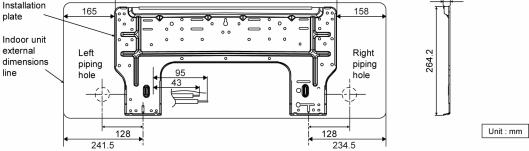


5. Dimensions

5.1 Indoor Unit

5.1.1 CS-E7NK CS-E9NK CS-E12NK CS-E15NK CS-XE7NK CS-XE9NK CS-XE12NK CS-XE15NK

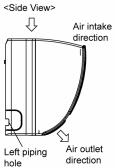


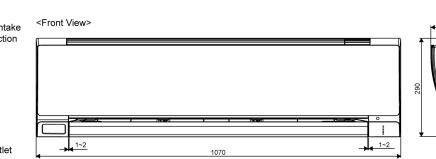


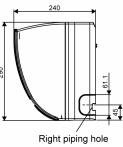
5.1.2 CS-E18NK CS-E21NK CS-XE18NK CS-XE21NK

<Top View>



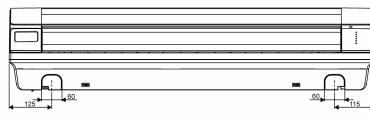


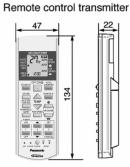




<Side View>

<Bottom View>

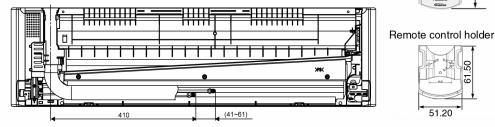




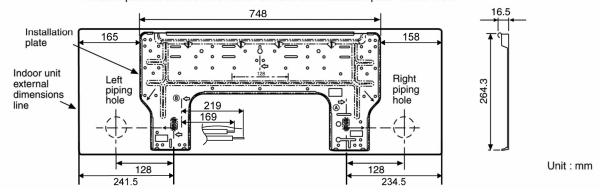
61.50

51.20

<Back View>

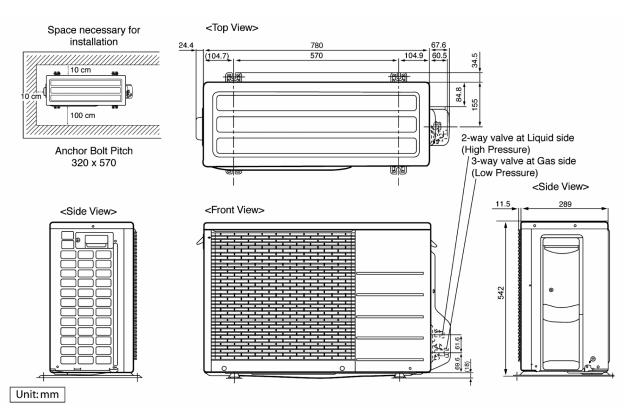


Relative position between the indoor unit and the installation plate <Front View>

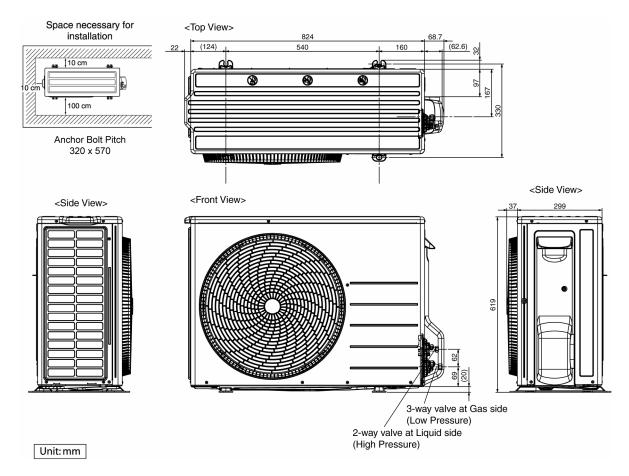


5.2 Outdoor Unit

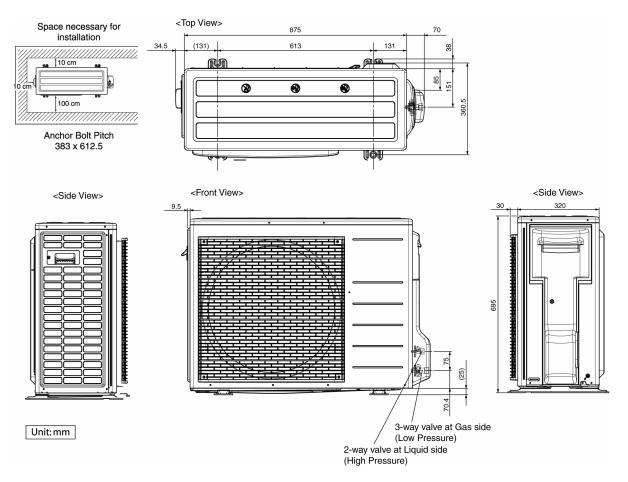
5.2.1 CU-E7NKE CU-E9NKE CU-E7NKE-3 CU-E9NKE-3 CU-E12NKE-3



5.2.2 CU-E12NKE CU-E15NKE

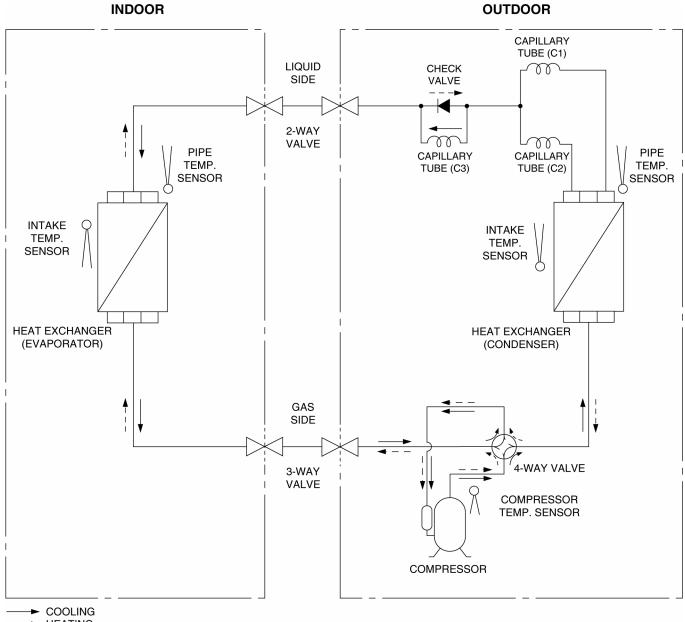


5.2.3 CU-E18NKE CU-E21NKE



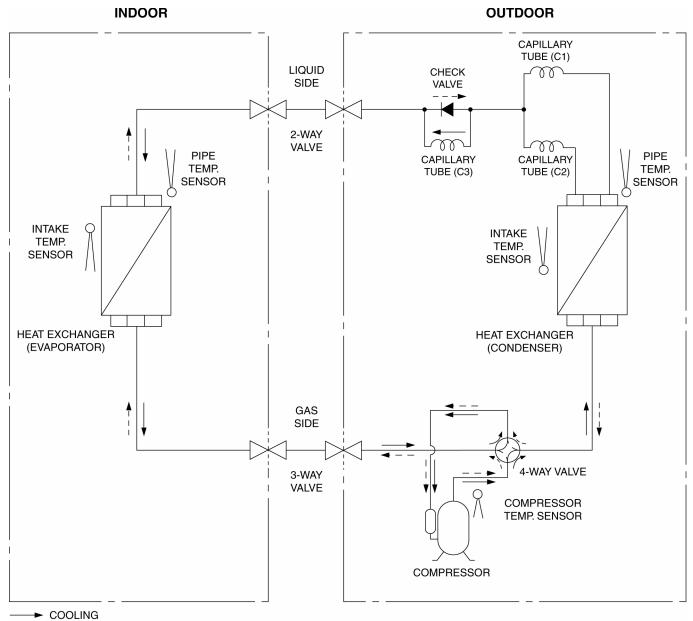
6. Refrigeration Cycle Diagram

6.1 CU-E7NKE CU-E9NKE CU-E12NKE CU-E15NKE



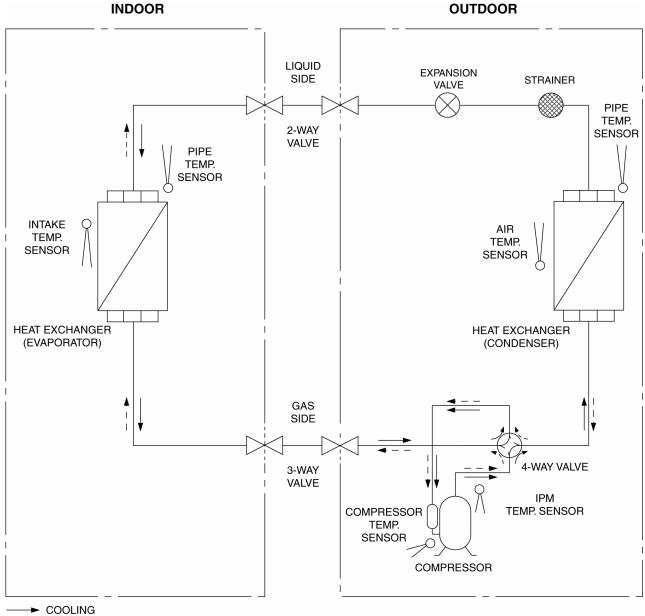
---► HEATING

6.2 CU-E7NKE-3 CU-E9NKE-3 CU-E12NKE-3



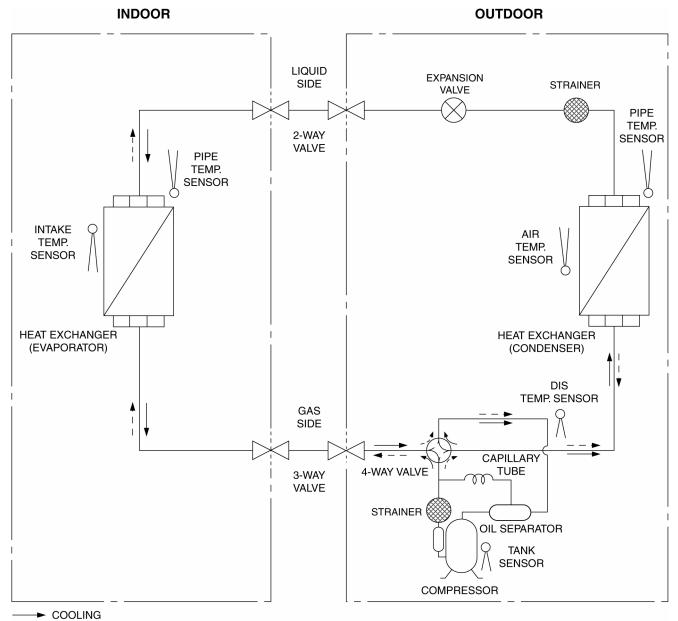


6.3 CU-E18NKE



- - ► HEATING

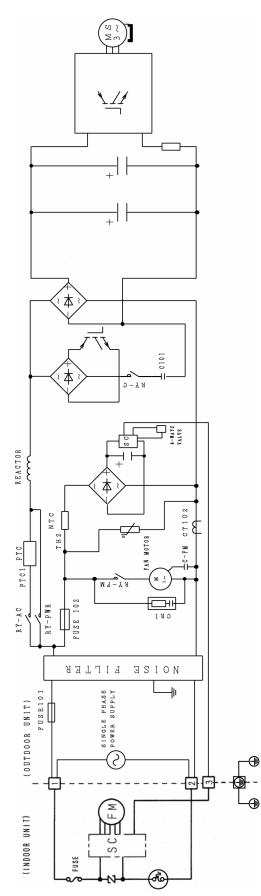
6.4 CU-E21NKE



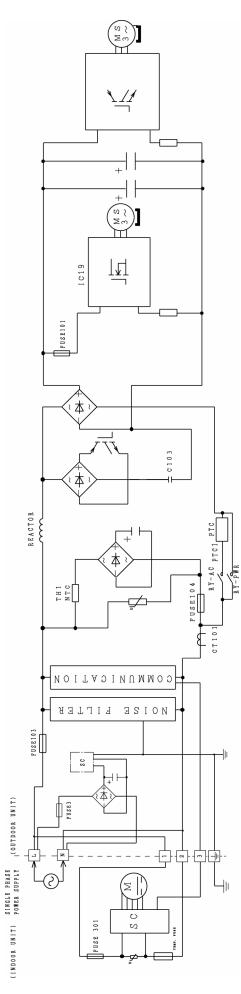


7. Block Diagram

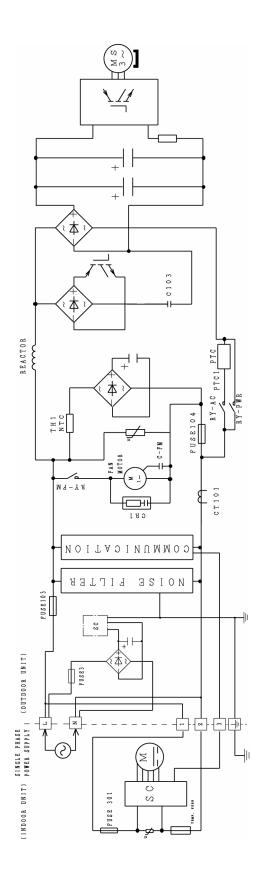
7.1 CU-E7NKE CU-E9NKE



7.2 CU-E12NKE

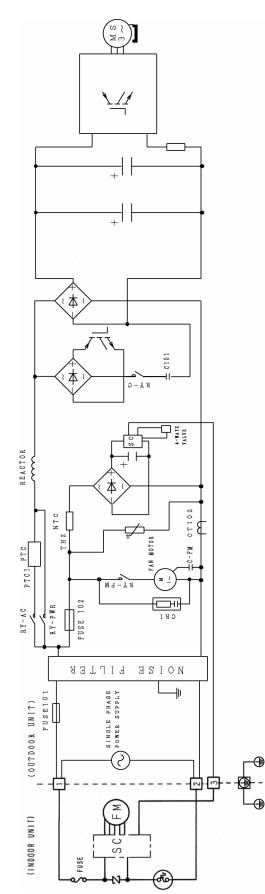


7.3 CU-E15NKE

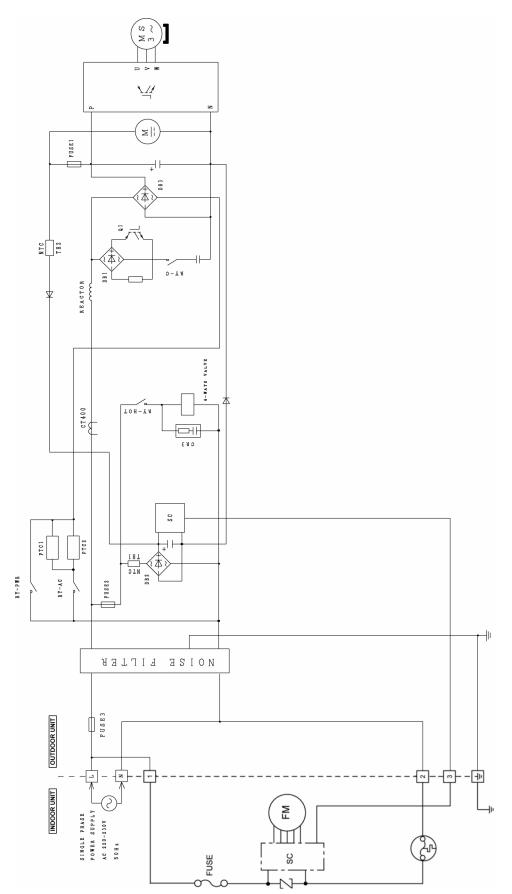


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7.4 CU-E7NKE-3 CU-E9NKE-3 CU-E12NKE-3

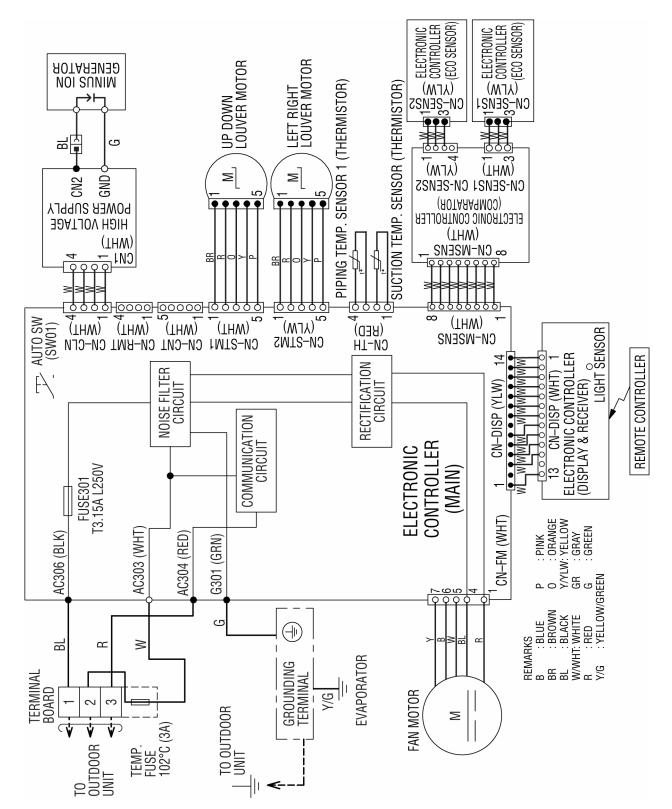


7.5 CU-E18NKE CU-E21NKE

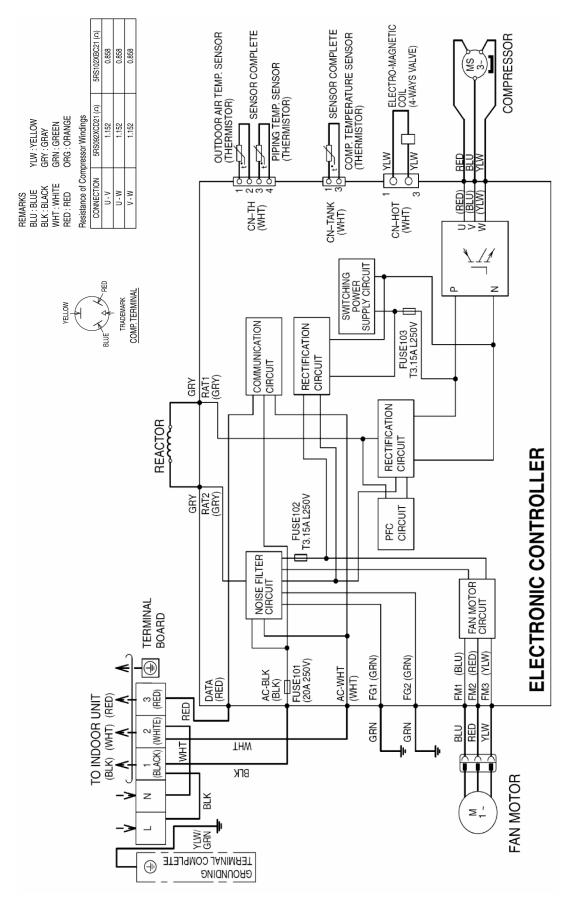


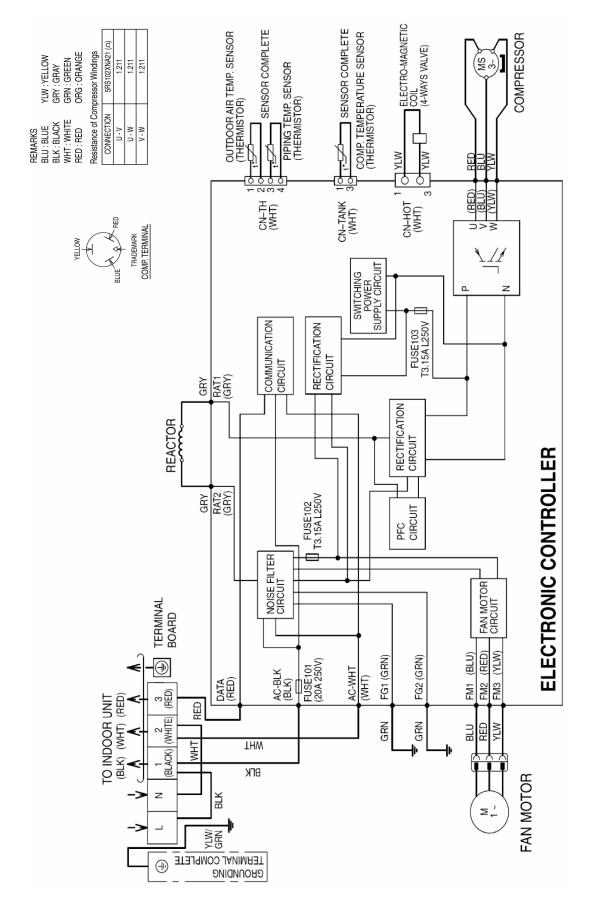
8. Wiring Connection Diagram

8.1 Indoor Unit

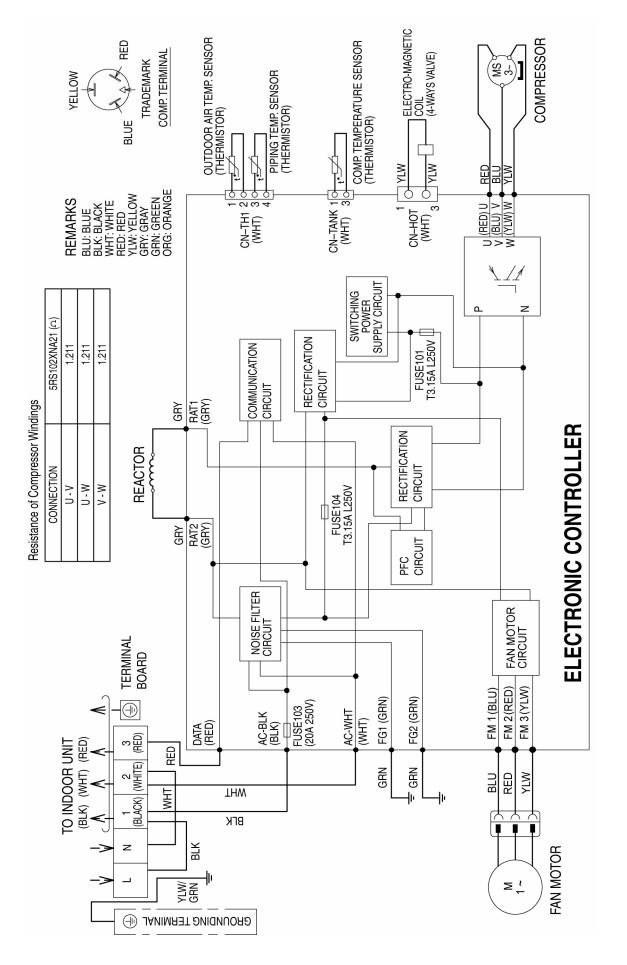


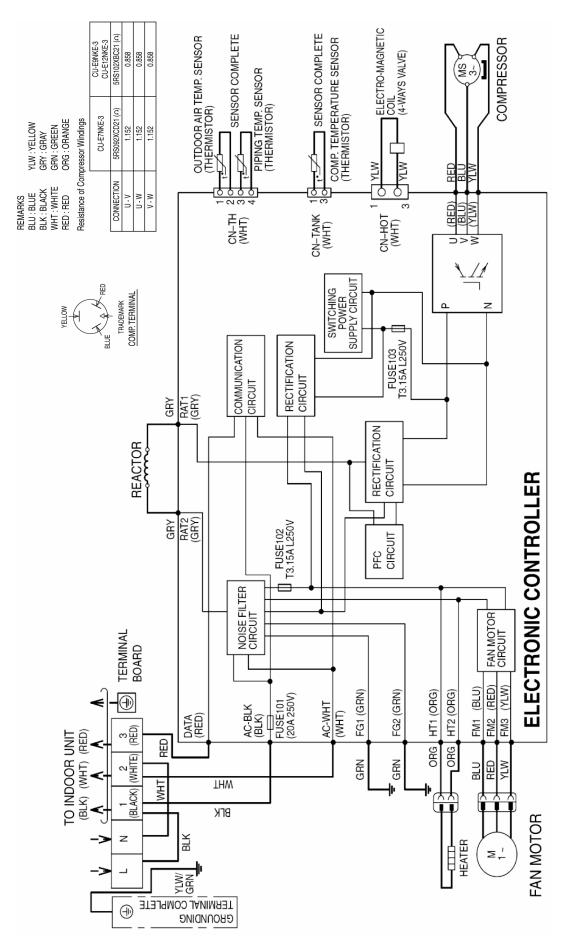
8.2.1 CU-E7NKE CU-E9NKE



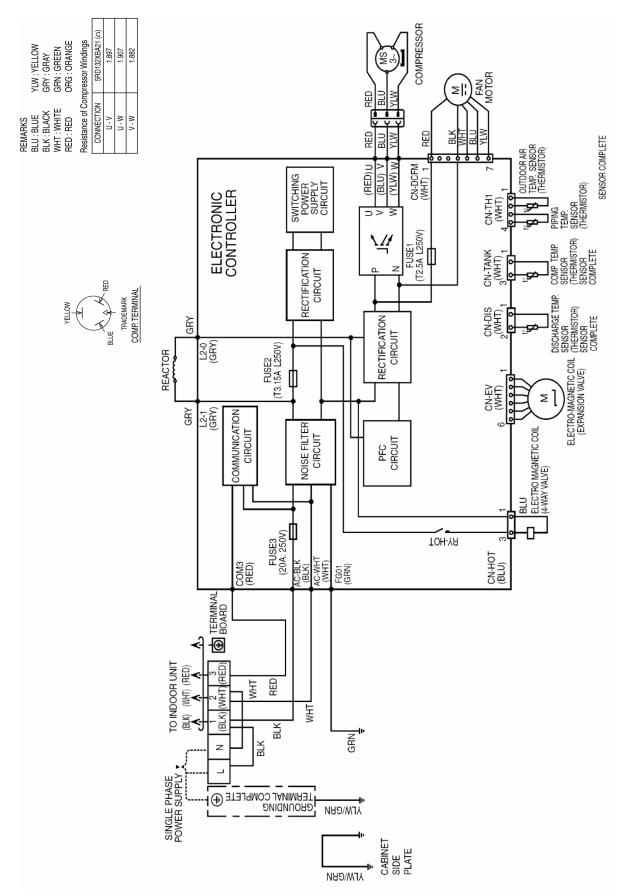


8.2.2 CU-E12NKE



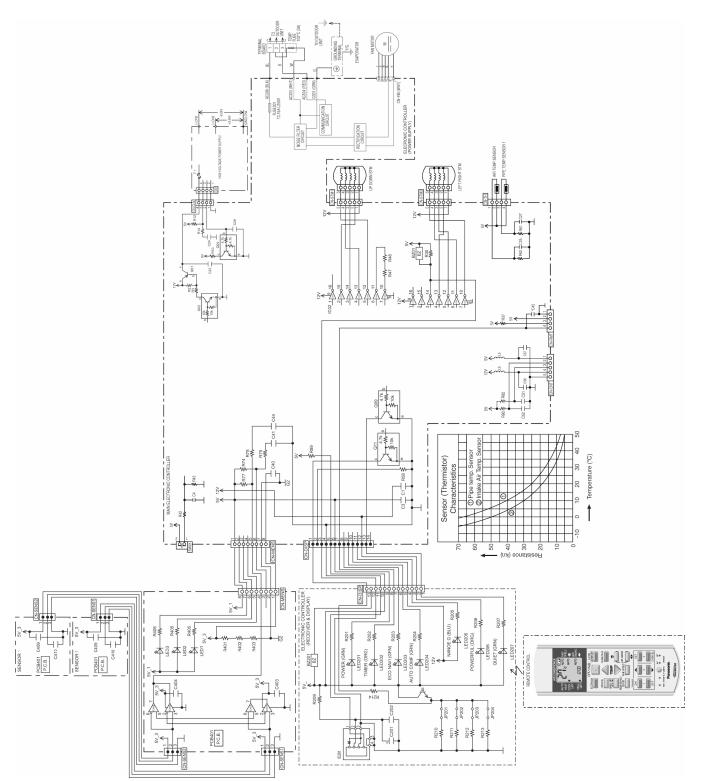


8.2.4 CU-E7NKE-3 CU-E9NKE-3 CU-E12NKE-3



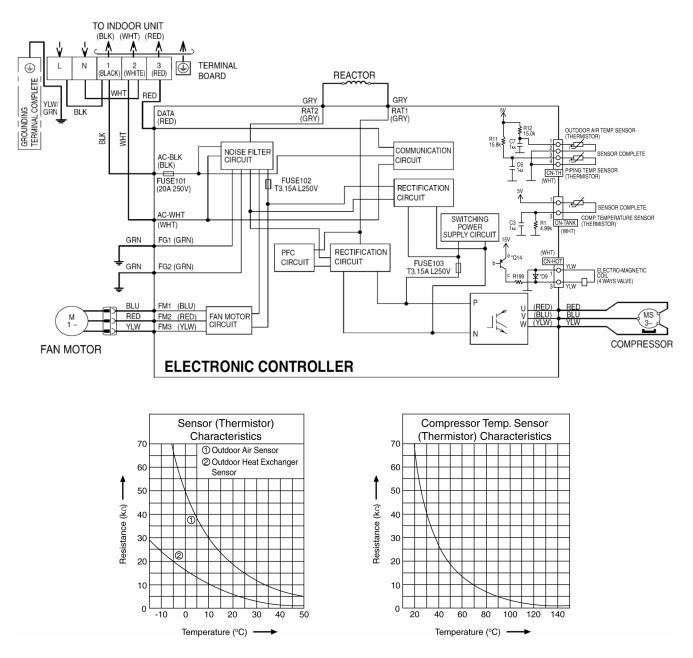
9. Electronic Circuit Diagram

9.1 Indoor Unit

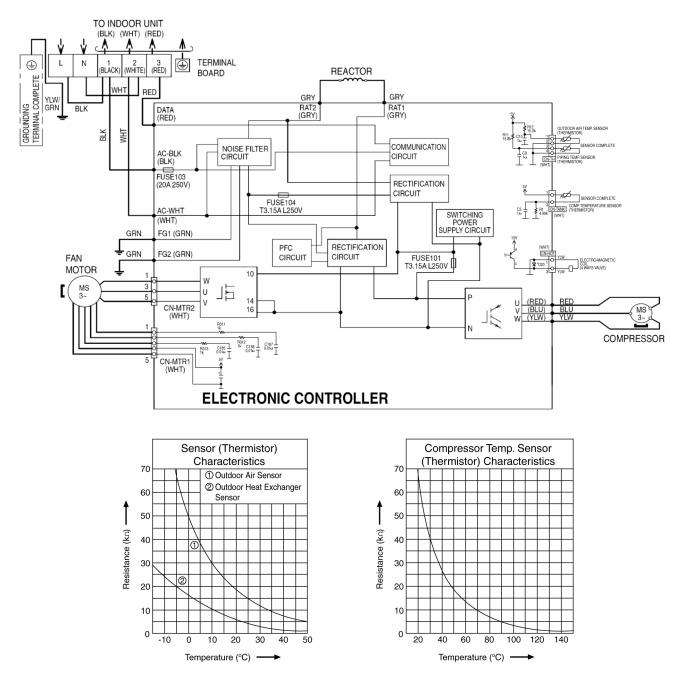


9.2 Outdoor Unit

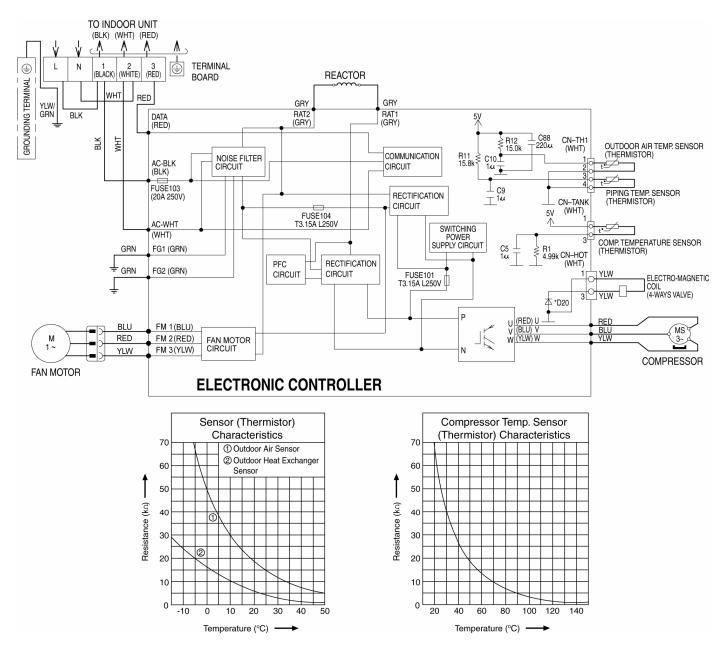
9.2.1 CU-E7NKE CU-E9NKE



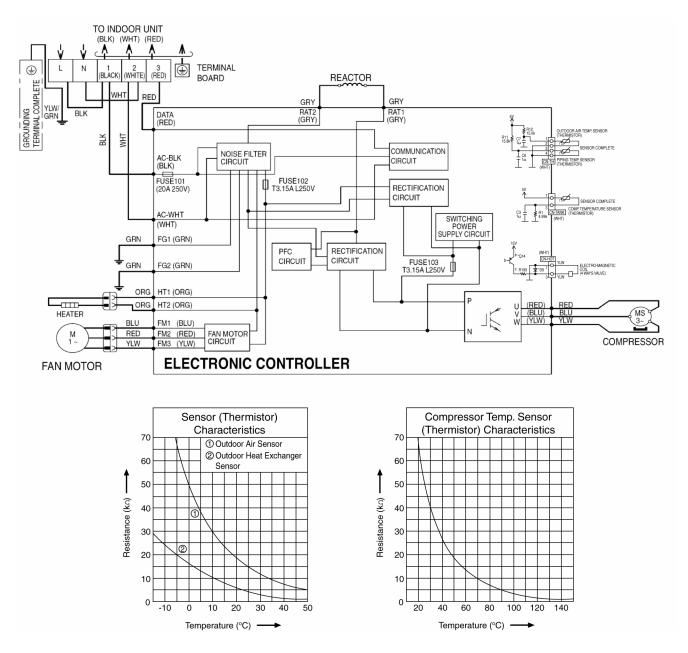
9.2.2 CU-E12NKE



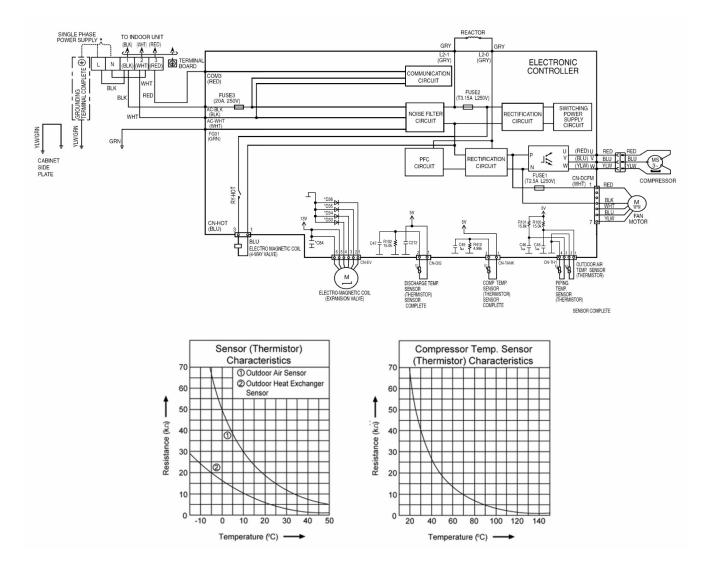
9.2.3 CU-E15NKE



9.2.4 CU-E7NKE-3 CU-E9NKE-3 CU-E12NKE-3



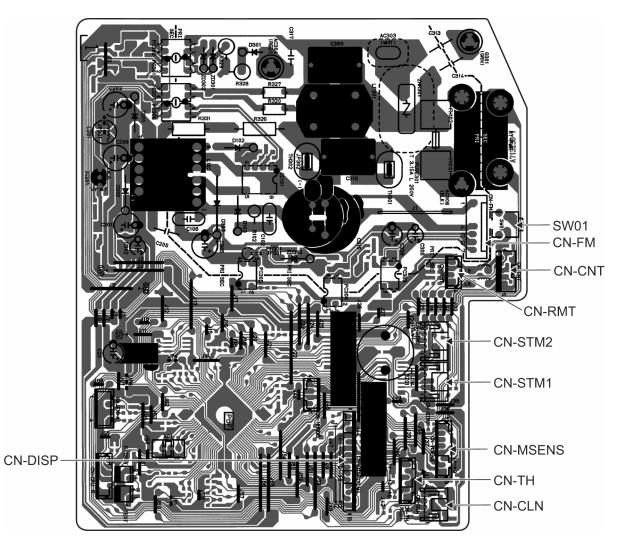
9.2.5 CU-E18NKE CU-E21NKE



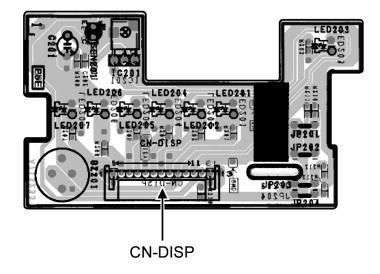
10. Printed Circuit Board

10.1 Indoor Unit

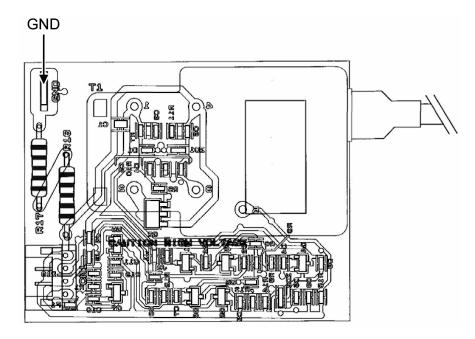
10.1.1 Main Printed Circuit Board



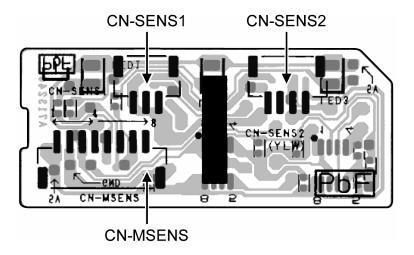
10.1.2 Indicator Printed Circuit Board

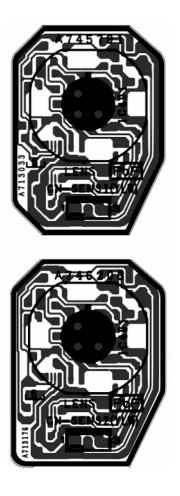


10.1.3 High Voltage Power Supply Printed Circuit Board



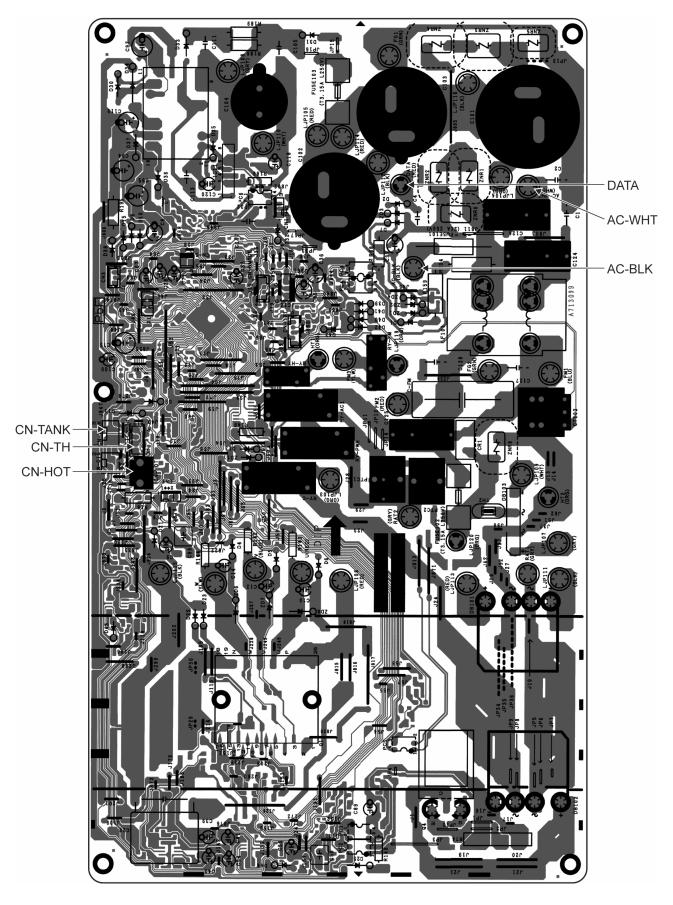
10.1.4 Comparator Printed Circuit Board



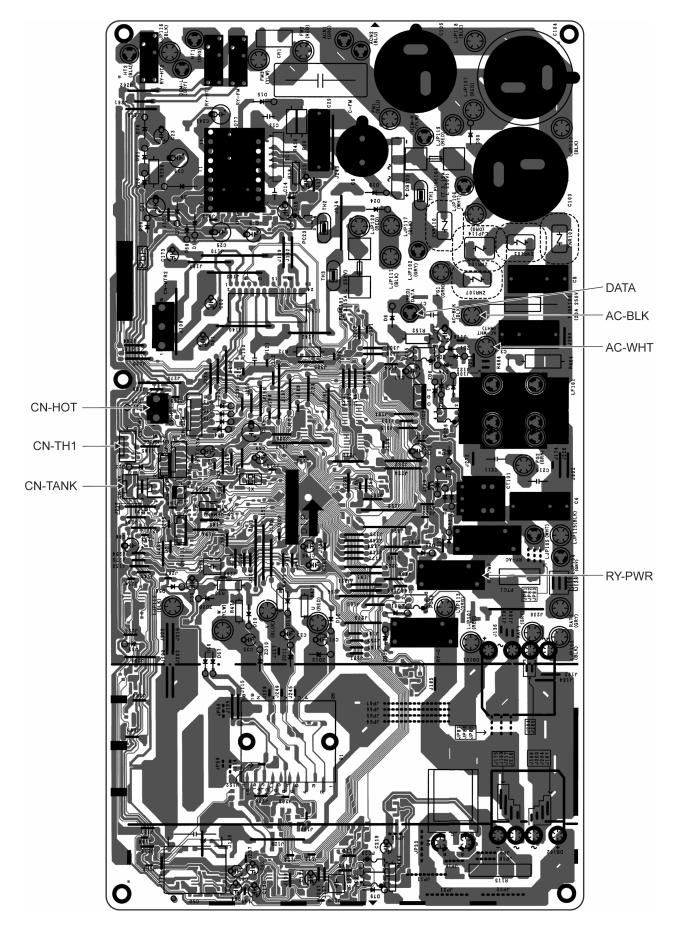


10.2 Outdoor Unit

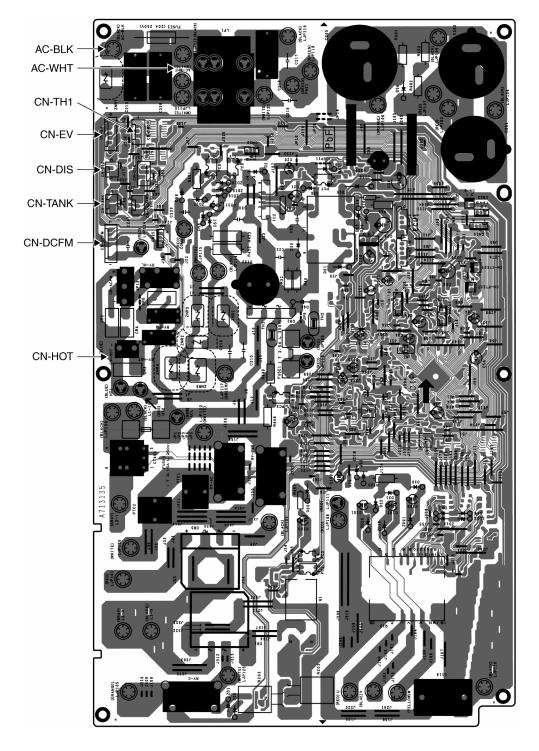
10.2.1 CU-E7NKE CU-E9NKE CU-E7NKE-3 CU-E9NKE-3 CU-E12NKE-3



10.2.2 CU-E12NKE CU-E15NKE



10.2.3 CU-E18NKE CU-E21NKE



11. Installation Instruction

11.1 Select the Best Location

11.1.1 Indoor Unit

- Do not install the unit in excessive oil fume area such as kitchen, workshop and etc.
- There should not be any heat source or steam near the unit.
- There should not be any obstacles blocking the air circulation.
- A place where air circulation in the room is good.
- A place where drainage can be easily done.
- A place where noise prevention is taken into consideration.
- Do not install the unit near the door way.
- Ensure the spaces indicated by arrows from the wall, ceiling, fence or other obstacles.
- Recommended installation height for indoor unit shall be at least 2.5 m.

11.1.2 Outdoor Unit

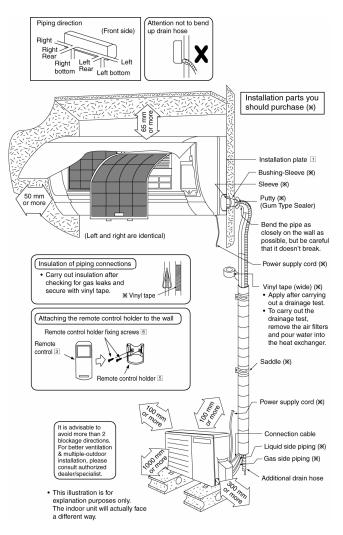
- If an awning is built over the unit to prevent direct sunlight or rain, be careful that heat radiation from the condenser is not obstructed.
- There should not be any animal or plant which could be affected by hot air discharged.
- Keep the spaces indicated by arrows from wall, ceiling, fence or other obstacles.
- Do not place any obstacles which may cause a short circuit of the discharged air.
- If piping length is over the [piping length for additional gas], additional refrigerant should be added as shown in the table.

		Piping	size					Addi-	Pi-	
Model	odel Horse Power (HP) Gas Liquid Leng- El th t (m) (Max. Eleva- tion (m)	Min. Piping Length (m)	Max. Piping Length (m)	tional Refri- gerant (g/m)	ping Leng- th for add. gas (m)			
E7***, XE7***	3/4HP				15		15	20	7.5	
E9***, XE9***	1.0HP	9.52mm (3/8")			15		15	20	7.5	
E12***, XE12***	1.5HP					15		15	20	7.5
E15***, XE15***	1.75HP			6.35mm (1/4") 5	15	3	15	20	7.5	
E18***, XE18***	2.0HP	12.7mm (1/2")	(1/4")		15	5	20	20	7.5	
E21***, XE21***	2.25HP	15.88mm (5/8")			15		20	20	7.5	
E24***	2.5HP		⊰mm		20		30	30	10	
E28***	3.0HP				20		30	30	10	

Example: For E9***

If the unit is installed at 10 m distance, the quantity of additional refrigerant should be 50 g \dots (10-7.5) m x 20 g/m = 50 g

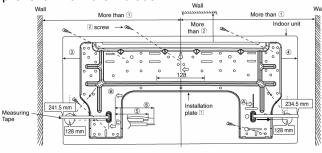
11.1.3 Indoor/Outdoor Unit Installation Diagram



11.2 Indoor Unit

11.2.1 How to Fix Installation Plate

The mounting wall shall be strong and solid enough to prevent if from the vibration.



Model	Dimension							
Woder	1	2	3	4	5	6		
E7***, XE7*** E9***, XE9*** E12***, XE12*** E15***, XE15***	485 mm	82 mm	165 mm	158 mm	43 mm	95 mm		
E18***, XE18*** E21***, XE21*** E24***, E28***	585 mm	82 mm	165 mm	158 mm	169 mm	219 mm		

The center of installation plate should be at more than ① at right and left of the wall.

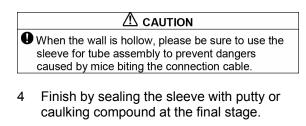
The distance from installation plate edge to ceiling should more than ⁽²⁾.

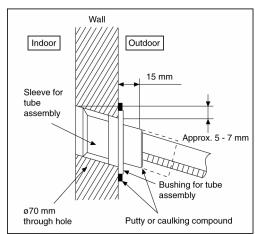
From installation plate left edge to unit's left side is ③. From installation plate right edge to unit's right side is ④.

- (B) : For left side piping, piping connection for liquid should be about (5) from this line.
 - : For left side piping, piping connection for gas should be about ⁽⁶⁾ from this line.
 - Mount the installation plate on the wall with 5 screws or more (at least 5 screws). (If mounting the unit on the concrete wall, consider using anchor bolts.)
 - Always mount the installation plate horizontally by aligning the marking-off line with the thread and using a level gauge.
 - 2 Drill the piping plate hole with ø70 mm holecore drill.
 - Line according to the left and right side of the installation plate. The meeting point of the extended line is the center of the hole. Another method is by putting measuring tape at position as shown in the diagram above. The hole center is obtained by measuring the distance namely 128 mm for left and right hole respectively.
 - Drill the piping hole at either the right or the left and the hole should be slightly slanting to the outdoor side.

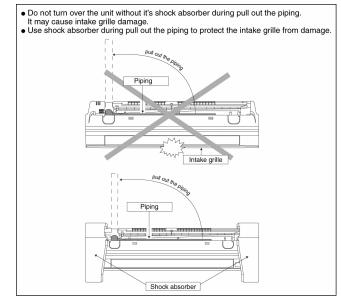
11.2.2 To Drill a Hole in the Wall and Install a Sleeve of Piping

- 1 Insert the piping sleeve to the hole.
- 2 Fix the bushing to the sleeve.
- 3 Cut the sleeve until it extrudes about 15 mm from the wall.

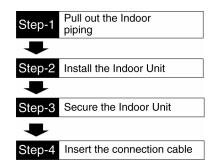




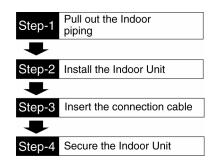
11.2.3 Indoor Unit Installation



11.2.3.1 For the right rear piping

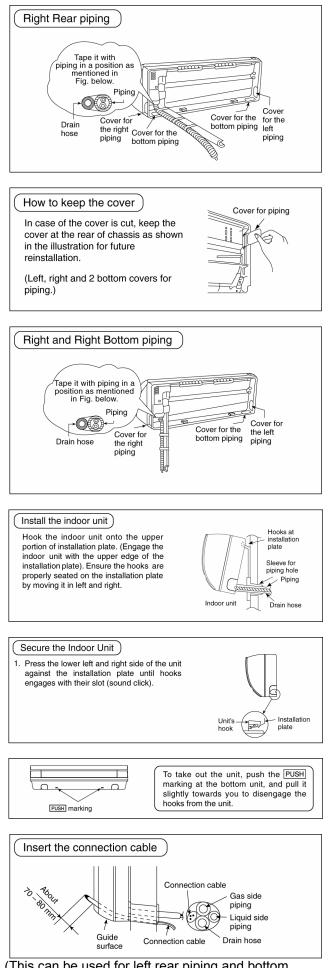


11.2.3.2 For the right and right bottom piping

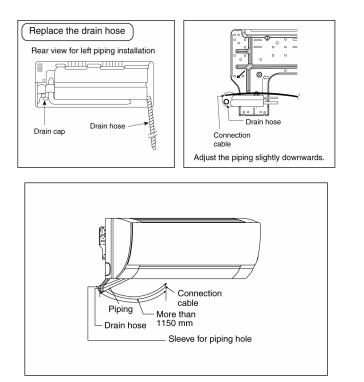


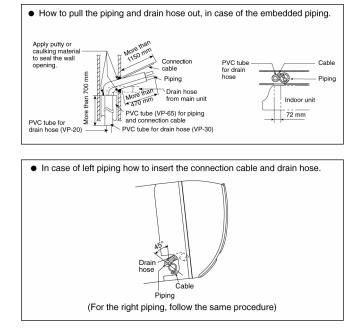
11.2.3.3 For the embedded piping

Step-1	Replace the drain hose
➡	
Step-2	Bend the embedded piping
₽	• Use a spring bender or equivalent to bend the piping so that the piping is not crushed.
Step-3	Pull the connection cable into Indoor Unit
₽	• The inside and outside connection cable can be connected without removing the front grille.
Step-4	Cut and flare the embedded piping
₽	 When determining the dimensions of the piping, slide the unit all the way to the left on the installation plate. Refer to the section "Cutting and flaring the piping".
Step-5	Install the Indoor Unit
➡	
Step-6	Connect the piping
•	Please refer to "Connecting the piping" column in outdoor unit section. (Below steps are done after connecting the outdoor piping and gas-leakage confirmation.)
Step-7	Insulate and finish the piping
•	Please refer to "Insulation of piping connection" column as mentioned in indoor/outdoor unit installation.
Step-8	Secure the Indoor Unit



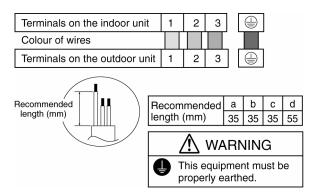
⁽This can be used for left rear piping and bottom piping also.)

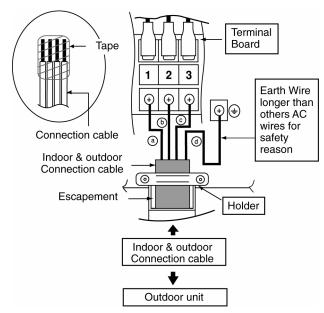




11.2.4 Connect the Cable to the Indoor Unit

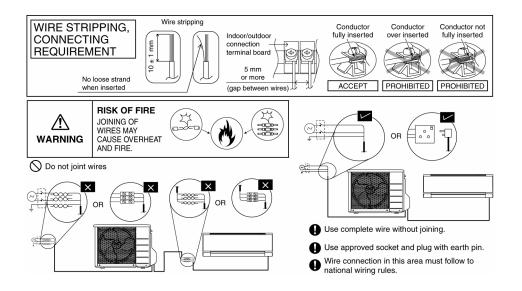
- 1 The inside and outside connecting cable can be connected without removing the front grille.
- 2 Connection cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed 4 x 1.5 mm² flexible cord, type designation 245 IEC 57 or heavier cord.
- 3 Bind all the indoor and outdoor connection cable with tape and route the connection cable via the escapement.
- 4 Remove the tapes and connect the connection cable between indoor unit and outdoor unit according to the diagram below.





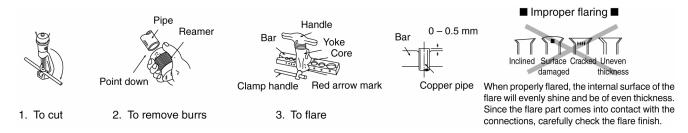
Note:

- Secure the connection cable onto the control board with the holder.
- Ensure the colour of wires of outdoor unit and the terminal Nos. are the same to the indoor's respectively.
- Earth wire shall be Yellow/Green (Y/G) in colour and longer than other AC wires for safety reason.



11.2.4.1 Cutting and flaring the piping

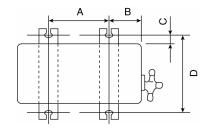
- 1 Please cut using pipe cutter and then remove the burrs.
- 2 Remove the burrs by using reamer. If burrs are not removed, gas leakage may be caused. Turn the piping end down to avoid the metal powder entering the pipe.
- 3 Please make flare after inserting the flare nut onto the copper pipes.



11.3 Outdoor Unit

11.3.1 Install the Outdoor Unit

- After selecting the best location, start installation according to Indoor/Outdoor Unit Installation Diagram.
 - 1 Fix the unit on concrete or rigid frame firmly and horizontally by bolt nut (ø10 mm).
 - 2 When installing at roof, please consider strong wind and earthquake.
 - Please fasten the installation stand firmly with bolt or nails.



Model	АВ		U	D	
E7***					
E9***	570 mm	105 mm	18.5 mm	320 mm	
E12*** -3					
E12***	540 mm	160 mm	18.5 mm	330 mm	
E15***	540 11111		10.5 11111	550 mm	
E15***-3					
E18***					
E21***	613 mm	131 mm	16 mm	360.5 mm	
E24***					
E28***					

Mada

11.3.2 Connect the Piping

Connecting the Piping to Indoor

Please make flare after inserting flare nut (locate at joint portion, of tube assembly) onto the copper pipe. (In case of using long piping)

Connect the piping

- Align the center of piping and sufficiently tighten the flare nut with fingers.
- Further tighten the flare nut with torque wrench in specified torque as stated in the table.

Connecting the Piping to Outdoor

Decide piping length and then cut by using pipe cutter. Remove burrs from cut edge.

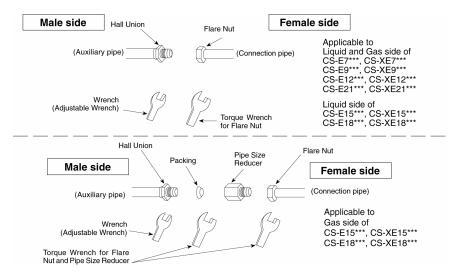
Make flare after inserting the flare nut (located at valve) onto the copper pipe.

Align center of piping to valves and then tighten with torque wrench to the specified torque as stated in the table.

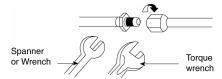
Connecting the Piping to Outdoor Multi

Decide piping length and then cut by using pipe cutter. Remove burrs from cut edge. Make flare after inserting the flare nut (located at valve) onto the copper pipe.

Align center of piping to valve and then tighten with torque wrench to the specified torque as stated in the table.

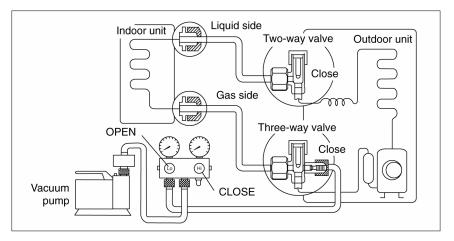


Do not over tighten, over tightening may cause gas leakage.						
Piping size	Torque					
6.35 mm (1/4")	[18 N•m (1.8 kgf.m)]					
9.52 mm (3/8")	[42 N•m (4.3 kgf.m)]					
12.7 mm (1/2")	[55 N•m (5.6 kgf.m)]					
15.88 mm (5/8")	[65 N•m (6.6 kgf.m)]					
19.05 mm (3/4")	[100 N•m (10.2 kgf.m)]					



11.3.3 Evacuation of the Equipment

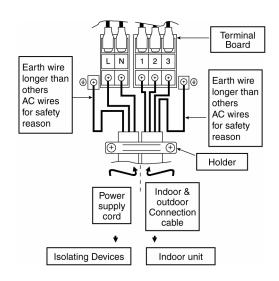
WHEN INSTALLING AN AIR CONDITIONER, BE SURE TO EVACUATE THE AIR INSIDE THE INDOOR UNIT AND PIPES in the following procedure.



- 1 Connect a charging hose with a push pin to the Low side of a charging set and the service port of the 3-way valve.
 - Be sure to connect the end of the charging hose with the push pin to the service port.
- 2 Connect the center hose of the charging set to a vacuum pump.
- 3 Turn on the power switch of the vacuum pump and make sure that the needle in the gauge moves from 0 cmHg (0 MPa) to -76 cmHg (-0.1 MPa). Then evacuate the air approximately ten minutes.
- 4 Close the Low side value of the charging set and turn off the vacuum pump. Make sure that the needle in the gauge does not move after approximately five minutes.
- Note: BE SURE TO TAKE THIS PROCEDURE IN ORDER TO AVOID REFRIGERENT GAS LEAKAGE.
- 5 Disconnect the charging hose from the vacuum pump and from the service port of the 3-way valve.
- 6 Tighten the service port caps of the 3-way valve at a torque of 18 N•m with a torque wrench.
- 7 Remove the valve caps of both of the 2-way valve and 3-way valve. Position both of the valves to "OPEN" using a hexagonal wrench (4 mm).
- 8 Mount valve caps onto the 2-way valve and the 3-way valve.
 - Be sure to check for gas leakage.
 - If gauge needle does not move from 0 cmHg (0 MPa) to -76 cmHg (-0.1 MPa), in the step ③ above take the following measure:
 - If the leak stops when the piping connections are tightened further, continue working from step ③.
 - If the leak does not stop when the connections are retightened, repair location of leak.
 - Do not release refrigerant during piping work for installation and reinstallation.
 - Take care of the liquid refrigerant, it may cause frostbite.

11.3.4 Connect the cable to the Outdoor Unit

- 1 Remove the control board cover from the unit by loosening the screw.
- 2 Cable connection to the power supply through Isolating Devices (Disconnecting means).
 - Connect approved type polychloroprene sheathed power supply cord 3 x 1.5 mm² (3/4 ~ 1.75HP), 3 x 2.5 mm² (2.0 ~ 2.5HP) or 3 x 4.0 mm² (3.0HP) type designation 245 IEC 57 or heavier cord to the terminal board, and connect the others end of the cord to Isolating Devices (Disconnecting means).
- 3 Connection cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed 4 x 1.5 mm² flexible cord, type designation 245 IEC 57 or heavier cord.
- 4 Connect the power supply cord and connection cable between indoor unit and outdoor unit according to the diagram below.



Terminals on the indoor unit			1	2	3	
Colour of wires (connection cable)	 					
Terminals on the outdoor unit	L	N	1	2	3	
(Power supply cord)						
Terminals on the isolating devices (Disconnecting means)	(L)	(N)				

- 5 Secure the power supply cord and connection cable onto the control board with the holder.
- 6 Attach the control board cover back to the original position with the screw.
- 7 For wire stripping and connection requirement, refer to instruction 11.2.4 of the indoor unit.

This equipment must be properly earthed.

- Note: Isolating Devices (Disconnecting means) should have minimum 3.0 mm contact gap.
- Earth wire shall be Yellow/Green (Y/G) in colour and longer than other AC wires for safety reason.

11.3.5 Piping Insulation

- 1 Please carry out insulation at pipe connection portion as mentioned in Indoor/Outdoor Unit Installation Diagram. Please wrap the insulated piping end to prevent water from going inside the piping.
- 2 If drain hose or connecting piping is in the room (where dew may form), please increase the insulation by using POLY-E FOAM with thickness 6 mm or above.

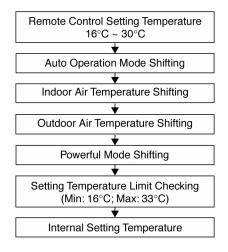
12. Operation Control

12.1 Basic Function

Inverter control, which equipped with a microcomputer in determining the most suitable operating mode as time passes, automatically adjusts output power for maximum comfort always. In order to achieve the suitable operating mode, the microcomputer maintains the set temperature by measuring the temperature of the environment and performing temperature shifting. The compressor at outdoor unit is operating following the frequency instructed by the microcomputer at indoor unit that judging the condition according to internal setting temperature and intake air temperature.

12.1.1 Internal Setting Temperature

Once the operation starts, remote control setting temperature will be taken as base value for temperature shifting processes. These shifting processes are depending on the air conditioner settings and the operation environment. The final shifted value will be used as internal setting temperature and it is updated continuously whenever the electrical power is supplied to the unit.



12.1.2 Cooling Operation

12.1.2.1 Thermostat control

- Compressor is OFF when Intake Air Temperature Internal Setting Temperature < -1.5°C continue for 3 minutes.
- Compressor is ON after waiting for 3 minutes, if the Intake Air Temperature Internal Setting Temperature > Compressor OFF point.

12.1.3 Soft Dry Operation

12.1.3.1 Thermostat control

- Compressor is OFF when Intake Air Temperature Internal Setting Temperature < -2.0°C continue for 3 minutes.
- Compressor is ON after waiting for 3 minutes, if the Intake Air Temperature Internal Setting Temperature > Compressor OFF point.

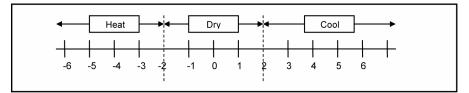
12.1.4 Heating Operation

12.1.4.1 Thermostat control

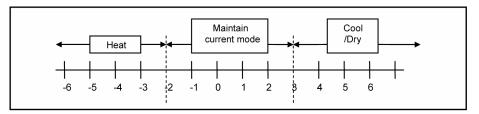
- Compressor is OFF when Intake Air Temperature Internal Setting Temperature > +2.0°C continue for 3 minutes.
- Compressor is ON after waiting for 3 minutes, if the Intake Air Temperature Internal Setting Temperature < Compressor OFF point.

12.1.5 Automatic Operation

- This mode can be set using remote control and the operation is decided by remote control setting temperature, remote control operation mode and indoor intake air temperature.
- During operation mode judgment, indoor fan motor (with speed of Lo-) is running for 30 seconds to detect the indoor intake air temperature.
- Every 10 minutes, the indoor temperature is judged.
- For the 1st judgment
 - If indoor intake temperature remote control setting temperature \geq 2°C, COOL mode is decided.
 - o If -2°C ≤ indoor intake temperature remote control setting temperature < 2°C, DRY mode is decided.
 - \circ If indoor intake temperature remote control setting temperature < -2°C, HEAT mode is decided.



- For the 2nd judgment onwards
 - If indoor intake temperature remote control setting temperature ≥ 3°C, if previous operate in DRY mode, then continue in DRY mode. otherwise COOL mode is decided.
 - o If $-2^{\circ}C \leq$ indoor intake temperature remote control setting temperature < 3°C, maintain with previous mode.
 - If indoor intake temperature remote control setting temperature < -2°C, HEAT mode is decided.



12.2 Indoor Fan Motor Operation

12.2.1 Basic Rotation Speed (rpm)

A. Basic Rotation Speed (rpm)

i. Manual Fan Speed

[Cooling, Dry]

• Fan motor's number of rotation is determined according to remote control setting.

Remote control	0	0	0	0	0
Tab	Hi	Me+	Ме	Me-	Lo

[Heating]

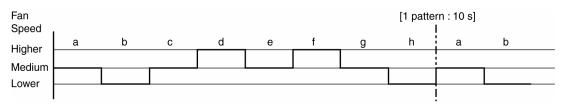
• Fan motor's number of rotation is determined according to remote control setting.

Remote control	0	0	0	0	0
Tab	SHi	Me+	Me	Me-	Lo

ii Auto Fan Speed

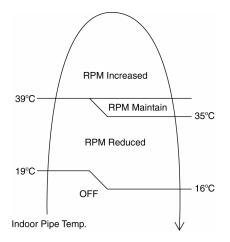
[Cooling, Dry]

- According to room temperature and setting temperature, indoor fan speed is determined automatically.
- The indoor fan will operate according to pattern below.



[Heating]

• According to indoor pipe temperature, automatic heating fan speed is determined as follows.

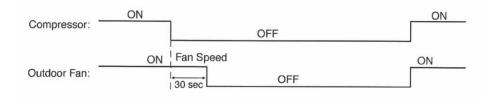


B. Feedback control

- Immediately after the fan motor started, feedback control is performed once every second.
- During fan motor on, if fan motor feedback ≥ 2550 rpm or < 50 rpm continue for 10 seconds, then fan motor error counter increase, fan motor is then stop and restart. If the fan motor counter becomes 7 times, then H19 - fan motor error is detected. Operation stops and cannot on back.

12.3 Outdoor Fan Motor Operation

Outdoor fan motor is operated with one fan speed only. It starts when compressor starts operation and it stops 30 seconds after compressor stops operation.



12.4 Airflow Direction

- There are two types of airflow, vertical airflow (directed by horizontal vane) and horizontal airflow (directed by vertical vanes).
- Control of airflow direction can be automatic (angles of direction is determined by operation mode, heat exchanger temperature and intake air temperature) and manual (angles of direction can be adjusted using remote control).

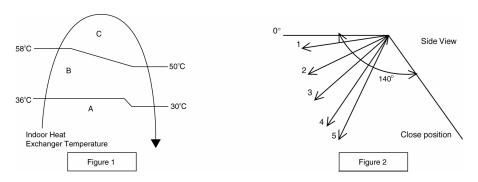
12.4.1 Vertical Airflow

	Operation Mode			Vane Angle (°)					
	Operation	INDUE	1	2	3	4	5		
	Auto	Usual (Ventilation)	10 ~ 40						
Cooling	Auto	Control with dew	10 ~ 40						
Cooling	Manual	Usual (Ventilation)	10	17.5	25	32.5	40		
	Wallua	Control with dew	10	17.5	25	32.5	40		
	Auto	Usual	10 ~ 40						
Dry	Auto	Control with dew	10 ~ 40						
DIY	Manual	Usual	10	17.5	25	32.5	40		
	Wallua	Control with dew	10	17.5	25	32.5	40		
Heating	Manual		10	21.2	32.5	43.8	55		



Operation Mode			Vane Angle (°)						
	Operation Mode		1	2	3	4	5		
	Auto	Usual (Ventilation)	5 ~ 35						
Cooling	Auto	Control with dew	5 ~ 35						
Cooling	Manual	Usual (Ventilation)	5	12.5	20	27.5	35		
Wanuar	Control with dew	5	12.5	20	27.5	35			
	Auto	Usual	5 ~ 35						
Dru	Auto	Control with dew	5 ~ 35						
Dry Manual	Usual	5	12.5	20	27.5	35			
	wallua	Control with dew	5	12.5	20	27.5	35		
Heating	Manual	Usual	5	17.5	30	42.5	55		

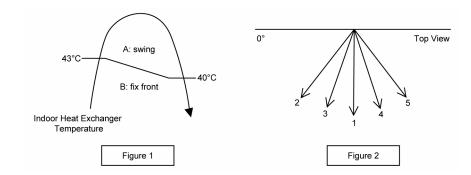
- 1 Automatic vertical airflow direction can be set using remote control; the vane swings up and down within the angles as stated above. For heating mode operation, the angle of the vane depends on the indoor heat exchanger temperature as Figure 1 below. It does not swing during fan motor stop. When the air conditioner is stopped using remote control, the vane will shift to close position.
- 2 Manual vertical airflow direction can be set using remote control; the angles of the vane are as stated above and the positions of the vane are as Figure 2 below. When the air conditioner is stopped using remote control, the vane will shift to close position.



12.4.2 Horizontal Airflow

 Automatic horizontal airflow direction can be set using remote control; the vane swings left and right within the angles as stated below. For heating mode operation, the angle of the vane depends on the indoor heat exchanger temperature as Figure 1 below. It does not swing during fan motor stop.

Operation Mode		Vane Angle (°)
Heating with heat exchanger temperature	А	65~115
Heating, with heat exchanger temperature		90
Cooling and soft dry	65 ~115	



• Manual horizontal airflow direction can be set using remote control; the angles of the vane are as stated below and the positions of the vane are as Figure 2 above.

Pattern	1	2	3	4	5
Airflow Direction Patterns at Remote Control			7		
Vane Angle (°)	90	65	77.5	102.5	115

CS-E7, 9, 12, 15NK CS-XE7, 9, 12, 15NK

Pattern	1	2	3	4	5
Airflow Direction Patterns at Remote Control			7		
Vane Angle (°)	90	70	80	100	110

CS-E18, 21NK CS-XE18, 21NK

12.5 Quiet operation (Cooling Mode/Cooling area of Dry Mode)

- Purpose
 - To provide quiet cooling operation compare to normal operation.
- Control condition
 - Quiet operation start condition
 - When "POWERFUL/QUIET" button at remote control is pressed twice. POWERFUL/QUIET LED illuminates.
 - Quiet operation stop condition
 - When one of the following conditions is satisfied, quiet operation stops:
 - POWERFUL/QUIET button is pressed again.
 - Stop by OFF/ON switch.
 - Timer "off" activates.
 - AUTO COMFORT button is pressed.
 - ECONAVI button is pressed.
 - Mild Dry Cooling button is pressed.
 - When quiet operation is stopped, operation is shifted to normal operation with previous setting.
 - When fan speed is changed, quiet operation is shifted to quiet operation of the new fan speed.
 - When operation mode is changed, quiet operation is shifted to quiet operation of the new mode.
 - During quiet operation, if timer "on" activates, quiet operation maintains.
 - After off, when on back, quiet operation is not memorised.
- Control contents
 - Fan speed is changed from normal setting to quiet setting of respective fan speed. This is to reduce sound of Hi, Me, Lo for 3dB (some models more than 3dB).
 - Fan speed for quiet operation is reduced from setting fan speed.

12.6 Quiet operation (Heating)

- Purpose
 - To provide quiet heating operation compare to normal operation.
- Control condition
 - Quiet operation start condition
 - When "POWERFUL/QUIET" button at remote control is pressed. POWERFUL/QUIET LED illuminates.
 - Quiet operation stop condition
 - When one of the following conditions is satisfied, quiet operation stops:
 - POWERFUL/QUIET button is pressed again.
 - Stop by OFF/ON switch.
 - Timer "off" activates.
 - AUTO COMFORT button is pressed.
 - ECONAVI button is pressed.
 - Mild Dry Cooling button is pressed.
 - When quiet operation is stopped, operation is shifted to normal operation with previous setting.
 - When fan speed is changed, quiet operation is shifted to quiet operation of the new fan speed.
 - When operation mode is changed, quiet operation is shifted to quiet operation of the new mode, except fan mode only.
 - During quiet operation, if timer "on" activates, quiet operation maintains.
 - After off, when on back, quiet operation is not memorised.

Control contents

- Fan speed manual
 - Fan speed is changed from normal setting to quiet setting of respective fan speed.
 - This is to reduce sound of Hi, Me, Lo for 3dB.
 - Fan speed for quiet operation is reduced from setting fan speed.
- Fan Speed Auto
 - Indoor FM RPM depends on pipe temp sensor of indoor heat exchanger.

12.7 Powerful Mode Operation

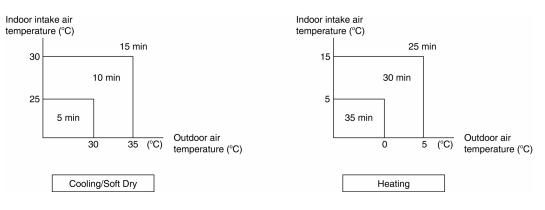
When the powerful mode is selected, the internal setting temperature will shift lower up to 2°C (for Cooling/Soft Dry) or higher up to 3.5°C (for Heating) than remote control setting temperature for 20 minutes to achieve the setting temperature quickly.

12.8 Timer Control

- There are 2 sets of ON and OFF timer available to turn the unit ON or OFF at different preset time.
- If more than one timer had been set, the upcoming timer will be displayed and will activate in sequence.

12.8.1 ON Timer Control

- ON timer 1 and ON timer 2 can be set using remote control, the unit with timer set will start operate earlier than the setting time.
 - This is to provide a comfortable environment when reaching the set ON time.
- 60 minutes before the set time, indoor (at fan speed of Lo-) and outdoor fan motor start operate for 30 seconds to
 determine the indoor intake air temperature and outdoor air temperature in order to judge the operation starting
 time.
- From the above judgment, the decided operation will start operate earlier than the set time as shown below.



12.8.2 OFF Timer Control

OFF timer 1 and OFF timer 2 can be set using remote control, the unit with timer set will stop operate at set time.

12.9 Auto Restart Control

- When the power supply is cut off during the operation of air conditioner, the compressor will re-operate within three to four minutes (there are 10 patterns between 2 minutes 58 seconds and 3 minutes 52 seconds to be selected randomly) after power supply resumes.
- This type of control is not applicable during ON/OFF Timer setting.
- This control can be omitted by open the circuit of JP1 at indoor unit printed circuit board.

12.10 Indication Panel

LED	POWER	TIMER	POWERFUL/QUIET	nanoe-G	ECONAVI	AUTO COMFORT
Color	Green	Orange	Orange	Blue	Green	Green
Light ON	Operation ON	Timer Setting ON	POWERFUL/QUIET Mode ON	nanoe-G ON	ECONAVI ON	AUTO COMFORT ON
Light OFF	Operation OFF	Timer Setting OFF	POWERFUL/QUIET Mode OFF	nanoe-G OFF	ECONAVI OFF	AUTO COMFORT OFF

Note:

- If POWER LED is blinking, the possible operation of the unit are Hot Start, during Deice operation, operation mode judgment, or ON timer sampling.
- If Timer LED is blinking, there is an abnormality operation occurs.

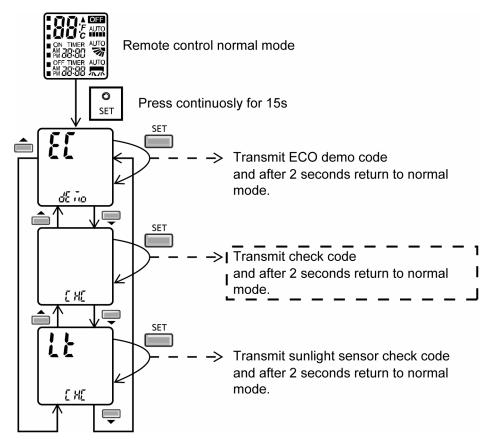
12.11 nanoe-G Operation

- This operation provides clean air by producing great amount of negative ions and distribute through the discharge airflow to capture or deactivate molds, bacteria or viruses.
- nanoe-G operation start condition
 - During unit running at any operation mode, if nanoe-G operation is activated, combination operation (operation mode + nanoe-G operation) starts.
 - During unit is OFF, if nanoe-G operation is activated, nanoe-G individual operation starts.
- nanoe-G operation stop condition
 - When OFF/ON button is pressed to stop the operation.
 - When nanoe-G button is pressed.
 - When OFF Timer activates.
- nanoe-G operation pause condition
 - When indoor fan stop (during deice, odor cut control, thermostat off, etc.). nanoe-G operation resume after indoor fan restarts.
 - When indoor intake temperature ≥ 40°C. nanoe-G operation resume after indoor intake temperature ≤ 40°C continuously for 30 minutes.
- Indoor fan control
 - During any operation mode combines with nanoe-G operation, fan speed follows respective operation mode. However, nanoe-G system enabled when fan speed ≥ 500rpm to ensure proper negative ion distribution, nanoe-G system disabled when fan speed < 500 rpm.
 - During nanoe-G individual operation, only Auto Fan Speed and no Powerful operation is allowed. Even if Fan Speed button is pressed, no signal is sent to the unit and no change on remote control display. Auto Fan Speed for nanoe-G operation changes from SHi to Hi after 4 hours of operation.
- Airflow direction control
 - During any operation mode combines with nanoe-G operation, airflow direction follows respective operation mode.
 - During nanoe-G individual operation, only Auto Air Swing is allowed. Even if Air Swing button is pressed, no signal is sent to the unit and no change on remote control display.
- Timer control
 - When ON Timer activates when unit stops, previous operation resumes and restored last saved nanoe-G
 operation status.
 - o When ON Timer activates during any operation, no change on current operation.
 - When OFF Timer activates during any operation, all operation stops and the latest nanoe-G operation status is saved.
- Indicator
 - When nanoe-G starts, nanoe-G indicator ON.

- **Remote Control Receiving Sound**
 - Normal Operation 0 Nanoe-G Operation
- ➔ nanoe-G Operation → Normal Operation
- : Beep : Beep

- 0 Stop 0
- Nanoe-G individual Operation 0
- ➔ nanoe-G individual Operation → Stop
- : Beep : Long Beep

- Power failure
 - During nanoe-G individual operation, if power failure occurs, after power resumes, nanoe-G individual 0 operation resumes immediately.
 - During combination operation, if power failure occurs, after power resumes, combination operation resume 0 immediately.
 - nanoe-G operation status is not memorized after OFF the unit. After OFF the unit, when the operation is ON 0 again, air conditioner operates without nanoe-G operation.
- nanoe-G check mode
 - To enable nanoe-G check mode, during nanoe-G operation ON: 0



If there is abnormal discharge, nanoe-G indicator blinks immediately. 0

Error detection control

0

When nanoe-G indicator blinks, it indicates error listed below:

- nanoe-G connector at main PCB open
 - Judgment method
 - During nanoe-G operation, nanoe-G connector at main PCB is opened.
 - Troubleshooting method
 - Connect the connector or stop operation to cancel the blinking •
- Abnormal discharge error 0
 - Judgment method
 - During nanoe-G operation, the nanoe-G system has abnormal discharge due to short-circuit caused by water or dust adhesion and so forth, with Lo-feedback voltage (at microcontroller).
 - When abnormal discharge occurred, every 30 minutes the unit supplies power to the nanoe-G system.
 - When abnormal discharge occurs for 24 times continuously, nanoe-G indicator blinks.

- Troubleshooting method
 - Press nanoe-G button or OFF/ON button to stop the operation and check the nanoe-G connector at PCB.
 - After that, press nanoe-G button again to confirm the nanoe-G indicator do not blinks.
 - The 24 timer counter will be clear after 10 minutes of normal operation or when operation stops.

o Error reset method

- Press OFF/ON button to OFF the operation.
- Press AUTO OFF/ON button at indoor unit to OFF the operation.
- OFF Timer activates
- Power supply reset.
- o nanoe-G breakdown error
 - Judgment method
 - Hi-feedback voltage (at microcontroller) supplied to the nanoe-G system when nanoe-G operation is OFF; nanoe-G breakdown error show immediately.
 - It is due to indoor PCB or nanoe-G high voltage power supply damage.
 - Operations except nanoe-G continue. Both Timer indicator and nanoe-G indicator blink.
 - Troubleshooting method
 - Press nanoe-G button or OFF/ON button to stop the operation.
 - Change nanoe-G high voltage power supply or main PCB.
 - When Lo-feedback voltage supplied to nanoe-G system during nanoe-G operation ON, nanoe-G indicator and Timer indicator stop blinking.

12.12 Mild Dry Cooling Operation

- This operation helps to prevent decreases in room humidity while maintaining the setting temperature.
- During unit running at Cooling operation mode, if "Mild Dry Cooling" button is pressed, Mild Dry Cooling operation starts and Mild Dry Cooling indicators turns ON at remote control display.
- Mild dry cooling operation is unavailable when the unit is operating Auto mode and Soft Dry model operation.
- Mild dry cooling operation is cancelled when the unit turned OFF, Mild Dry Cooling button is pressed again or when the operation mode changed from Cooling to other mode.
- ECONAVI, Powerful, Quiet and Mild Dry Cooling mode cannot function at the same time, the unit will follows the operation according to the last signal received.
- During this operation, the compressor frequency changes according to operating condition to prevent room humidity decreases and when AUTO AIR SWING is set, the vertical airflow direction fixed at lower limit position.

12.13 AUTO COMFORT and ECO NAVI Operation

- Area of human availability, activity level and absent is judged based on pulses by using 2 infrared sensors. The internal setting temperature shift, fan speed and horizontal airflow direction are adjusted in order to provide comfort environment while maintain the energy saving level.
- AUTO COMFORT start condition:
- When AUTO COMF button is pressed.
- AUTO COMFORT stop conditions:
 - When AUTO COMF button is pressed again.
 - When unit is OFF by OFF/ON button.
 - When unit is OFF when OFF TIMER activates.
 - When unit is OFF by AUTO OFF/ON button at indoor unit.
 - When POWERFUL, QUIET operation activates.
 - When \triangleleft button is pressed.
- ECO NAVI start condition:
 - When ECO NAVI button is pressed.

- ECO NAVI stop conditions:
 - When ECO NAVI button is pressed again.
 - When unit is OFF by OFF/ON button.
 - When unit is OFF when OFF TIMER activates.
 - o When unit is OFF by AUTO OFF/ON button at indoor unit.
 - o When POWERFUL, QUIET operation activates.
 - When \triangleleft button is pressed.
- AUTO COMFORT / ECO NAVI initialization

	Initialize indication	ndication Human Activity Sensor						
1	0 – 2 seconds							
2	2 – 3 seconds							
		I						
		II						
3	3 – 70 seconds	III						
		IV						
			Repeat S	tep I to IV				

* □ Indicator ON, ■ Indicator OFF

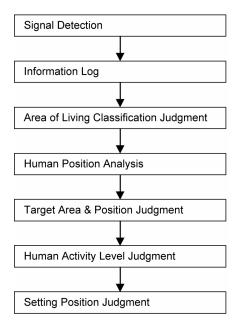
12.13.1 Human Activity Sensor

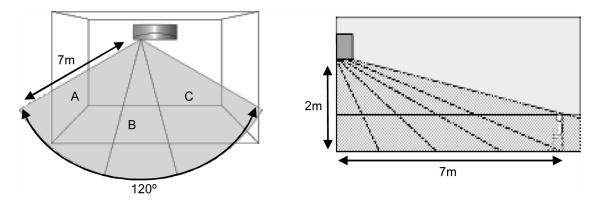
- Area of human availability, activity level and absent is judged based on pulses by using 2 infrared sensors. The internal setting temperature shift, fan speed and horizontal airflow direction are adjusted in order to provide comfort environment while maintain the energy saving level.
- AUTO COMFPRT / ECO NAVI initialization

	Initialize indication		Human Act	ivity Sensor	
1	0 – 2 seconds				
2	2 – 3 seconds				
		I			
		II			
3	3 – 70 seconds				
		IV			
			Repeat S	itep I to IV	

* □ Indicator ON, ■ Indicator OFF

Human activity judgment is as following





• Human Activity sensor will turns on according to infrared sensors signal detection.

Signal d	letection	Possible detected human	H	uman Activity Indica	tor
Sensor 1	Sensor 2	position area	Left	Center	Right
1	0	С			
0	1	A			
		В			
		A & C			
1	1	B&C			
		A & C			
		A, B & C			
0	0	_			

* □ Indicator ON, ■ Indicator OFF

However, once the Human Activity Indicator is ON, it will maintain ON status for 5 seconds. If there is no signal
detection from either infrared sensor, the final display condition will be kept until absence status.

12.13.1.2 Information Log

• The signal from Infrared sensors will be log to human activity database for further analysis.

12.13.1.3 Area of Living Classification Judgment

- The system is able to judge area of living according to human activity database, classified as following:
 - o Living Area In front of television, dining table, etc.
 - Walkway Human detection is relatively less.
 - Non-Living Area near windows, wall, etc.

12.13.1.4 Human Position Analysis

• According to Area of Living, frequency of activity and indoor unit intake temperature, the system will analyze the human position away from the indoor unit.

12.13.1.5 Target Area and Position Judgment

- The system will judge the indoor unit installation position according to human activity Non-Living Area:
 - Non-Living Area at Position A Indoor unit installed at left side of the room.
 - Non-Living Area at Position C Indoor unit installed at right side of the room.
 - Other than above Indoor unit installed at center of the room.
- Every 4 hours, the Target Area and Position Judgment will restart.

12.13.1.6 Human Activity Level Judgment

- Human Activity Level is judged based on the frequency of pulses detected by the infrared sensors within a timeframe. The activity level will be categorized into High, Normal, Low level.
- When a pulse is detected within this timeframe, the status of human presence is judged.
- When there is no signal detection continues for 20 minutes or more, the status of human absence is judged.

12.13.1.7 Setting Position Judgment

• According to installation position when there is only one activity area detected, the horizontal airflow direction louver position is fixed according to chart below:

Target area	Horizont	Horizontal airflow direction louver position								
Target area	Left installation	Center installation	Right installation							
A	3	2	2							
В	B 1		1							
С	5	5	4							

- Louver position refer to horizontal airflow direction control.
- When 2 activity areas have been detected, according to Human Activity Level, the timing of horizontal airflow direction louver steps at the targeted activity areas is judged.

Operation mode	Activity level difference	Louver stop time
Cooling		Higher Activity level ≈ 60 seconds Lower Activity level ≈ 30 seconds
Cooling		Higher Activity level ≈ 60 seconds Lower Activity level ≈ 8 seconds

• When 3 activity areas have been detected, according to Human Activity Level the timing of horizontal airflow louver steps at the targeted activity areas is judged.

Operation mode	Activity level	Louver stop time
	Hi	≈ 45 seconds
Cooling	Ме	≈ 30 seconds
	Lo	≈ 20 seconds

• When 3 activity areas have same activity level, the horizontal airflow direction louver will swing left and right.

12.13.2 Setting Temperature and Fan Speed Shift

Cooling Dual Sensor

ECONAVI — To optimize energy saving

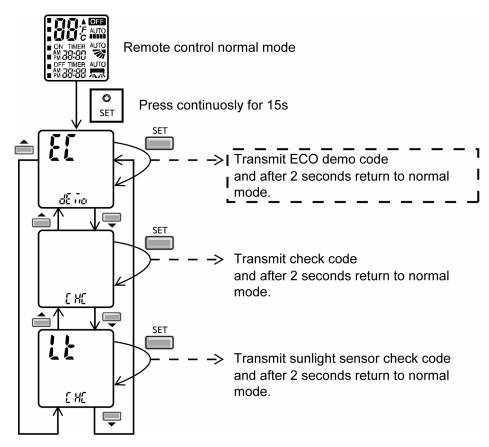
AUTO COMFORT ----- To maximize comfort

Heat Source & Movement	Low	High	Normal	None
Cool/Dry Mode Set Temperature	+1°C	5		+2°C
Set Fan Speed	+1 tap*	-1°C +1 tap		≤ Medium Fan
Heat Mode Set Temperature	+0.3°(
Set Fan Speed		-2°C		<u>-1-2°C</u>

* For first 15 minutes or until set temperature is reached.

12.13.2.1 ECO NAVI and AUTO COMF Demo Mode

• To enable ECO DEMO mode:



- To disable ECO Demo MODE:
 - Transmit ECO Demo signal again.
- Operation details

Infrared	sensor	Hu	man Activity Sen	Vana position	Ean anod		
Sensor 1	Sensor 2	Left	Center	Right	Vane position	Fan speed	
1	0				5	HI	
1	1				Auto Swing	HI	
0	1				1	HI	
0	0				Auto Swing	LO	

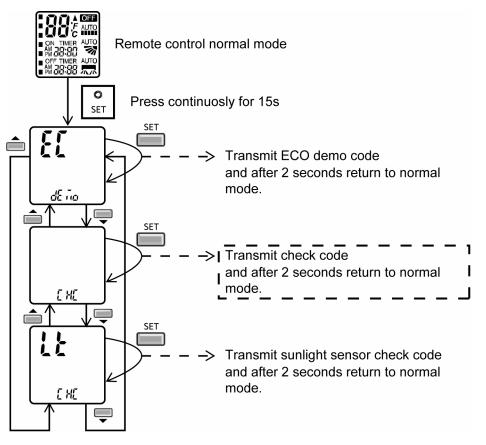
- The target area will maintain for 5 seconds before changeover to next detection.
- If no activity detection, the last action will maintain for 30 seconds before changeover to human absence status.

12.13.2.2 Infrared Sensor Abnormality

- Abnormality detection:
 - Connector disconnection / Wire cut abnormality
 - Sensor judge Hi level continuously for 25 seconds
 - Circuit abnormality
 - \circ 70 seconds after power ON, if infrared sensor judge Lo level continuously for 25 seconds
- Error Code judgment
 - When abnormality happened, internal counter increase by 1 time.
 - Infrared sensor power OFF, retry after 5 seconds.
 - When the infrared sensor maintains normal condition for 120 seconds, the counter reset or AC reset.
 - When abnormality counter reached 4 times, H59 occurred No TIMER indicator blinking.
- When error code happened, the unit is able to operate without AUTO COMF / ECO NAVI.

12.13.2.3 Infrared Sensor Check Mode

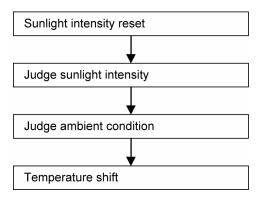
• To enable Infrared sensor abnormality check mode:



- During ECO NAVI is ON, when CHECK signal received, if either sensors has abnormality, the 4 times
 abnormality counter is ignored, ECO NAVI Indicator will blink immediately and error code is memorized.
- The unit could operate without ECO NAVI or AUTO COMF.
- The ECO NAVI indicator blinking could be cancelled by pressing ECO NAVI button again.
- If the Infrared sensor has no abnormality, the CHECK process will end and continue with normal operation.

12.13.3 Sunlight Sensor

- During ECONAVI operation, the sunlight sensor detects sunlight intensity coming through windows and differentiates between supply and aloudy or night to further entimize energy equips by adjusting the temps
- differentiates between sunny and cloudy or night to further optimize energy saving by adjusting the temperature.
- Sunlight judgment is as following

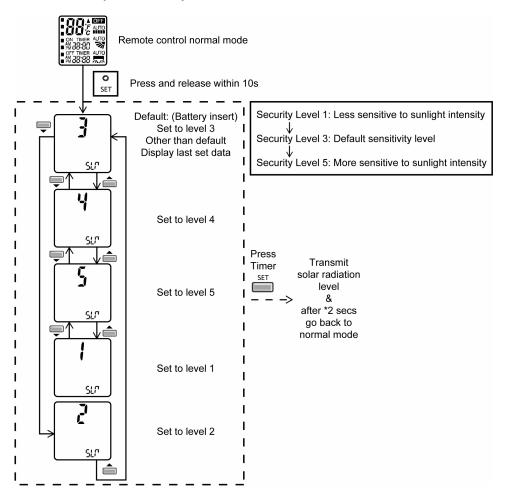


12.13.3.1 Sunlight Intensity Reset

- The sunlight intensity will to reset to zero (no sunlight condition) when
 - Each time ECONAVI is activated.
 - Setting temperature is changed.
 - Operation mode is changed.

12.13.3.2 Judge Sunlight Intensity

- Based on sunlight sensor output voltage, the sunlight intensity value will be computed and logged to sunlight intensity database.
- The sunlight sensor sensitivity could be adjusted:



12.13.3.3 Judge Ambient Condition

• According to sunlight intensity over a period of time, the system will analyze the ambient condition is sunny, cloudy or night.

12.13.3.4 Temperature Shift

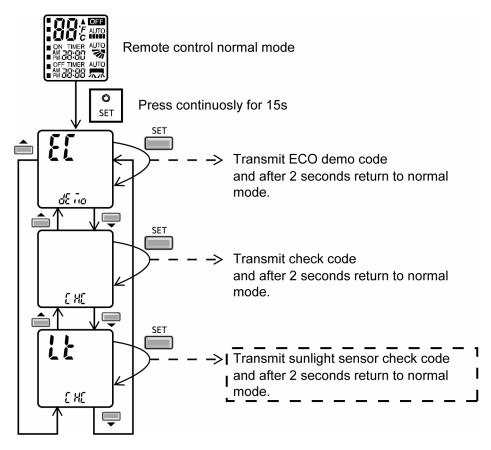
Ambient condition	Cloudy/ Night	Sunny	Cloudy/ Night	Sunny
COOL/DRY Mode Set Temperature			+1°C	ъ
HEAT Mode Set Temperature		۰ <u>۰</u> -1°C		۰ <u></u> 1°C

- ECONAVI is activated while it is cloudy / night

ECONAVI is activated while it is sunny

12.13.3.5 Sunlight Sensor Check Mode

• To enable sunlight sensor check mode, during unit is OFF (power standby):



- Operation details
 - The sunlight sensor check mode will be operated for 5 minutes.
 - o During check mode, the ON and OFF timer will be memorized but it operation be ignored.
 - o During check mode, if the sunlight sensor check code is retransmitted, the 5 minutes counter will be reset.
 - During check mode, if sunlight sensor detected the sunlight intensity value above minimum level, the ECONAVI indicator turns ON. Else if sunlight sensor detected sunlight intensity value below minimum level, the ECONAVI indicator is OFF.
- To disable sunlight sensor check mode
 - After check mode is ended (5 minutes counter elapsed), press AUTO OFF/ON button at indoor unit.
 - If the sunlight sensor detected sunlight intensity is at abnormal range, the check mode will be ended.
 Please check for error code.

12.13.3.6 Sunlight Sensor Abnormality

- Abnormality detection:
 - When ECONAVI is ON, if the sunlight intensity value below minimum level continuously for 24 hours, the sunlight sensor disconnection error counter will increase by 1 time. If the ECONAVI is OFF, the 24 hours timer will be reset, but the sunlight sensor disconnection error counter will not be reset.
- Error Code judgment
 - When sunlight sensor disconnection error counter reached 15 times. H70 occurred.
 - No TIMER indicator or ECONAVI indicator blink.
- When error code happened, the unit is able to operate without sunlight sensor.

13. Operation Control (For Multi Split Connection)

During multi split connection, indoor unit's operation controls are same with single split connection unless specified in this chapter.

13.1 Cooling operation

13.1.1 Thermostat control

- Capability supply to indoor unit is OFF (Expansion valve closed) when Intake Air Temperature Internal setting temperature < -2.0°C.
- Capability resume supply to indoor unit after waiting for 3 minutes, if the Intake Air temperature Internal setting temperature > Capability supply OFF point.

13.2 Soft Dry Operation

13.2.1 Thermostat control

- Capability supply to indoor unit is OFF (Expansion valve closed) when Intake Air Temperature Internal setting temperature < -3.0°C.
- Capability resume to indoor unit after waiting for 3 minutes, if the Intake Air temperature Internal setting temperature > Capability supply OFF point.

13.3 Heating Operation

13.3.1 Thermostat control

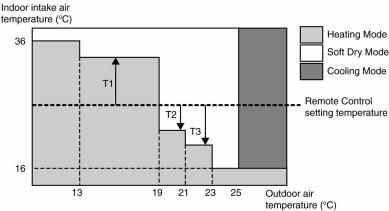
- Capability supply to indoor unit is OFF (Expansion valve closed) when Intake Air Temperature Internal setting temperature > +1.0°C.
- During this condition, the indoor fan is stopped if compressor is ON.
- Capability resume supply to indoor unit after waiting for 3 minutes, if the Intake Air Temperature Internal setting temperature < Capability supply OFF point.

13.3.2 Temperature Sampling Control

- Temperature sampling is controlled by outdoor unit where room temperature for all power supply ON indoor unit could be obtained.
- When capability supply to the indoor unit is OFF and the compressor is ON, the indoor fan motor is stopped. During this condition, 15 seconds after sampling signal from outdoor unit is received, the indoor fan start operation at low fan speed.
- However, within first 4 minutes of capability stopped supply to the indoor unit, even sampling signal is received, the sampling control is cancelled.

13.4 Automatic Operation

- This mode can be set using remote control and the operation is decided by remote control setting temperature, remote control operation mode, indoor intake and outdoor air temperature.
- During operation mode judgment, indoor fan motor (with speed of -Lo) and outdoor fan motor are running for 30 seconds to detect the indoor intake and outdoor air temperature. The operation mode is decided based on below chart.



• Every 180 minutes, the indoor and outdoor temperature is judge. Based on remote control setting temperature, the value of T1 will increase up to 10°C, T2 will decrease by 3°C and T3 will decrease up to 8°C.

13.5 Indoor Fan Motor Operation

13.5.1 Residual Heat Removal Control

• To prevent high pressure at indoor unit, when heating mode thermostat-off condition or power supply OFF, indoor fan continue to operate at controlled fan speed for maximum 30 seconds then stop.

13.6 Powerful Mode Operation

When the power mode is selected, the internal setting temperature will shift lower up to 4°C for Cooling/Soft Dry
or higher up to 6°C for heating than remote control setting temperature, the powerful operation continue until user
cancel the Powerful operation by pressing powerful button again.

13.7 Auto restart control

- When the power supply is cut off during the operation of air conditioner, the compressor will re-operate between three to four minutes (10 patterns to be selected randomly) after power resume.
- During multi split connection, Indoor unit will resume previous mode, include unit standby mode.

13.8 Indication Panel

LED	POWER	TIMER	POWERFUL/QUIET	nanoe-G	ECONAVI	AUTO COMFORT
Color	Green	Orange	Orange	Blue	Green	Green
Light ON	Operation ON	Timer Setting ON	POWERFUL/QUIET Mode ON	nanoe-G ON	ECONAVI ON	AUTO COMFORT ON
Light OFF	Operation OFF	Timer Setting OFF	POWERFUL/QUIET Mode OFF	nanoe-G OFF	ECONAVI OFF	AUTO COMFORT OFF

Note:

- If POWER LED is blinking (0.5 seconds ON, 0.5 second OFF), the possible operation of the unit are during Indoor Residual Heat Removal, Hot Start, during Deice operation, operation mode judgment, or ON timer sampling.
- If POWER LED is blinking (2.5 seconds ON, 0.5 second OFF), the unit is in standby mode.
- If TIMER LED is blinking, there is an abnormality operation occurs.

13.9 Mild Dry Cooling Operation

• During multi split connection, Mild Dry Cooling Operation is disabled.

14. Protection Control

14.1 Protection Control For All Operations

14.1.1 Restart Control (Time Delay Safety Control)

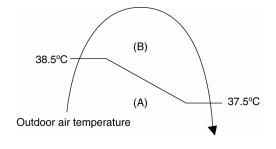
- The Compressor will not turn on within 3 minutes from the moment operation stops, although the unit is turned on again by pressing OFF/ON button at remote control within this period.
- This control is not applicable if the power supply is cut off and on again.
- This phenomenon is to balance the pressure inside the refrigerant cycle.

14.1.2 Total Running Current

- 1 When the outdoor unit total running current (AC) exceeds X value, the frequency instructed for compressor operation will be decreased.
- 2 If the running current does not exceed X value for 5 seconds, the frequency instructed will be increased.
- 3 However, if total outdoor unit running current exceeds Y value, compressor will be stopped immediately for 3 minutes.

Model	E7NK	E/E-3	E9NK	E/E-3	E12	NKE	E12N	KE-3	E15	NKE	E18	NKE	E21	NKE
Operation Mode	X (A)	Y (A)												
Cooling / Soft Dry (A)	3.78	15.06	4.62	15.06	6.64	15.06	6.93	15.06	8.25	15.06	11.81	14.75	12.27	14.75
Cooling / Soft Dry (B)	3.33	15.06	4.20	15.06	6.20	15.06	6.42	15.06	7.74	15.06	8.91	14.75	11.10	14.75
Heating	4.46	15.06	5.57	15.06	7.30	15.06	8.10	15.06	8.40	15.06	10.07	14.75	11.58	14.75

4 The first 30 minutes of cooling operation, (A) will be applied.

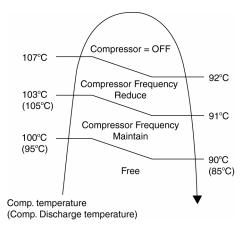


14.1.3 IPM (Power transistor) Prevention Control

- Overheating Prevention Control
 - 1 When the IPM temperature rises to 120°C, compressor operation will stop immediately.
 - 2 Compressor operation restarts after 3 minutes the temperature decreases to 110°C.
 - 3 If this condition repeats continuously 4 times within 20 minutes, timer LED will be blinking ("F96" is indicated).
- DC Peak Current Control
 - 1 When electric current to IPM exceeds set value of 18.5 A (E7 ~ 15NK) and 30.0 ± 5.0A (E18 ~ 21NK), the compressor will stop operate. Then, operation will restart after 3 minutes.
 - 2 If the set value is exceeded again more than 30 seconds after the compressor starts, the operation will restart after 1 minute.
 - 3 If the set value exceeded again within 30 seconds after the compressor starts, the operation will restart after 1 minute. If this condition repeats continuously for 7 times, all indoor and outdoor relays will be cut off, timer LED will be blinking ("F99" is indicated).

14.1.4 Compressor Overheating Prevention Control

- Instructed frequency for compressor operation will be regulated by compressor discharge temperature. The changes of frequency are as below.
- If compressor discharge temperature exceeds 107°C, compressor will be stopped, occurs 4 times per 20 minutes, timer LED will be blinking. ("F97" is indicated.)



14.1.5 Low Pressure Prevention Control (Gas Leakage Detection)

- Control start conditions
 - For 5 minutes, the compressor continuously operates and outdoor total current is between 0.75A and 0.95A (E7/9/12/15NK), 1.38A and 1.65A (E18/21NK).
 - During Cooling and Soft Dry operations: Indoor suction temperature - indoor piping temperature is below 4°C.
 - During Heating operations : Indoor piping temperature - indoor suction is under 5°C.
- Control contents

0

- o Compressor stops (and restart after 3 minutes).
 - If the conditions above happen 2 times within 20 minutes, the unit will:
 - Stop operation
 - Timer LED blinks and "F91" indicated.

14.1.6 Low Frequency Protection Control 1

• When the compressor operate at frequency lower than 24 Hz continued for 20 minutes, the operation frequency will be changed to 23 Hz for 2 minutes.

14.1.7 Low Frequency Protection Control 2

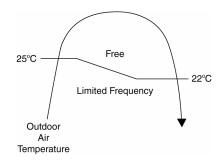
• When all the below conditions comply, the compressor frequency will change to lower frequency.

Temperature, T, for:	Cooling/Soft Dry	Heating
Indoor intake air (°C)	T < 14 or T ≥ 30	T < 14 or T ≥ 28
Outdoor air (°C)	T < 13 or T ≥ 38	T < 4 or T ≥ 24
Indoor heat exchanger (°C)	T < 30	T ≥ 0

14.2 Protection Control For Cooling & Soft Dry Operation

14.2.1 Outdoor Air Temperature Control

- The compressor operating frequency is regulated in accordance to the outdoor air temperature as shown in the diagram below.
- This control will begin 1 minute after the compressor starts.
- Compressor frequency will adjust base on outdoor air temperature.



14.2.2 Cooling Overload Control

- Detects the Outdoor pipe temperature and carry out below restriction/limitation (Limit the compressor Operation frequency).
- The compressor stop if outdoor pipe temperature exceeds 61°C (E7 ~ 15NK), 63°C (E18NK ~ E21NK).
- If the compressor stops 4 times in 20 minutes, Timer LED blinking (F95 indicated: outdoor high pressure rise protection).

14.2.3 Freeze Prevention Control 1

- When indoor heat exchanger temperature is lower than 0°C continuously for 6 minutes, compressor will stop operating.
- Compressor will resume its operation 3 minutes after the indoor heat exchanger is higher than 5°C.
- At the same time, indoor fan speed will be higher than during its normal operation.
- If indoor heat exchanger temperature is higher than 5°C for 5 minutes, the fan speed will return to its normal
 operation.

14.2.4 Freeze Prevention Control 2

- Control start conditions
 - During Cooling operation and soft dry operation
 - During thermo OFF condition, indoor intake temperature is less than 10°C or
 - Compressor stops for freeze prevention control
 - Either one of the conditions above occurs 5 times in 60 minutes.
- Control contents
 - Operation stops
 - Timer LED blinks and "H99" indicated

14.2.5 Dew Prevention Control 1

- To prevent dew formation at indoor unit discharge area.
- This control will be activated if:
 - o Outdoor air temperature and Indoor pipe temperature judgment by microcontroller is fulfilled.
 - When Cooling or Dry mode is operated more than 20 minutes or more.
- This control stopped if:
 - o Compressor stopped.
 - o Remote control setting changed (fan speed / temperature).
 - Outdoor air temperature and indoor intake temperature changed.
- Fan speed will be adjusted accordingly in this control.

14.2.6 Odor Cut Control

- To reduce the odor released from the unit.
 - Start Condition
 - AUTO FAN Speed is selected during COOL or DRY operation.
 - During freeze prevention control and timer preliminary operation, this control is not applicable.
 - Control content
 - Depends on compressor conditions:
 - 1. Compressor OFF \rightarrow Compressor ON.
 - The indoor unit fan stops temporarily and then starts to blow at minimum airflow for 30 seconds. 2. Compressor $ON \rightarrow Compressor OFF$.
 - The indoor unit fan stops for 90 seconds and then blows at minimum airflow for 20 seconds.

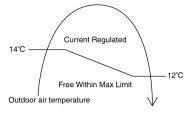
14.3 Protection Control For Heating Operation

14.3.1 Intake Air Temperature Control

Compressor will operate at limited freq., if indoor intake air temperature is 30°C or above.

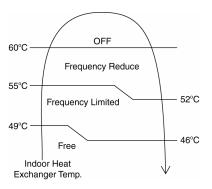
14.3.2 Outdoor Air Temperature Control

The Max current value is regulated when the outdoor air temperature rise above 16°C (E7 ~ 15NK) and 14°C (E18 ~ 21NK) in order to avoid compressor overloading.



14.3.3 Overload Protection Control

- The compressor operating frequency is regulated in accordance to indoor heat exchanger temperature as shown below.
- If the heat exchanger temperature exceeds 60°C, compressor will stop.



14.3.4 Low Temperature Compressor Oil Return Control

 In heating operation, if the outdoor temperature falls below -10°C when compressor starts, the compressor frequency will be regulated up to 600 seconds.

14.3.5 Cold Draught Prevention Control

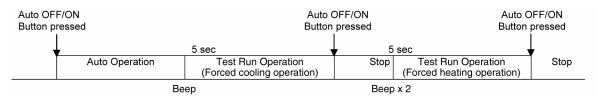
• When indoor pipe temperature is low, cold draught operation starts where indoor fan speed will be reduced.

14.3.6 Deice Operation

 When outdoor pipe temperature and outdoor air temperature is low, deice operation start where indoor fan motor and outdoor fan motor stop and operation LED blinks.

15. Servicing Mode

15.1 Auto OFF/ON Button



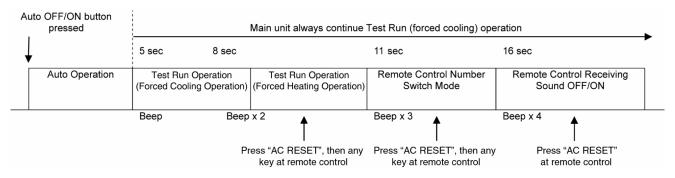
1 AUTO OPERATION MODE

The Auto operation will be activated immediately once the Auto OFF/ON button is pressed. This operation can be used to operate air conditioner with limited function if remote control is misplaced or malfunction.

2 TEST RUN OPERATION (FOR PUMP DOWN/SERVICING PURPOSE)

The Test Run operation will be activated if the Auto OFF/ON button is pressed continuously for more than 5 seconds. A "beep" sound will heard at the fifth seconds, in order to identify the starting of Test Run operation (Forced cooling operation). Within 5 minutes after Forced cooling operation start, the Auto OFF/ON button is pressed for more than 5 seconds. A 2 "beep" sounds will heard at the fifth seconds, in order to identify the starting of Forced heating operation.

The Auto OFF/ON button may be used together with remote control to set / change the advance setting of air conditioner operation.



3 REMOTE CONTROL NUMBER SWITCH MODE

The Remote Control Number Switch Mode will be activated if the Auto OFF/ON button is pressed continuously for more than 11 seconds (3 "beep" sounds will occur at 11th seconds to identify the Remote Control Number Switch Mode is in standby condition) and press "AC RESET" button and then press any button at remote control to transmit and store the desired transmission code to the EEPROM.

There are 4 types of remote control transmission code could be selected and stored in EEPROM of indoor unit. The indoor unit will only operate when received signal with same transmission code from remote control. This could prevent signal interference when there are 2 or more indoor units installed nearby together. To change remote control transmission code, short or open jumpers at the remote control printed circuit board.

	Remote Control Printed Circuit Board		
	Jumper A (J1)	Jumper B (D2)	Remote Control No.
	Short	Open	A (Default)
	Open	Open	В
	Short	Short	С
	Open	Short	D

 During Remote Control Number Switch Mode, press any button at remote control to transmit and store the transmission code to the EEPROM. 4 REMOTE CONTROL RECEIVING SOUND OFF/ON MODE

The Remote Control Receiving Sound OFF/ON Mode will be activated if the Auto OFF/ON button is pressed continuously for more than 16 seconds (4 "beep" sounds will occur at 16th seconds to identify the Remote Control Receiving Sound Off/On Mode is in standby condition) and press "AC Reset" button at remote control.

Press "Auto OFF/ON button" to toggle remote control receiving sound.

- Short "beep": Turn OFF remote control receiving sound.
- Long "beep": Turn ON remote control receiving sound.

After Auto OFF/ON Button is pressed, the 20 seconds counter for Remote Control Receiving Sound OFF/ON Mode is restarted.

15.2 Remote Control Button

15.2.1 SET Button

- To check remote control transmission code and store the transmission code to EEPROM:
 - Press "Set" button continuously for 10 seconds by using pointer.
 - Press "Timer Set" button until a "beep" sound is heard as confirmation of transmission code changed.

15.2.2 RESET (RC)

- To clear and restore the remote control setting to factory default.
 - \circ $\;$ Press once to clear the memory.

15.2.3 RESET (AC)

To restore the unit's setting to factory default.
 Press once to restore the unit's setting.

15.2.4 TIMER ▲

To change indoor unit indicator's LED intensity.
 Press continuously for 5 seconds.

15.2.5 TIMER ▼

- To change remote control display from Degree Celsius (°C) to Degree Fahrenheit (°F).
 - Press continuously for 10 seconds.