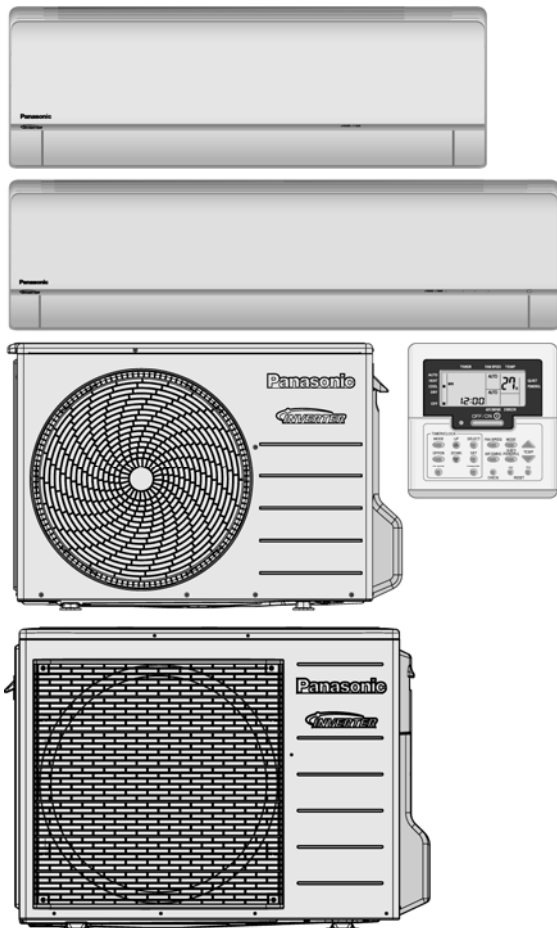


Service Manual

Air Conditioner



Indoor Unit
CS-E9PKEA
CS-E12PKEA
CS-E15PKEA
CS-E18PKEA

Outdoor Unit
CU-E9PKEA
CU-E12PKEA
CU-E15PKEA
CU-E18PKEA

Destination
Europe

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.

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by  in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.



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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2. Specifications

Model			Indoor	CS-E9PKEA			
			Outdoor	CU-E9PKEA			
Performance Test Condition			EUROVENT				
Power Supply			Phase, Hz	Single, 50			
			V	230			
			Min.	Mid.	Max.		
Cooling	Capacity		kW	0.85	2.50	3.00	
			BTU/h	2900	8530	10200	
			Kcal/h	730	2150	2580	
	Running Current		A	–	2.40	–	
	Input Power		W	170	515	710	
	Annual Consumption		kWh	–	258	–	
	EER		W/W	5.00	4.85	4.23	
			BTU/hW	17.06	16.56	14.37	
			Kcal/hW	4.24	4.17	3.63	
	ErP	Pdesign	kW	2.5			
		SEER	(W/W)	7.1			
		Annual Consumption	kWh	123			
		Class		A++			
	Power Factor		%	–	90	–	
	Indoor Noise (H / L / QLo)		dB-A	39 / 26 / 23			
			Power Level dB	55 / –			
	Outdoor Noise (H / L)		dB-A	46 / –			
			Power Level dB	61 / –			
	Heating	Capacity		kW	0.85	3.40	5.40
				BTU/h	2900	11600	18400
Kcal/h				730	2920	4640	
Running Current		A	–	3.3	–		
Input Power		W	165	700	1.31k		
COP		W/W	5.15	4.86	4.12		
		BTU/hW	17.58	16.57	14.05		
		Kcal/hW	4.42	4.17	3.54		
ErP		Pdesign	kW	2.8			
		Tbivalent	°C	-10			
		SCOP	(W/W)	4.4			
		Annual Consumption	kWh	891			
		Class		A+			
Power Factor		%	–	92	–		
Indoor Noise (H / L / QLo)		dB-A	40 / 27 / 24				
		Power Level dB	56 / –				
Outdoor Noise (H / L)		dB-A	47 / –				
		Power Level dB	62 / –				
Low Temp. : Capacity (kW) / I.Power (W) / COP			3.91 / 1.16k / 3.37				
Extr Low Temp. : Capacity (kW) / I.Power (W) / COP			3.33 / 1.29k / 2.58				
Max Current (A) / Max Input Power (W)			7.8 / 1.74k				
Starting Current (A)			3.3				

Model			Indoor	CS-E9PKEA	
			Outdoor	CU-E9PKEA	
Compressor	Type			Hermetic Motor (Rotary)	
	Motor Type			Brushless (4 poles)	
	Output Power		W	900	
Indoor Fan	Type			Cross-Flow Fan	
	Material			ASG33	
	Motor Type			DC / Transistor (8-poles)	
	Input Power		W	44.9	
	Output Power		W	40	
	Speed	QLo	Cool	rpm	630
			Heat	rpm	690
		Lo	Cool	rpm	700
			Heat	rpm	740
		Me	Cool	rpm	880
			Heat	rpm	910
		Hi	Cool	rpm	1060
			Heat	rpm	1080
		SHi	Cool	rpm	1120
			Heat	rpm	1150
Outdoor Fan	Type			Propeller Fan	
	Material			PP	
	Motor Type			DC (8-poles)	
	Input Power		W	—	
	Output Power		W	40	
	Speed	Hi	Cool	rpm	840
			Heat	rpm	800
Moisture Removal			L/h (Pt/h)	1.5 (3.2)	
Indoor Airflow	QLo	Cool	m³/min (ft³/min)	7.45 (263)	
		Heat	m³/min (ft³/min)	8.26 (292)	
	Lo	Cool	m³/min (ft³/min)	8.40 (297)	
		Heat	m³/min (ft³/min)	8.94 (316)	
	Me	Cool	m³/min (ft³/min)	10.83 (382)	
		Heat	m³/min (ft³/min)	11.24 (397)	
	Hi	Cool	m³/min (ft³/min)	13.3 (470)	
		Heat	m³/min (ft³/min)	14.6 (515)	
	SHi	Cool	m³/min (ft³/min)	14.90 (526)	
		Heat	m³/min (ft³/min)	15.44 (545)	
Outdoor Airflow	Hi	Cool	m³/min (ft³/min)	31.3 (1105)	
		Heat	m³/min (ft³/min)	29.7 (1050)	
Refrigeration Cycle	Control Device			Expansion Valve	
	Refrigerant Oil		cm³	FV50S (450)	
	Refrigerant Type		g (oz)	R410A, 1.10k (38.8)	
Dimension	Height (I/D / O/D)		mm (inch)	295 (11-5/8) / 622 (24-1/2)	
	Width (I/D / O/D)		mm (inch)	870 (34-9/32) / 824 (32-15/32)	
	Depth (I/D / O/D)		mm (inch)	255 (10-1/16) / 299 (11-25/32)	
Weight	Net (I/D / O/D)		kg (lb)	10 (22) / 36 (79)	

Model		Indoor	CS-E9PKEA	
		Outdoor	CU-E9PKEA	
Piping	Pipe Diameter (Liquid / Gas)	mm (inch)	6.35 (1/4) / 9.52 (3/8)	
	Standard length	m (ft)	5.0 (16.4)	
	Length range (min – max)	m (ft)	3 (9.8) ~ 15 (49.2)	
	I/D & O/D Height different	m (ft)	5.0 (16.4)	
	Additional Gas Amount	g/m (oz/ft)	20 (0.2)	
	Length for Additional Gas	m (ft)	7.5 (24.6)	
Drain Hose	Inner Diameter	mm	16.7	
	Length	mm	650	
Indoor Heat Exchanger	Fin Material		Aluminium (Pre Coat)	
	Fin Type		Slit Fin	
	Row × Stage × FPI		2 × 17 × 19	
	Size (W × H × L)	mm	636.5 × 357 × 25.4	
Outdoor Heat Exchanger	Fin Material		Aluminium	
	Fin Type		Corrugated Fin	
	Row × Stage × FPI		2 × 28 × 17	
	Size (W × H × L)	mm	36.4 × 588 × 606.6	
Air Filter	Material		Polypropelene	
	Type		One-touch	
Power Supply			Indoor	
Power Supply Cord		A	Nil	
Thermostat			Electronic Contol	
Protection Device			Electronic Contol	
			Dry Bulb	Wet Bulb
Indoor Operation Range	Cooling	Maximum °C	32	23
		Minimum °C	16	11
	Heating	Maximum °C	30	–
		Minimum °C	16	–
Outdoor Operation Range	Cooling	Maximum °C	43	26
		Minimum °C	-15	–
	Heating	Maximum °C	24	18
		Minimum °C	-15	–

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)
2. 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 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
4. Heating extreme low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor -7/-8°C
5. Standby power consumption ≤0.7w (when switched OFF by remote control, except under self protection control).
6. Specifications are subjected to change without prior notice for further improvement.

Model			Indoor	CS-E12PKEA			CS-E15PKEA		
			Outdoor	CU-E12PKEA			CU-E15PKEA		
Performance Test Condition				EUROVENT			EUROVENT		
Power Supply			Phase, Hz	Single, 50			Single, 50		
			V	230			230		
				Min.	Mid.	Max.	Min.	Mid.	Max.
Cooling	Capacity		kW	0.85	3.50	4.00	0.98	4.20	5.00
			BTU/h	2900	11900	13600	3340	14300	17100
			Kcal/h	730	3010	3440	840	3610	4300
	Running Current		A	–	3.8	–	–	5.4	–
	Input Power		W	170	870	1.12k	280	1.20k	1.58k
	Annual Consumption		kWh	-	435	–	–	600	–
	EER		W/W	5.00	4.02	3.57	3.50	3.50	3.16
			BTU/hW	17.06	13.68	12.14	11.93	11.92	10.82
			Kcal/hW	4.29	3.46	3.07	3.00	3.01	2.72
	ErP	Pdesign	kW	3.5			4.2		
		SEER	(W/W)	6.7			6.3		
		Annual Consumption	kWh	183			233		
		Class		A++			A++		
	Power Factor		%	–	95	–	–	97	–
	Indoor Noise (H / L / QLo)		dB-A	42 / 29 / 26			43 / 32 / 29		
			Power Level dB	58 / –			59 / –		
	Outdoor Noise (H / L)		dB-A	48 / –			46 / –		
			Power Level dB	63 / –			61 / –		
Heating	Capacity		kW	0.85	4.00	6.60	0.98	5.40	7.10
			BTU/h	2900	13600	22500	3340	18400	24200
			Kcal/h	730	3440	5680	840	4640	6110
	Running Current		A	–	4.2	–	–	6.5	–
	Input Power		W	165	920	1.82k	340	1.44k	2.19k
	COP		W/W	5.15	4.35	3.63	2.88	3.75	3.24
			BTU/hW	17.58	14.78	12.36	9.82	12.78	11.05
			Kcal/hW	4.42	3.74	3.12	2.47	3.22	2.79
	ErP	Pdesign	kW	3.6			3.6		
		Tbivalent	°C	-10			-10		
		SCOP	(W/W)	4.1			3.9		
		Annual Consumption	kWh	1229			1292		
		Class		A+			A		
	Power Factor		%	–	95	–	–	96	–
	Indoor Noise (H / L / QLo)		dB-A	42 / 33 / 30			43 / 35 / 29		
			Power Level dB	58 / –			59 / –		
	Outdoor Noise (H / L)		dB-A	50 / –			46 / –		
			Power Level dB	65 / –			61 / –		
Low Temp. : Capacity (kW) / I.Power (W) / COP				4.78 / 1.61k / 2.97			5.14 / 1.94k / 2.65		
Extr Low Temp. : Capacity (kW) / I.Power (W) / COP				4.07 / 1.70k / 2.39			4.10 / 2.08k / 1.97		
Max Current (A) / Max Input Power (W)				8.4 / 1.85k			9.6 / 2.19k		
Starting Current (A)				4.2			6.5		

Model				Indoor	CS-E12PKEA	CS-E15PKEA
				Outdoor	CU-E12PKEA	CU-E15PKEA
Compressor	Type				Hermetic Motor (Rotary)	Hermetic Motor (Rotary)
	Motor Type				Brushless (4 poles)	Brushless (4 poles)
	Output Power			W	900	900
Indoor Fan	Type				Cross-Flow Fan	Cross-Flow Fan
	Material				ASG33	ASG33
	Motor Type				DC / Transistor (8-poles)	DC / Transistor (8-poles)
	Input Power			W	44.9	44.9
	Output Power			W	40	40
	Speed	QLo	Cool	rpm	710	750
			Heat	rpm	860	800
		Lo	Cool	rpm	760	760
			Heat	rpm	920	980
		Me	Cool	rpm	940	960
			Heat	rpm	1060	1110
		Hi	Cool	rpm	1120	1150
			Heat	rpm	1200	1230
		SHi	Cool	rpm	1200	1190
			Heat	rpm	1280	1270
Outdoor Fan	Type				Propeller Fan	Propeller Fan
	Material				PP	PP
	Motor Type				Induction (8-poles)	DC (8-poles)
	Input Power			W	—	—
	Output Power			W	40	40
	Speed	Hi	Cool	rpm	880	620
			Heat	rpm	860	560
Moisture Removal				L/h (Pt/h)	2.0 (4.2)	2.4 (5.1)
Indoor Airflow	QLo	Cool	m³/min (ft³/min)	8.00 (2.82)	8.50 (300)	
		Heat	m³/min (ft³/min)	10.04 (355)	9.87 (349)	
	Lo	Cool	m³/min (ft³/min)	8.68 (306)	9.59 (339)	
		Heat	m³/min (ft³/min)	10.86 (383)	12.34 (436)	
	Me	Cool	m³/min (ft³/min)	11.13 (393)	12.06 (426)	
		Heat	m³/min (ft³/min)	12.76 (451)	13.98 (494)	
	Hi	Cool	m³/min (ft³/min)	13.6 (480)	14.1 (500)	
		Heat	m³/min (ft³/min)	14.7 (520)	15.0 (530)	
	SHi	Cool	m³/min (ft³/min)	14.70 (519)	15.22 (537)	
		Heat	m³/min (ft³/min)	15.75 (556)	15.63 (576)	
Outdoor Airflow	Hi	Cool	m³/min (ft³/min)	32.9 (1160)	34.2 (1205)	
		Heat	m³/min (ft³/min)	32.1 (1135)	33.0 (1165)	
Refrigeration Cycle	Control Device				Expansion Valve	Expansion Valve
	Refrigerant Oil			cm³	FV50S (450)	FV50S (450)
	Refrigerant Type			g (oz)	R410A, 1.10k (38.8)	R410A, 1.06k (37.4)
Dimension	Height (I/D / O/D)			mm (inch)	295 (11-5/8) / 622 (24-1/2)	295 (11-5/8) / 695 (27-3/8)
	Width (I/D / O/D)			mm (inch)	870 (34-9/32) / 824 (32-15/32)	870 (34-9/32) / 875 (34-15/32)
	Depth (I/D / O/D)			mm (inch)	255 (10-1/16) / 299 (11-25/32)	255 (10-1/16) / 320 (12-5/8)
Weight	Net (I/D / O/D)			kg (lb)	10 (22) / 36 (79)	10 (22) / 45 (99)

Model		Indoor	CS-E12PKEA		CS-E15PKEA	
		Outdoor	CU-E12PKEA		CU-E15PKEA	
Piping	Pipe Diameter (Liquid / Gas)	mm (inch)	6.35 (1/4) / 9.52 (3/8)		6.35 (1/4) / 12.70 (1/2)	
	Standard length	m (ft)	5.0 (16.4)		5.0 (16.4)	
	Length range (min – max)	m (ft)	3 (9.8) ~ 15 (49.2)		3 (9.8) ~ 15 (49.2)	
	I/D & O/D Height different	m (ft)	5.0 (16.4)		15.0 (49.2)	
	Additional Gas Amount	g/m (oz/ft)	20 (0.2)		20 (0.2)	
	Length for Additional Gas	m (ft)	7.5 (24.6)		7.5 (24.6)	
Drain Hose	Inner Diameter	mm	16.7		16.7	
	Length	mm	650		650	
Indoor Heat Exchanger	Fin Material		Aluminium (Pre Coat)		Aluminium (Pre Coat)	
	Fin Type		Slit Fin		Slit Fin	
	Row × Stage × FPI		2 × 17 × 21		2 × 17 × 17	
	Size (W × H × L)	mm	636.5 × 357 × 25.4		636.5 × 357 × 25.4	
Outdoor Heat Exchanger	Fin Material		Aluminium		Aluminium	
	Fin Type		Corrugated Fin		Corrugated Fin	
	Row × Stage × FPI		2 × 28 × 17		2 × 31 × 17	
	Size (W × H × L)	mm	36.4 × 588 × 606.6		36.4 × 651 × 640	
Air Filter	Material		Polypropelene		Polypropelene	
	Type		One-touch		One-touch	
Power Supply			Indoor		Indoor	
Power Supply Cord		A	Nil		Nil	
Thermostat			Electronic Contol		Electronic Contol	
Protection Device			Electronic Contol		Electronic Contol	
			Dry Bulb	Wet Bulb	Dry Bulb	Wet Bulb
Indoor Operation Range	Cooling	Maximum °C	32	23	32	23
		Minimum °C	16	11	16	11
	Heating	Maximum °C	30	–	30	–
		Minimum °C	16	–	16	–
Outdoor Operation Range	Cooling	Maximum °C	43	26	43	26
		Minimum °C	-15	–	-15	–
	Heating	Maximum °C	24	18	24	18
		Minimum °C	-15	–	-15	–

- 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 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
- Standby power consumption ≤0.7w (when switched OFF by remote control, except under self protection control).
- Specifications are subjected to change without prior notice for further improvement.

Model		Indoor	CS-E18PKEA				
		Outdoor	CU-E18PKEA				
Performance Test Condition			EUROVENT				
Power Supply		Phase, Hz	Single, 50				
		V	230				
			Min.	Mid.	Max.		
Cooling	Capacity		kW	0.98	5.00	6.00	
			BTU/h	3340	17100	20500	
			Kcal/h	840	4300	5160	
	Running Current		A	—	6.4	—	
	Input Power		W	280	1.44k	1.99k	
	Annual Consumption		kWh	—	720	—	
	EER		W/W	3.50	3.47	3.02	
			BTU/hW	11.93	11.88	10.30	
			Kcal/hW	3.00	2.99	2.59	
	ErP	Pdesign	kW	5.0			
		SEER	(W/W)	6.9			
		Annual Consumption	kWh	254			
		Class		A++			
	Power Factor		%	—	98	—	
	Indoor Noise (H / L / QLo)		dB-A	44 / 37 / 34			
			Power Level dB	60 / —			
	Outdoor Noise (H / L)		dB-A	47 / —			
			Power Level dB	61 / —			
	Heating	Capacity		kW	0.98	5.80	8.00
				BTU/h	3340	19800	27300
Kcal/h				840	4990	6880	
Running Current		A	—	6.8	—		
Input Power		W	340	1.52k	2.57k		
COP		W/W	2.88	3.82	3.11		
		BTU/hW	9.82	13.03	10.62		
		Kcal/hW	2.47	3.28	2.68		
ErP		Pdesign	kW	4.4			
		Tbivalent	°C	-10			
		SCOP	(W/W)	4.2			
		Annual Consumption	kWh	1467			
		Class		A+			
Power Factor		%	—	97	—		
Indoor Noise (H / L / QLo)		dB-A	44 / 37 / 34				
		Power Level dB	60 / —				
Outdoor Noise (H / L)		dB-A	47 / —				
		Power Level dB	61 / —				
Low Temp. : Capacity (kW) / I.Power (W) / COP			5.80 / 2.27k / 2.56				
Extr Low Temp. : Capacity (kW) / I.Power (W) / COP			4.98 / 2.39k / 2.08				
Max Current (A) / Max Input Power (W)			11.3 / 2.57k				
Starting Current (A)			6.8				

Model			Indoor	CS-E18PKEA	
			Outdoor	CU-E18PKEA	
Compressor	Type			Hermetic Motor (Rotary)	
	Motor Type			Brushless (4 poles)	
	Output Power		W	900	
Indoor Fan	Type			Cross-Flow Fan	
	Material			ASG33	
	Motor Type			DC / Transistor (8-poles)	
	Input Power		W	94.8	
	Output Power		W	40	
	Speed	QLo	Cool	rpm	880
			Heat	rpm	860
		Lo	Cool	rpm	900
			Heat	rpm	970
		Me	Cool	rpm	1010
			Heat	rpm	1070
		Hi	Cool	rpm	1130
			Heat	rpm	1180
		SHi	Cool	rpm	1260
			Heat	rpm	1280
Outdoor Fan	Type			Propeller Fan	
	Material			PP	
	Motor Type			DC (8-poles)	
	Input Power		W	—	
	Output Power		W	40	
	Speed	Hi	Cool	rpm	640
			Heat	rpm	640
	Moisture Removal		L/h (Pt/h)	2.8 (5.9)	
Indoor Airflow	QLo	Cool	m³/min (ft³/min)	14.03 (495)	
		Heat	m³/min (ft³/min)	13.68 (483)	
	Lo	Cool	m³/min (ft³/min)	15.08 (532)	
		Heat	m³/min (ft³/min)	15.60 (551)	
	Me	Cool	m³/min (ft³/min)	16.83 (594)	
		Heat	m³/min (ft³/min)	17.53 (619)	
	Hi	Cool	m³/min (ft³/min)	17.9 (630)	
		Heat	m³/min (ft³/min)	19.3 (680)	
	SHi	Cool	m³/min (ft³/min)	19.00 (671)	
		Heat	m³/min (ft³/min)	20.30 (717)	
Outdoor Airflow	Hi	Cool	m³/min (ft³/min)	39.2 (1385)	
		Heat	m³/min (ft³/min)	37.9 (1340)	
Refrigeration Cycle	Control Device			Expansion Valve	
	Refrigerant Oil		cm³	FV50S (450)	
	Refrigerant Type		g (oz)	R410A, 1.24k (43.8)	
Dimension	Height (I/D / O/D)		mm (inch)	295 (11-5/8) / 695 (27-3/8)	
	Width (I/D / O/D)		mm (inch)	1070 (42-5/32) / 875 (34-15/32)	
	Depth (I/D / O/D)		mm (inch)	255 (10-1/16) / 320 (12-5/8)	
Weight	Net (I/D / O/D)		kg (lb)	13 (29) / 46 (101)	

Model		Indoor	CS-E18PKEA	
		Outdoor	CU-E18PKEA	
Piping	Pipe Diameter (Liquid / Gas)	mm (inch)	6.35 (1/4) / 12.70 (1/2)	
	Standard length	m (ft)	5.0 (16.4)	
	Length range (min – max)	m (ft)	3 (9.8) ~ 20 (65.6)	
	I/D & O/D Height different	m (ft)	15.0 (49.2)	
	Additional Gas Amount	g/m (oz/ft)	20 (0.2)	
	Length for Additional Gas	m (ft)	7.5 (24.6)	
Drain Hose	Inner Diameter	mm	16.7	
	Length	mm	650	
Indoor Heat Exchanger	Fin Material		Aluminium (Pre Coat)	
	Fin Type		Slit Fin	
	Row × Stage × FPI		2 × 17 × 17	
	Size (W × H × L)	mm	836.5 × 357 × 25.4	
Outdoor Heat Exchanger	Fin Material		Aluminium	
	Fin Type		Corrugated Fin	
	Row × Stage × FPI		2 × 31 × 19	
	Size (W × H × L)	mm	36.4 × 651 × 854.5:824.5	
Air Filter	Material		Polypropelene	
	Type		One-touch	
Power Supply			Indoor	
Power Supply Cord		A	Nil	
Thermostat			Electronic Contol	
Protection Device			Electronic Contol	
			Dry Bulb	Wet Bulb
Indoor Operation Range	Cooling	Maximum °C	32	23
		Minimum °C	16	11
	Heating	Maximum °C	30	–
		Minimum °C	16	–
Outdoor Operation Range	Cooling	Maximum °C	43	26
		Minimum °C	-15	–
	Heating	Maximum °C	24	18
		Minimum °C	-15	–

- 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 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
- Standby power consumption ≤0.7w (when switched OFF by remote control, except under self protection control).
- Specifications are subjected to change without prior notice for further improvement.

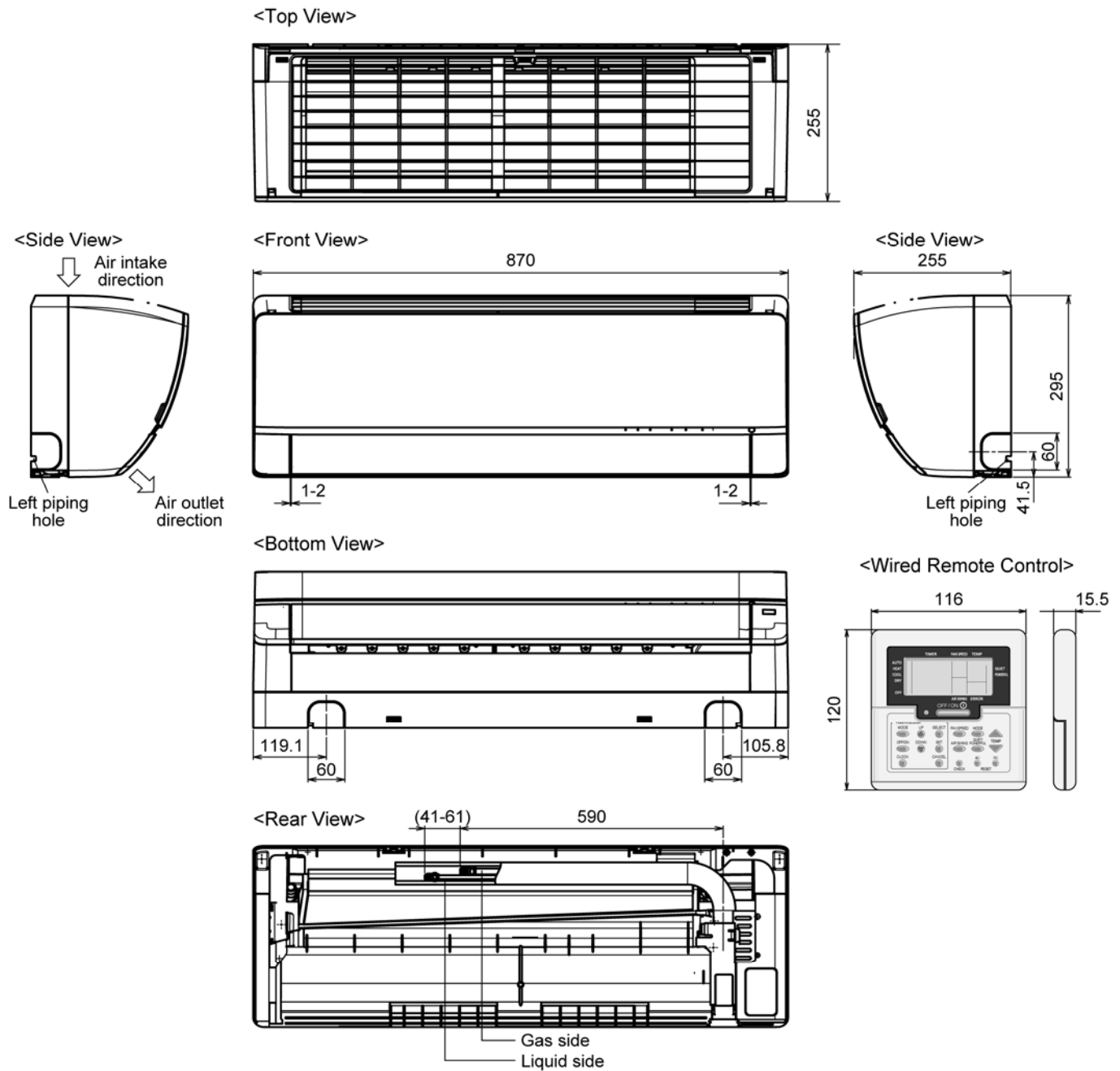
3. Features

- **Inverter Technology**
 - Wider output power range
 - Energy saving
 - Quick Cooling
 - Quick Heating
 - More precise temperature control
- **Environment Protection**
 - 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)
- **Easy to use remote control**
- **Quality Improvement**
 - Random auto restart after power failure for safety restart operation
 - Gas leakage protection
 - Prevent compressor reverse cycle
 - Inner protector to protect compressor
 - Noise prevention during soft dry operation
- **Operation Improvement**
 - Quiet mode to reduce the indoor unit operating sound
 - Powerful mode to reach the desired room temperature quickly
 - 24-hour timer setting
- **Serviceability Improvement**
 - Breakdown Self Diagnosis function

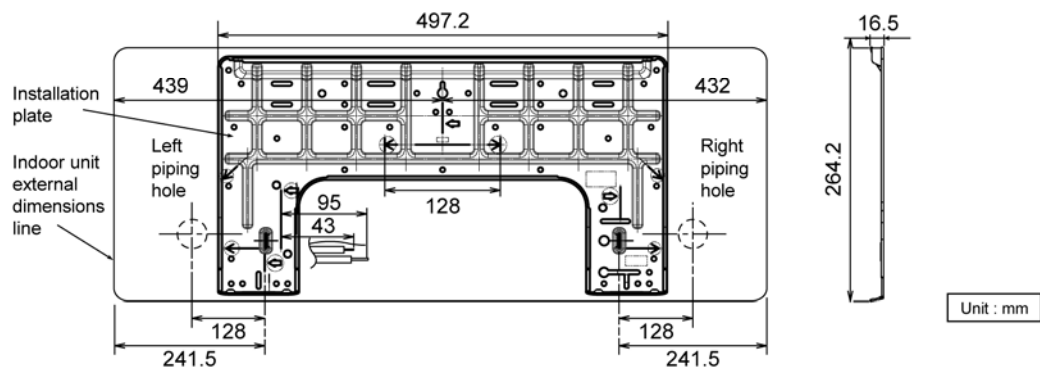
5. Dimensions

5.1 Indoor Unit

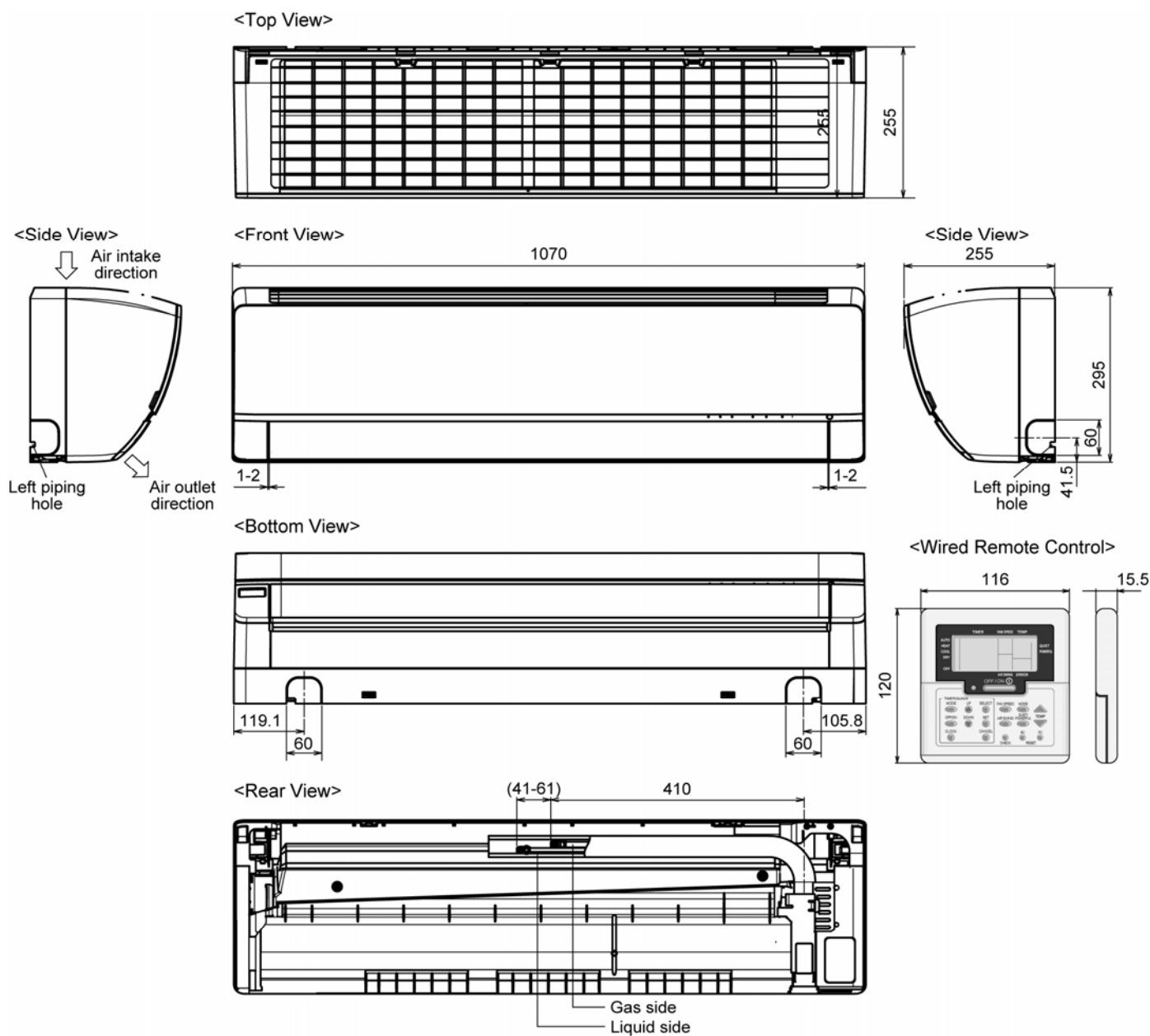
5.1.1 CS-E9PKEA CS-E12PKEA CS-E15PKEA



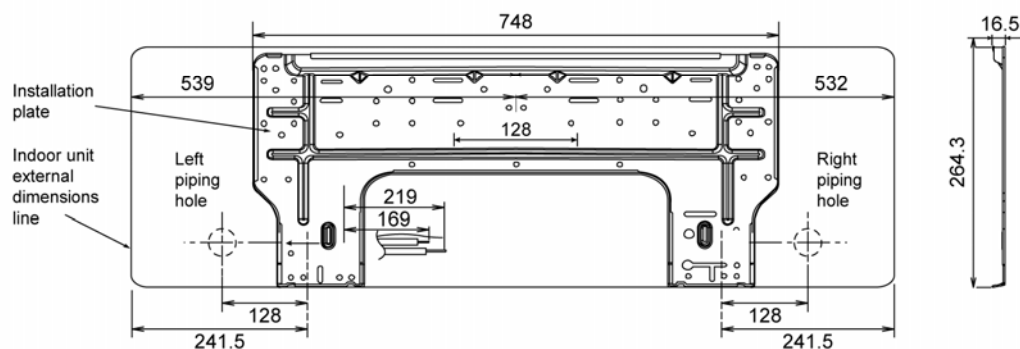
Relative position between the indoor unit and the installation plate <Front View>



5.1.2 CS-E18PKEA

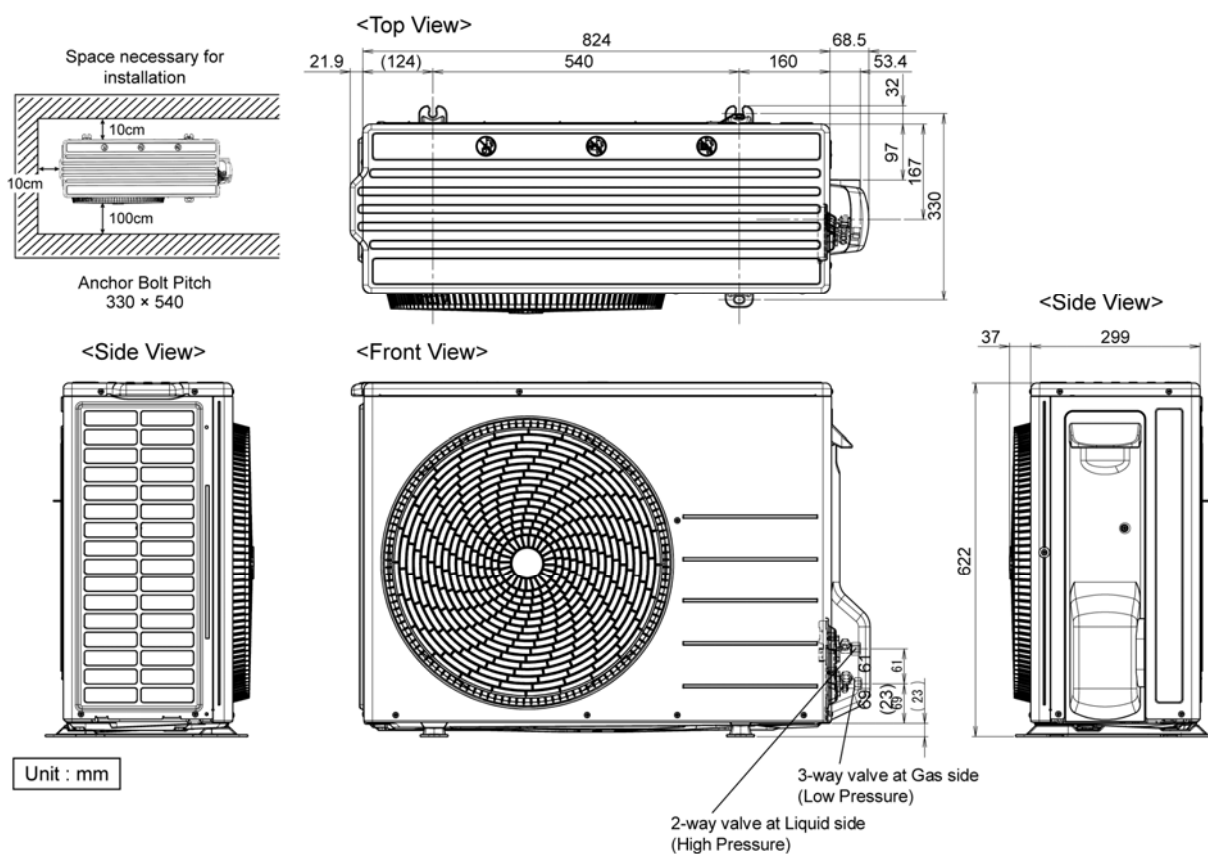


Relative position between the indoor unit and the installation plate <Front View>

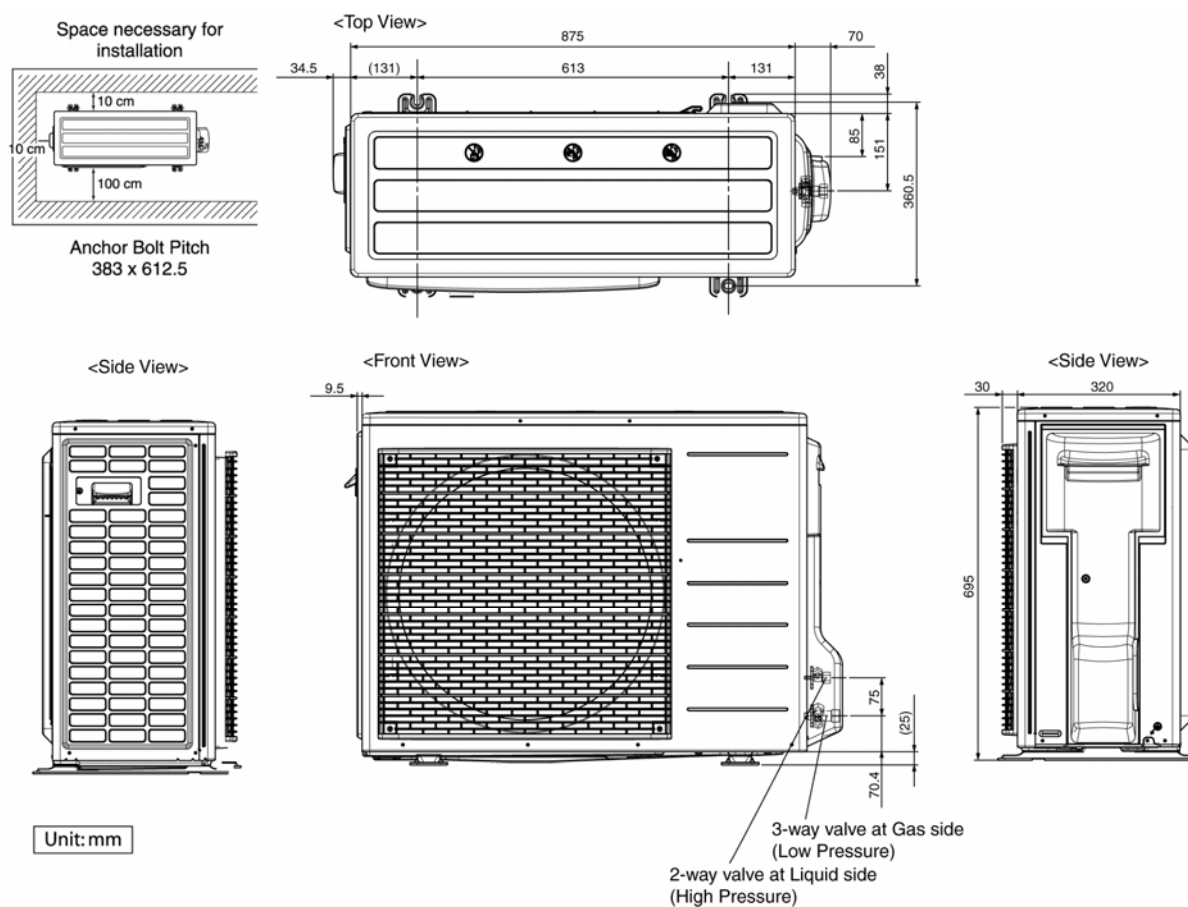


5.2 Outdoor Unit

5.2.1 CU-E9PKEA CU-E12PKEA

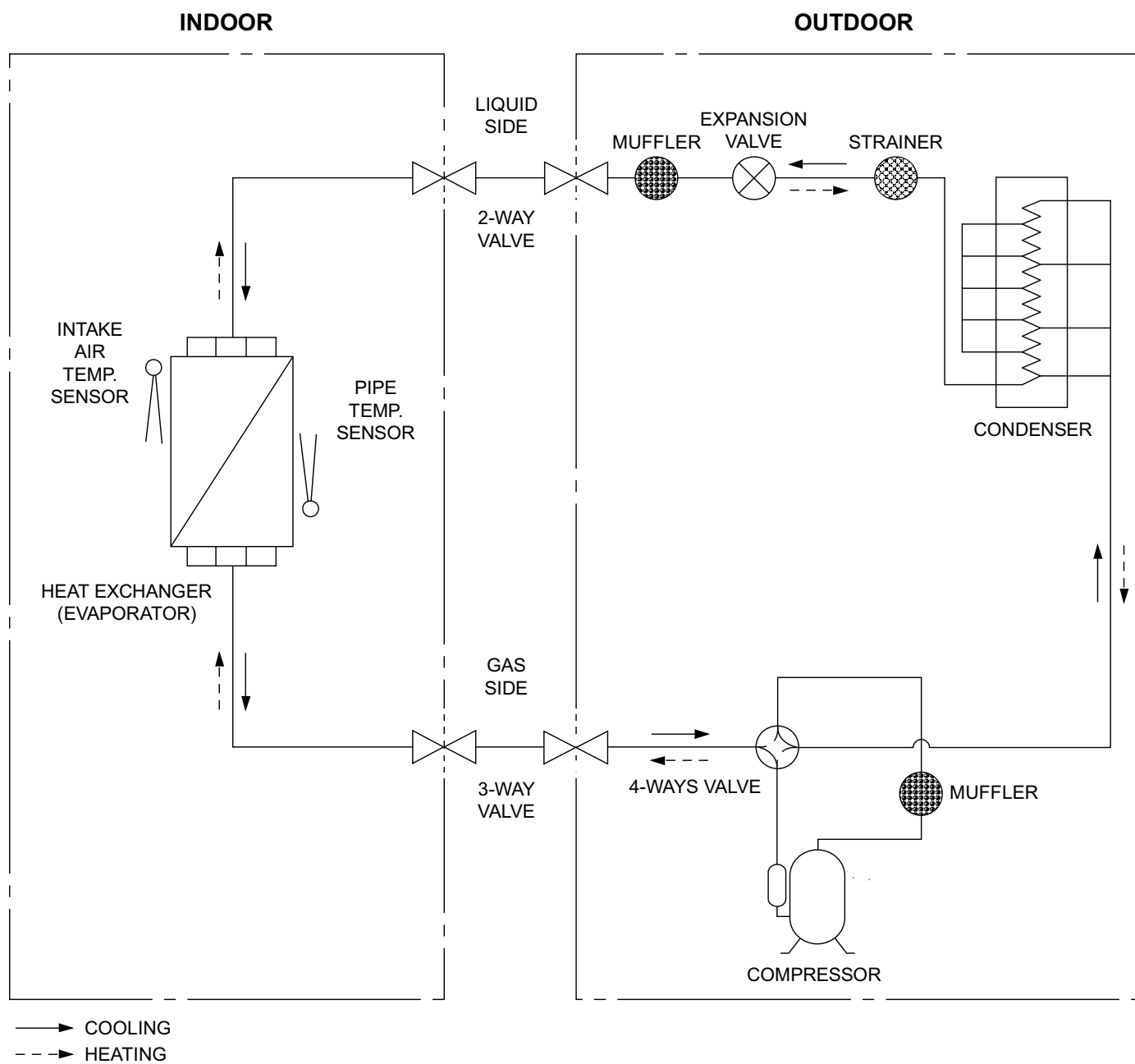


5.2.2 CU-E15PKEA CU-E18PKEA

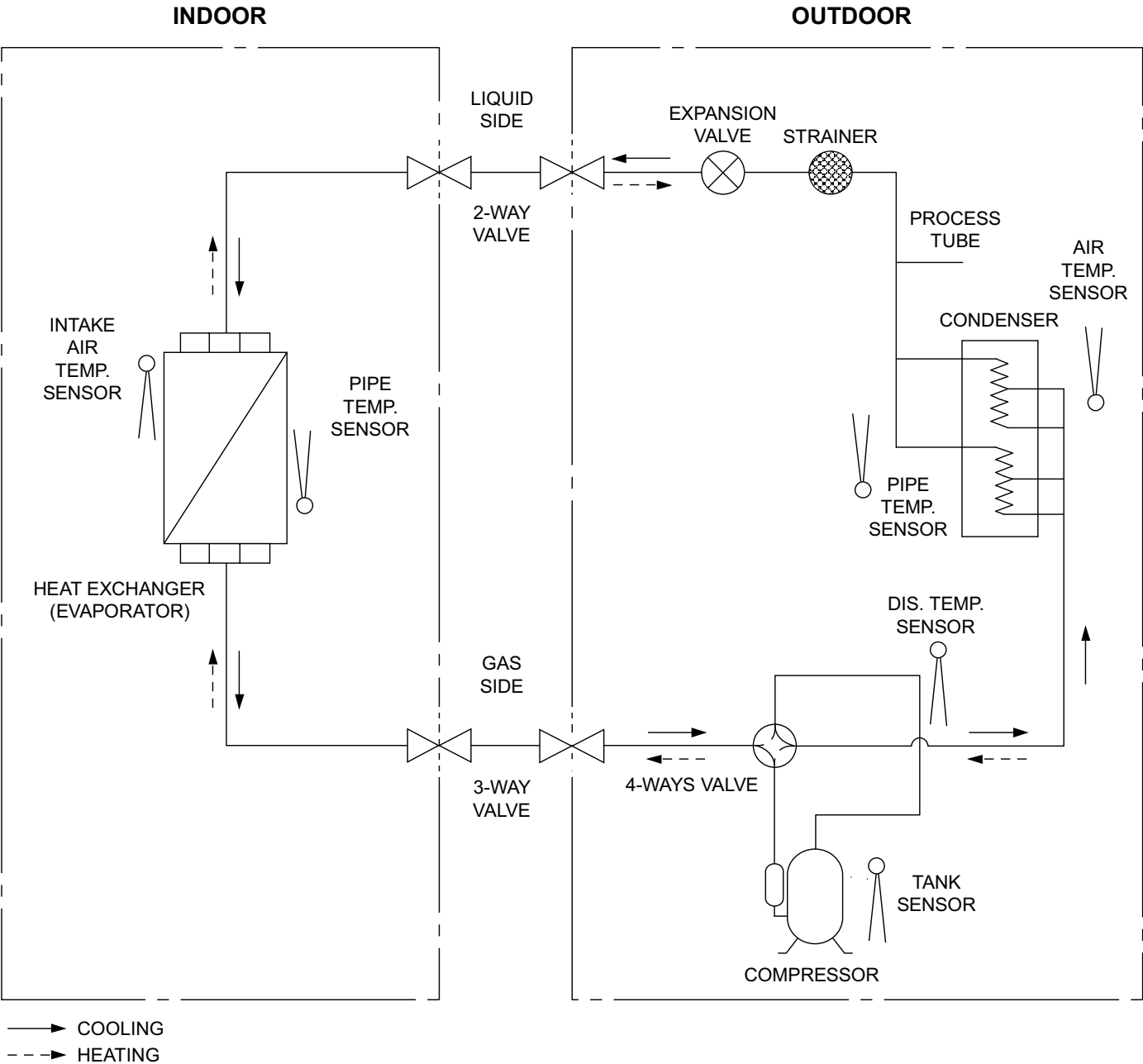


6. Refrigeration Cycle Diagram

6.1 CU-E9PKEA CU-E12PKEA

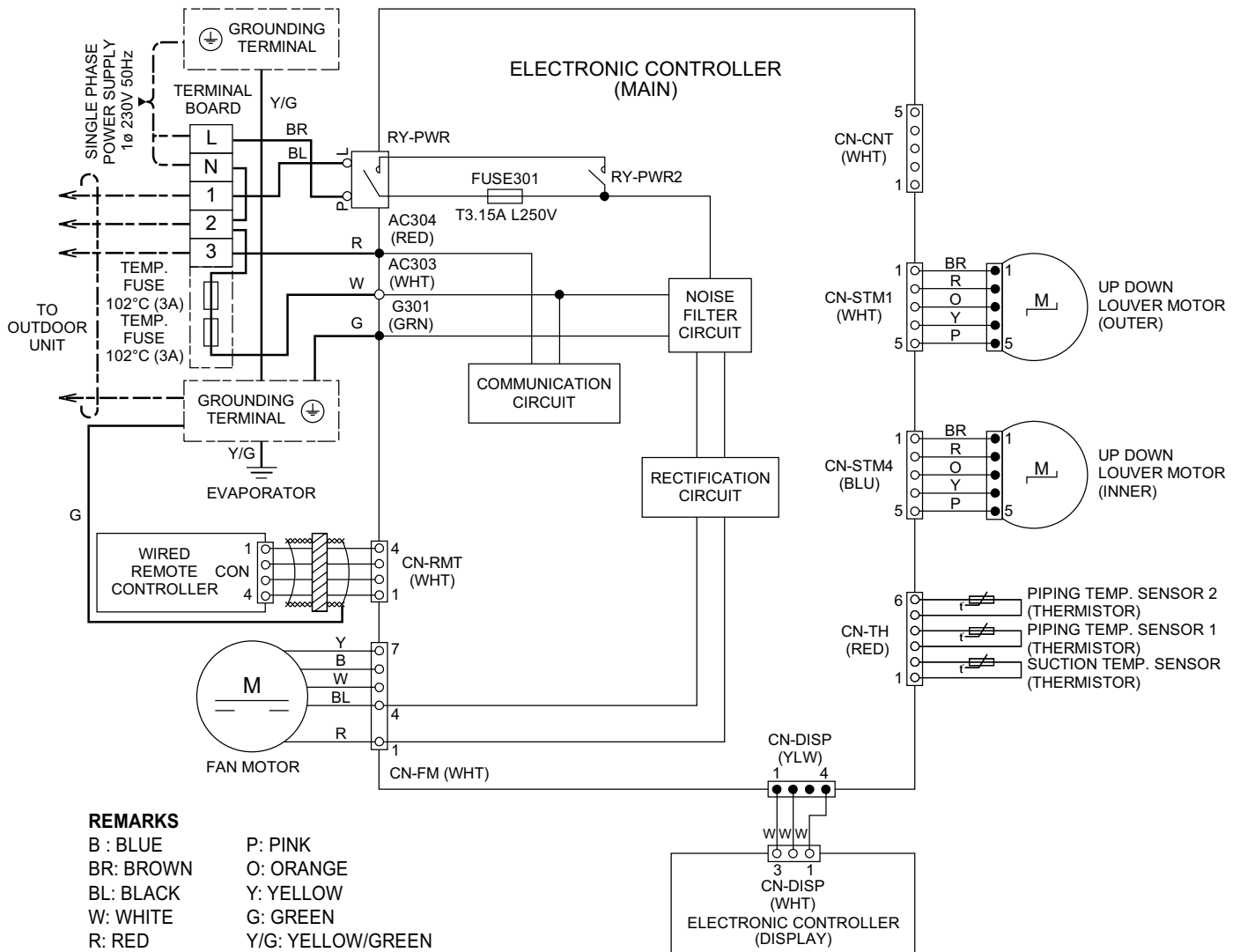


6.2 CU-E15PKEA CU-E18PKEA



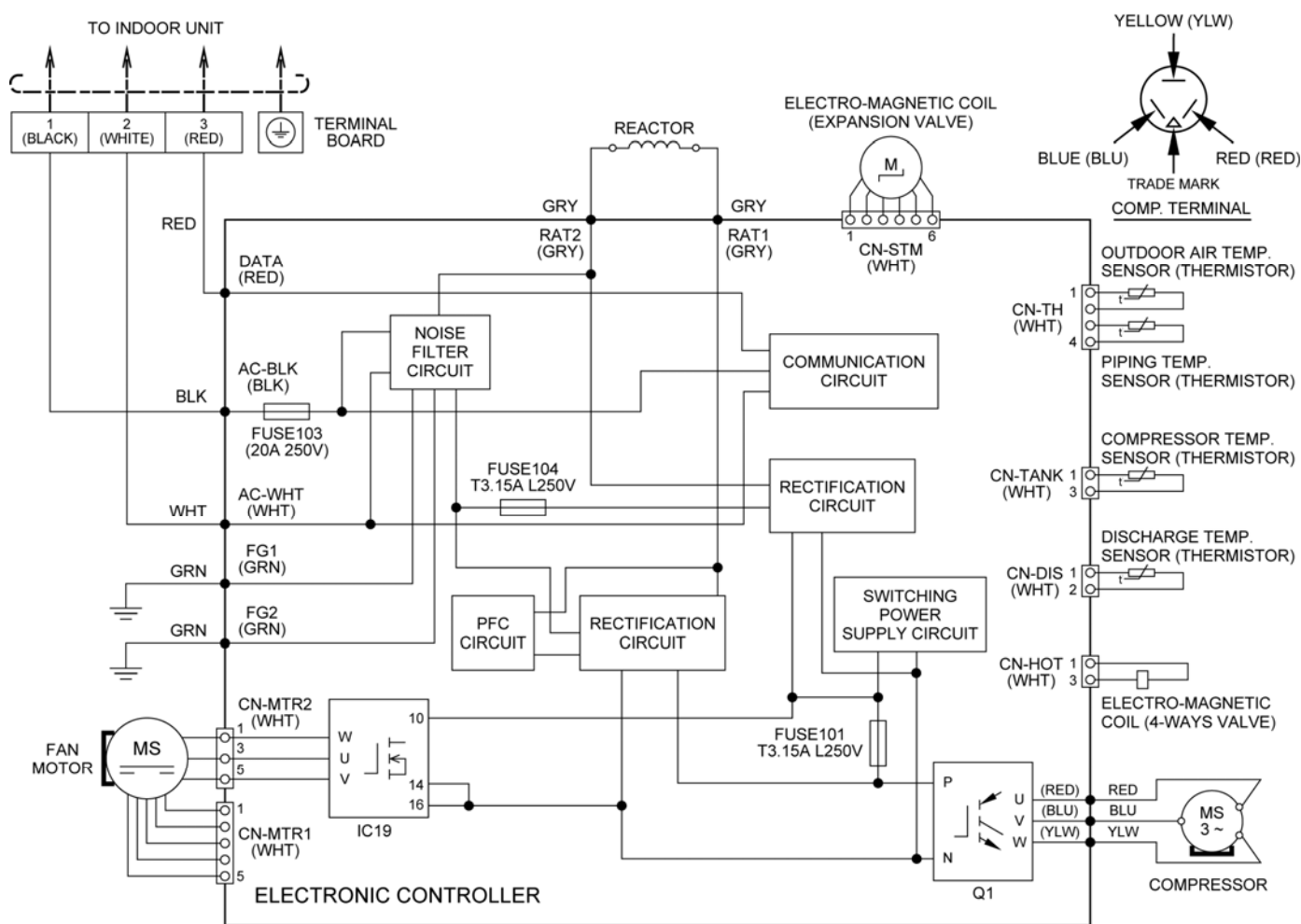
8. Wiring Connection Diagram

8.1 Indoor Unit



8.2 Outdoor Unit

8.2.1 CU-E9PKEA CU-E12PKEA



REMARKS

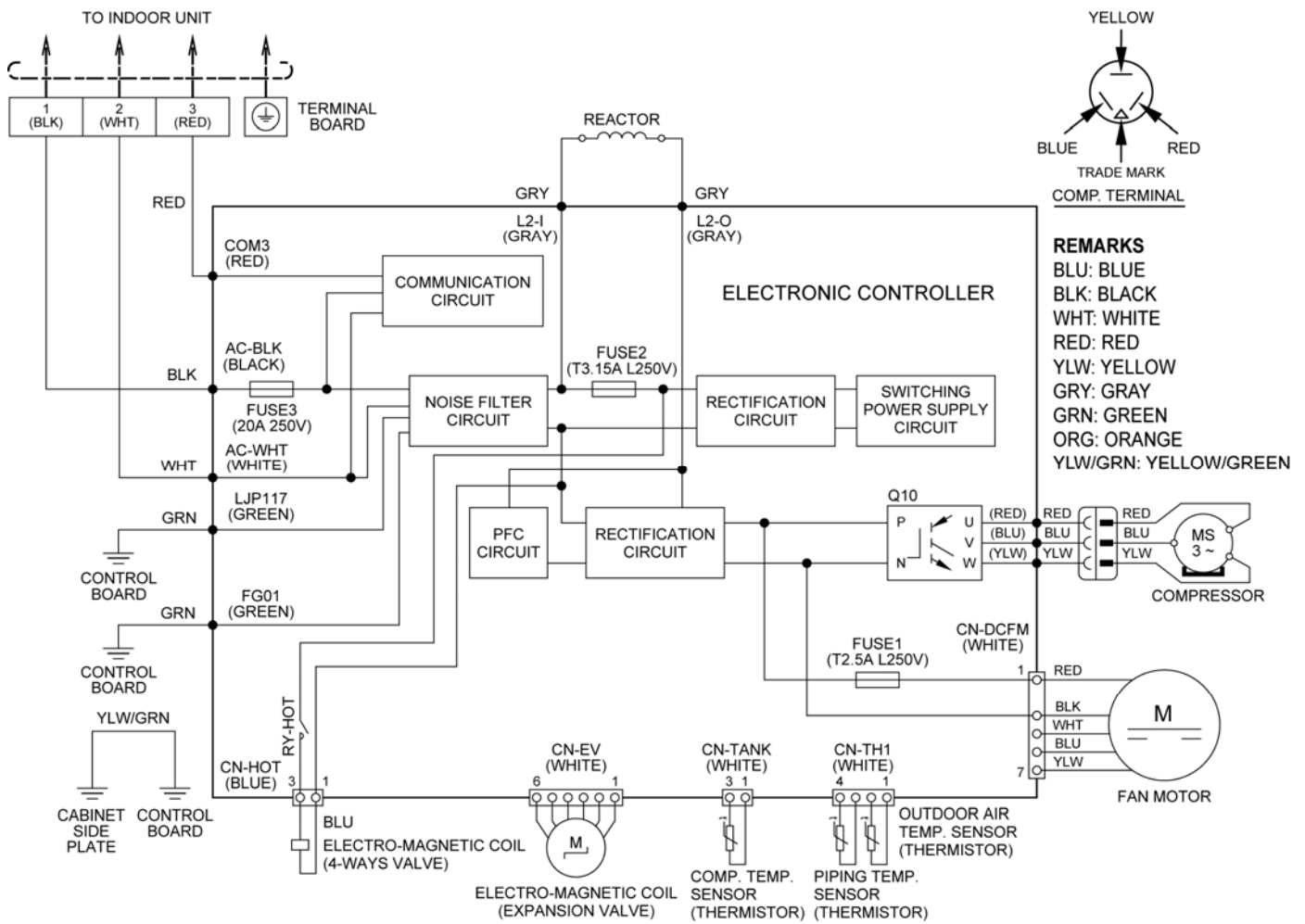
BLACK: (BLK) BLUE: (BLU) WHITE: (WHT) RED: (R) YELLOW: (YLW) GRAY: (GRY)
GREEN: (GRN) BROWN: (BRW) ORANGE: (ORG) YELLOW/GREEN: (YLW/GRN)

Resistance of Compressor Windings

MODEL	CU-E9PKEA / CU-E12PKEA
CONNECTION	5RD102XBE21 (Ω)
U-V	1.897
U-W	1.907
V-W	1.882

Note: Resistance at 20°C of ambient temperature.

8.2.2 CU-E15PKEA CU-E18PKEA



Resistance of Compressor Windings

MODEL	CU-E15PKEA / CU-E18PKEA
CONNECTION	5RD132XBA21 (Ω)
U-V	1.897
U-W	1.907
V-W	1.882

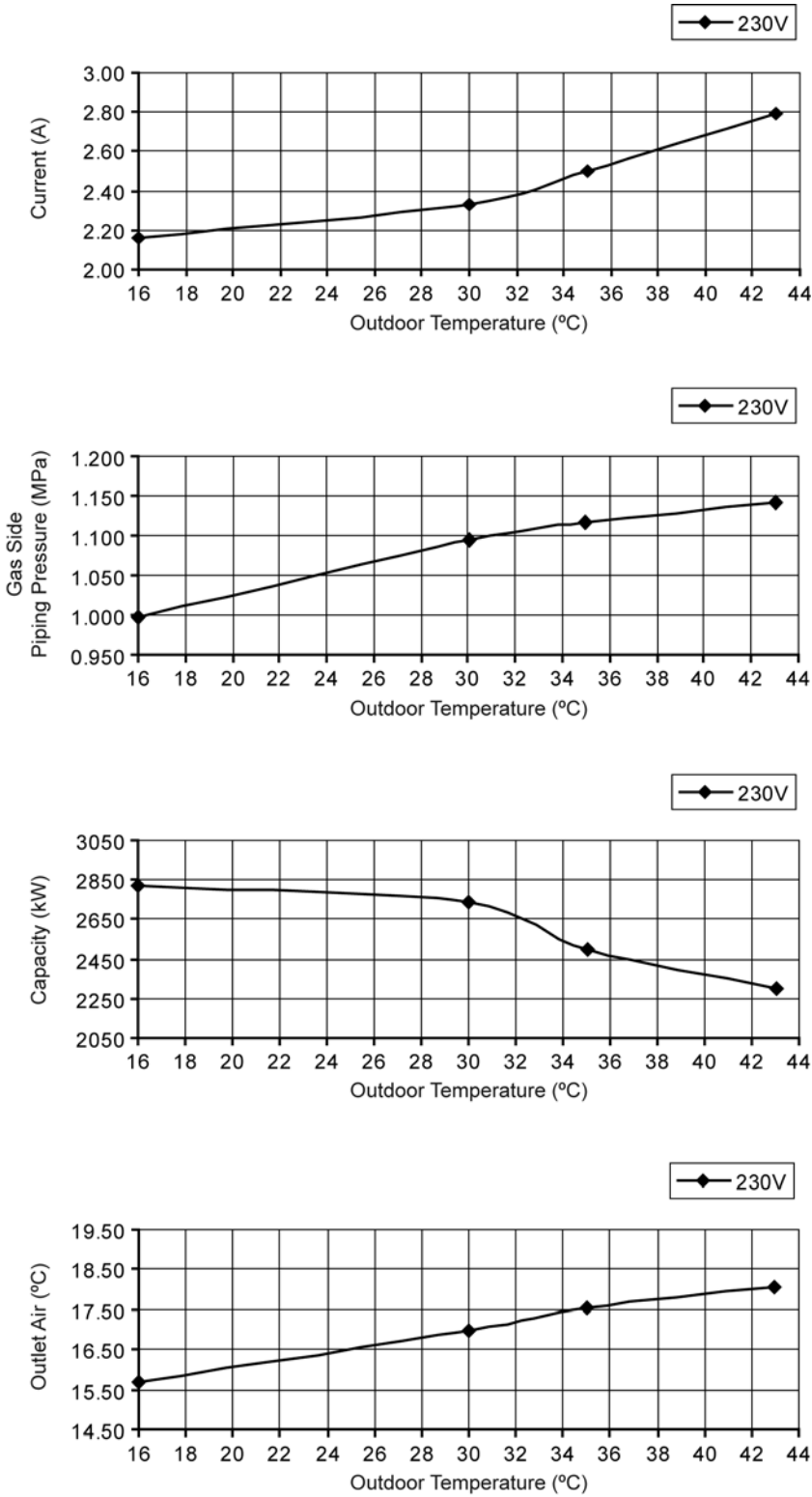
Note: Resistance at 20°C of ambient temperature.

17. Technical Data

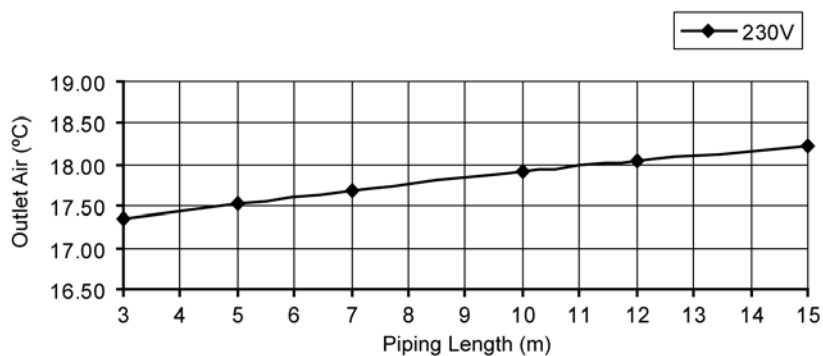
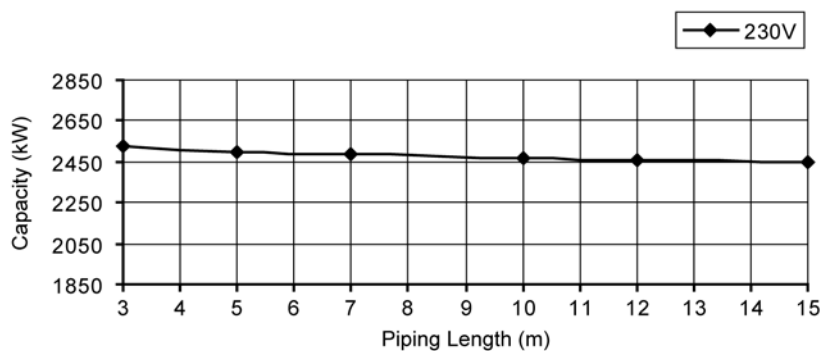
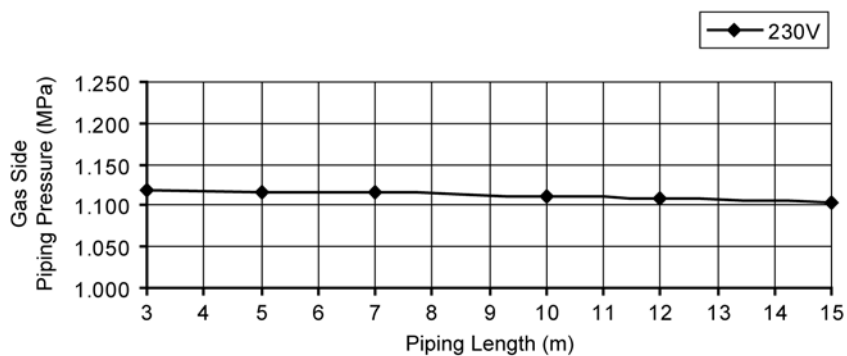
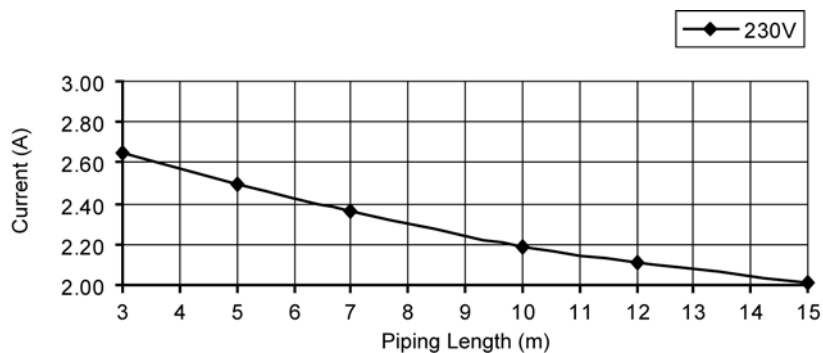
17.1 Operation Characteristics

17.1.1 CS-E9PKEA CU-E9PKEA

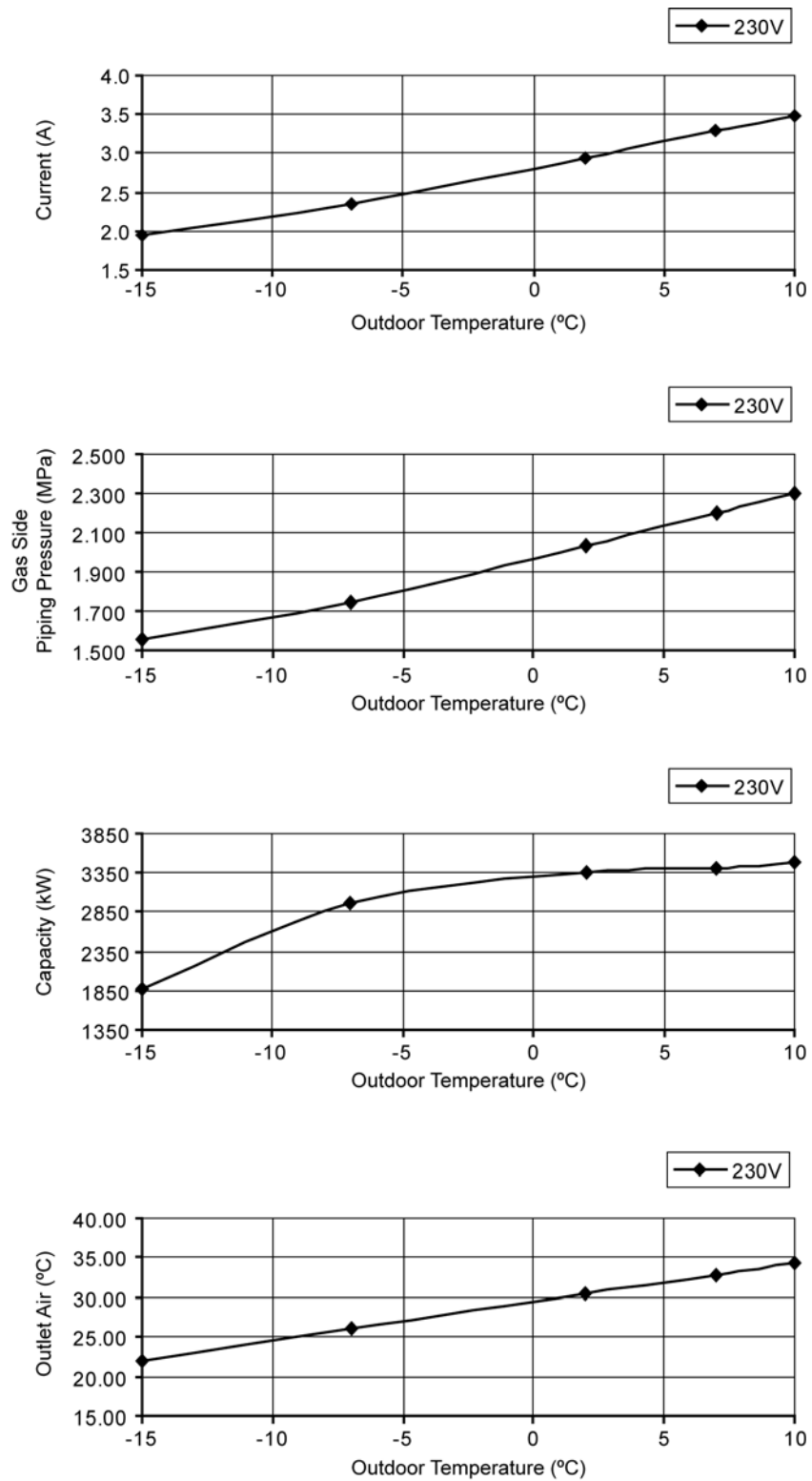
- Cooling Characteristic
- [Condition] Indoor temperature: 27/19°C
Piping Length: 5m
Remote condition: High fan speed, Cool 16°C
Comp. Hz: F_c



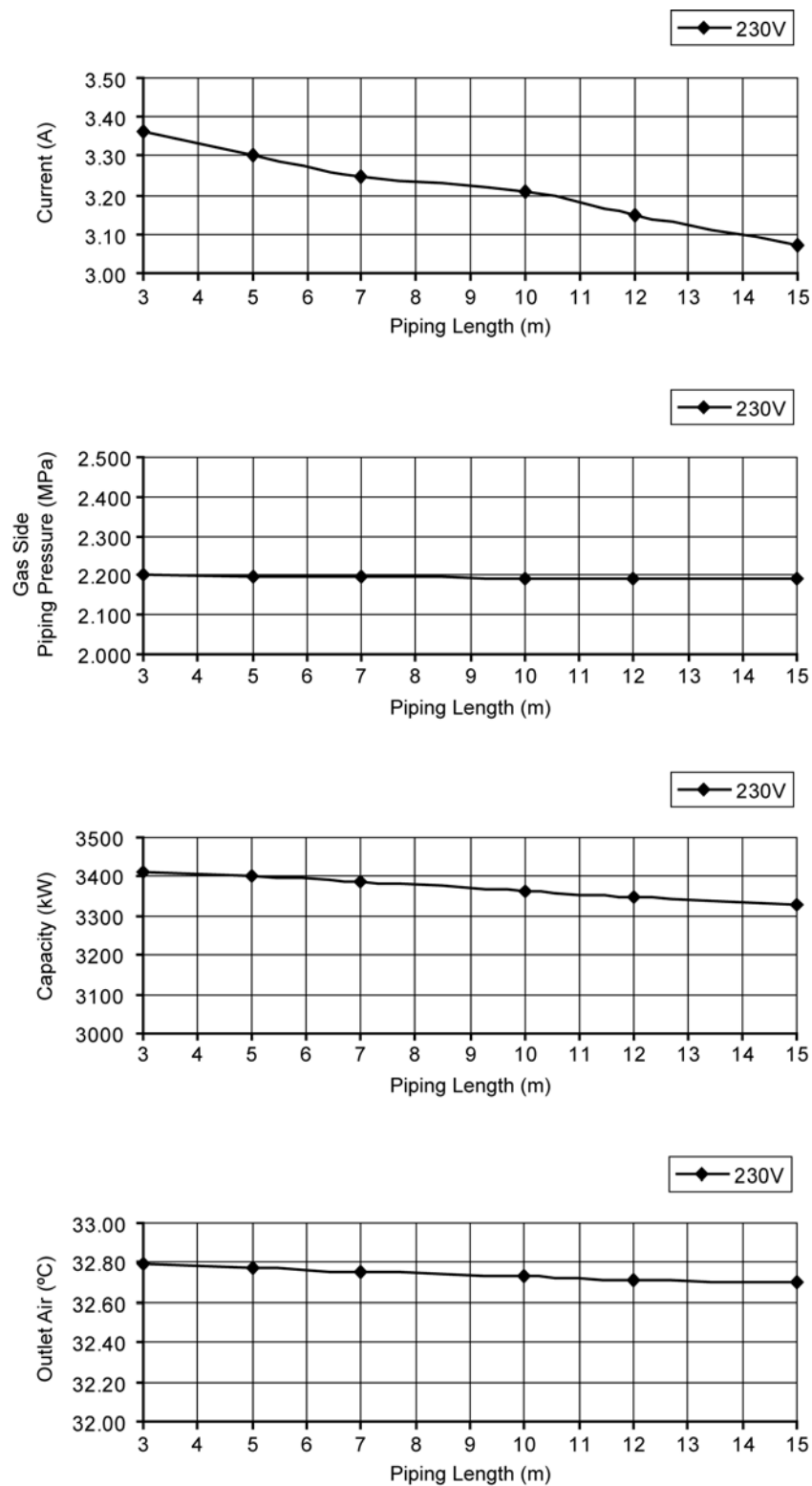
- Piping Length Characteristic
- [Condition] Indoor/Outdoor temperature: 27/19°C, 35/24°C
 Remote condition: High fan speed, Cool 16°C
 Comp. Hz: F_c



- Heating Characteristic
- [Condition] Indoor temperature: 20/-°C
Piping Length: 5m
Remote condition: High fan speed, Heat 30°C
Comp. Hz: F_h

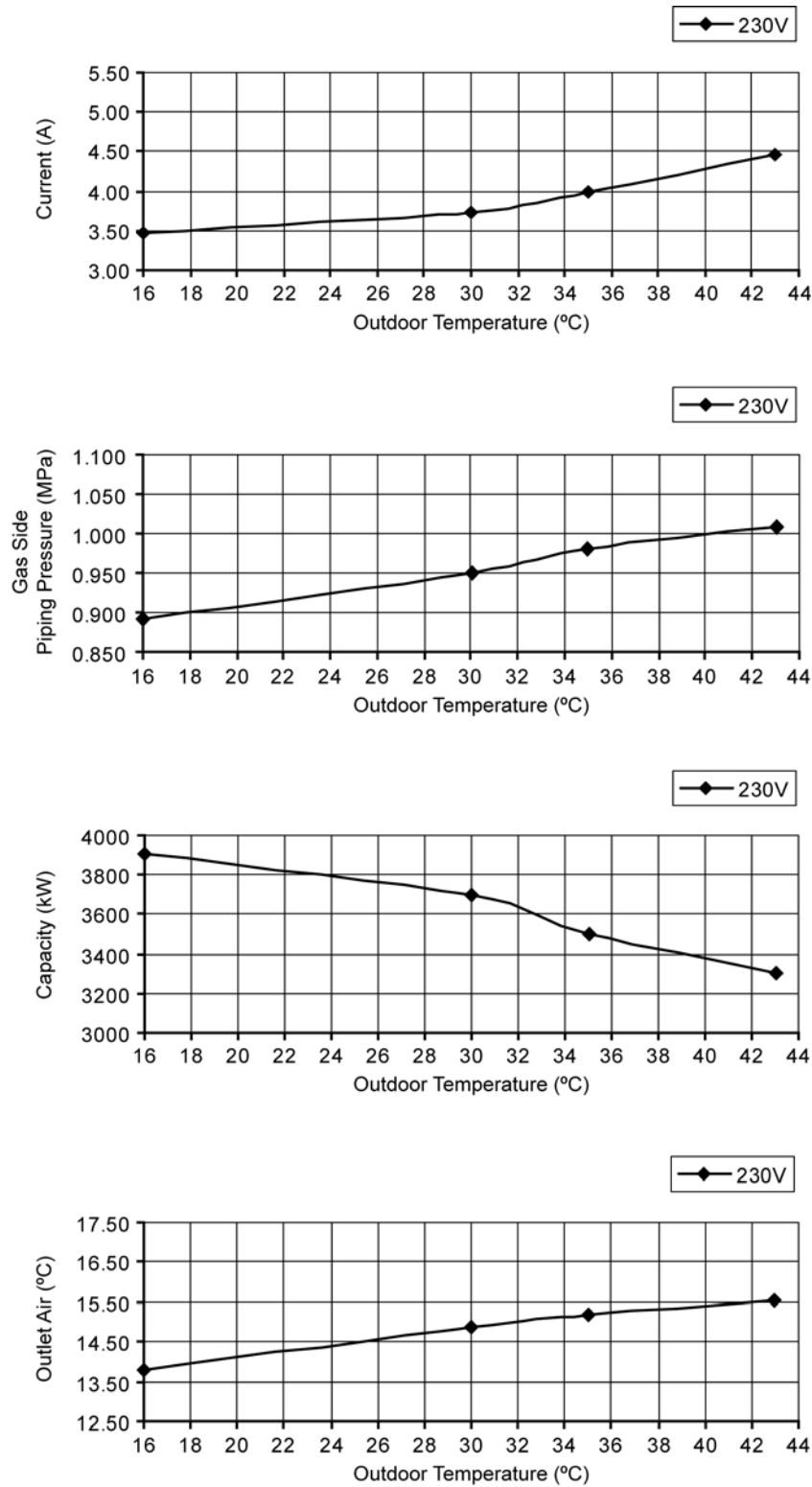


- Piping Length Characteristic
- [Condition] Indoor/Outdoor temperature: 20/-°C, 7/6°C
 Remote condition: High fan speed, Heat 30°C
 Comp. Hz: F_h

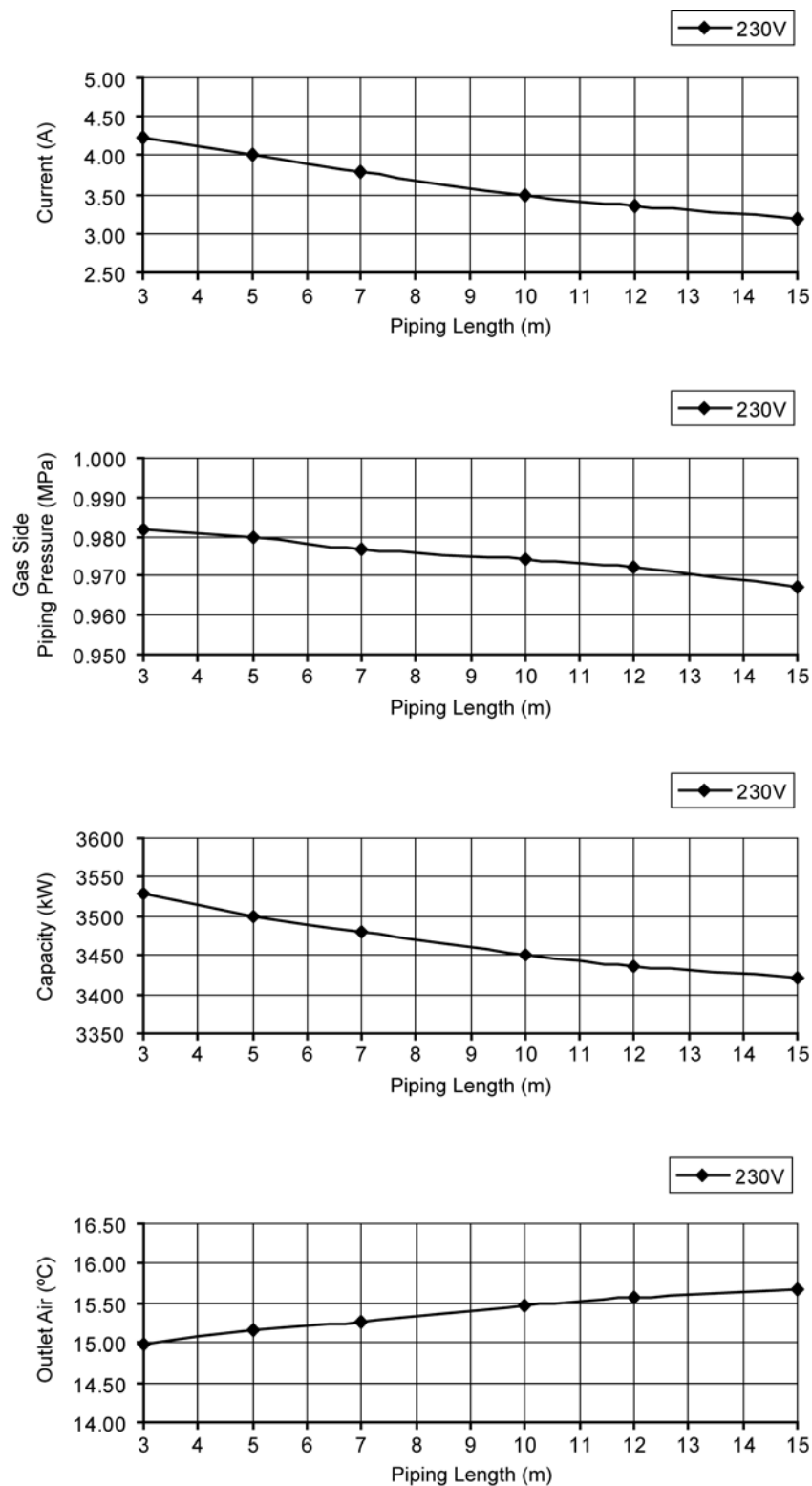


17.1.2 CS-E12PKEA CU-E12PKEA

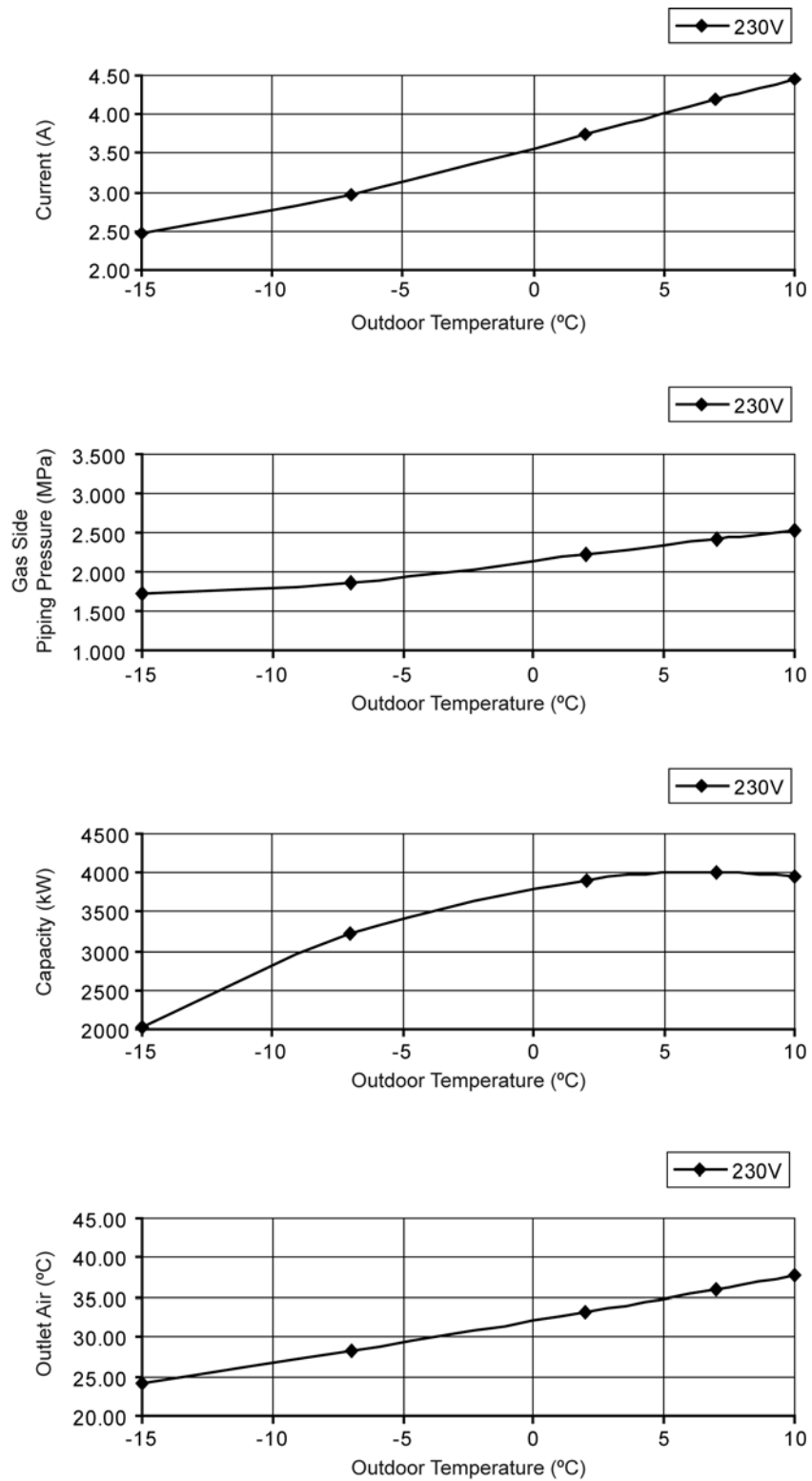
- Cooling Characteristic
- [Condition] Indoor temperature: 27/19°C
Piping Length: 5m
Remote condition: High fan speed, Cool 16°C
Comp. Hz: F_c



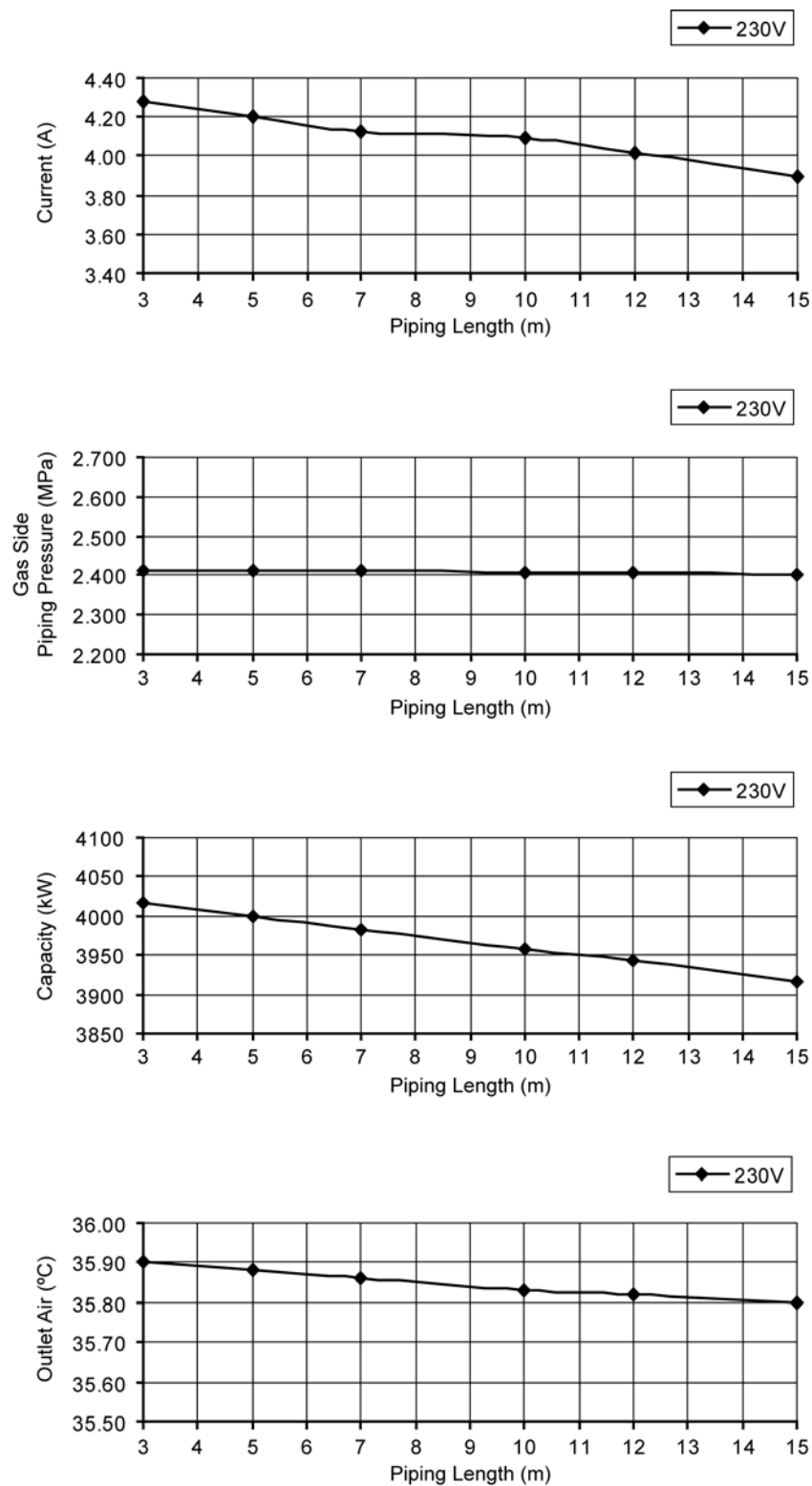
- Piping Length Characteristic
- [Condition] Indoor/Outdoor temperature: 27/19°C, 35/24°C
 Remote condition: High fan speed, Cool 16°C
 Comp. Hz: F_c



- Heating Characteristic
- [Condition] Indoor temperature: 20/-°C
Piping Length: 5m
Remote condition: High fan speed, Heat 30°C
Comp. Hz: F_h

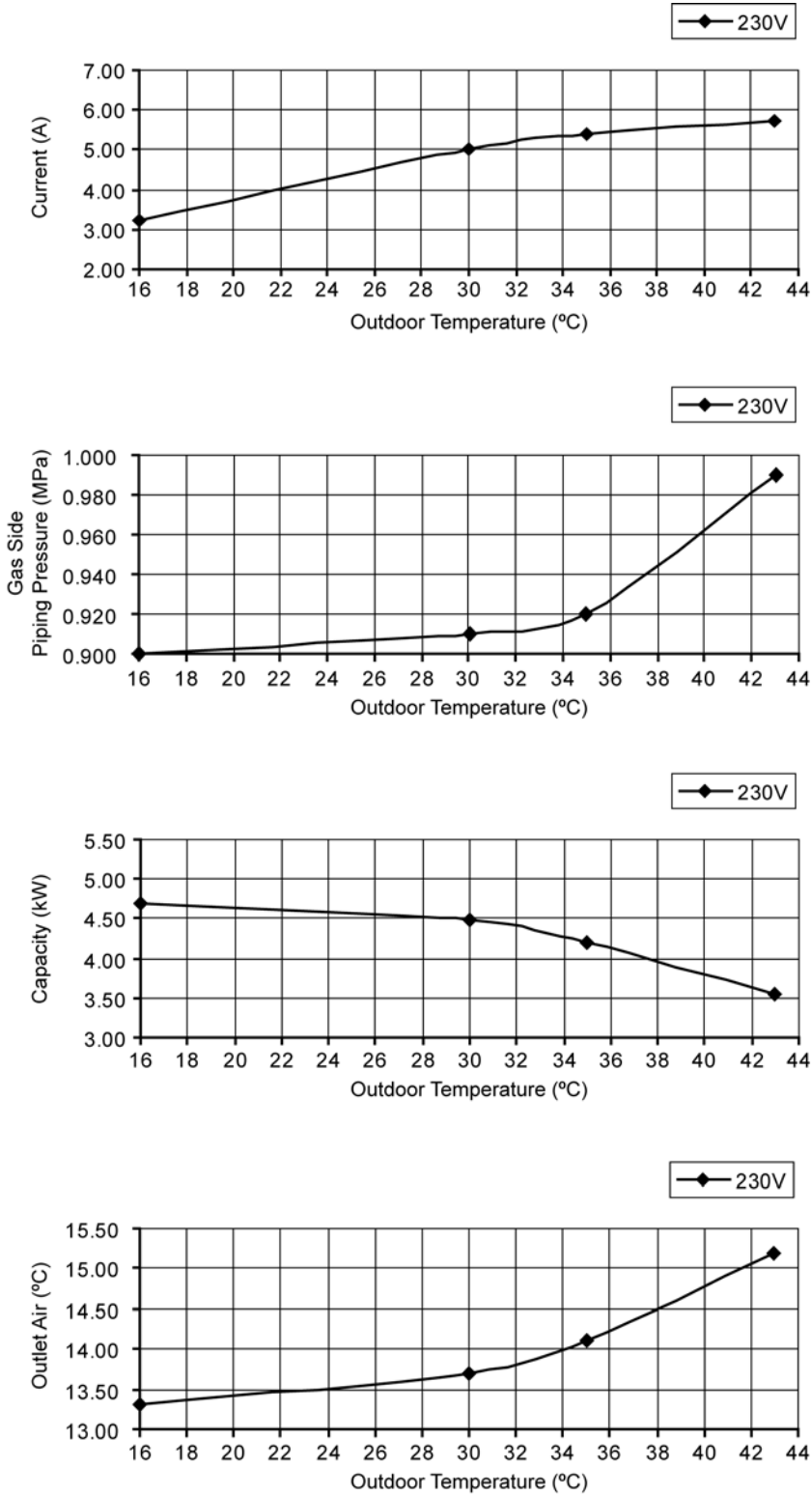


- Piping Length Characteristic
- [Condition] Indoor/Outdoor temperature: 20/-°C, 7/6°C
 Remote condition: High fan speed, Heat 30°C
 Comp. Hz: F_h

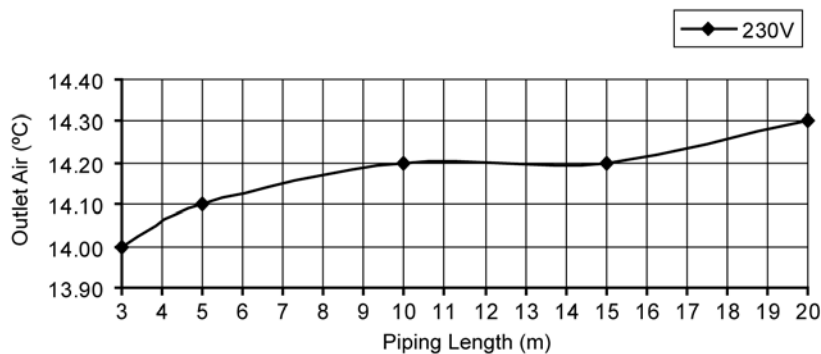
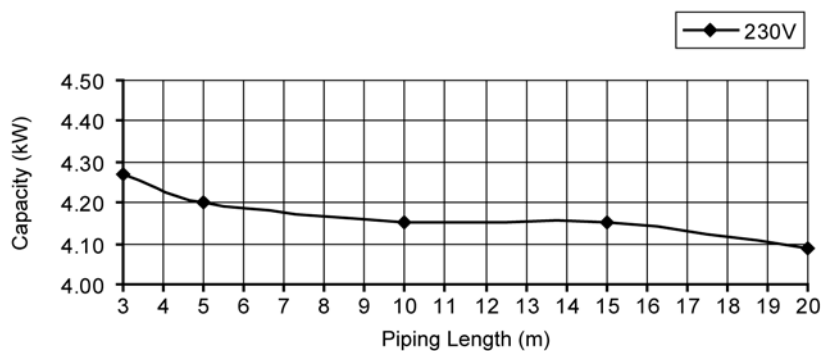
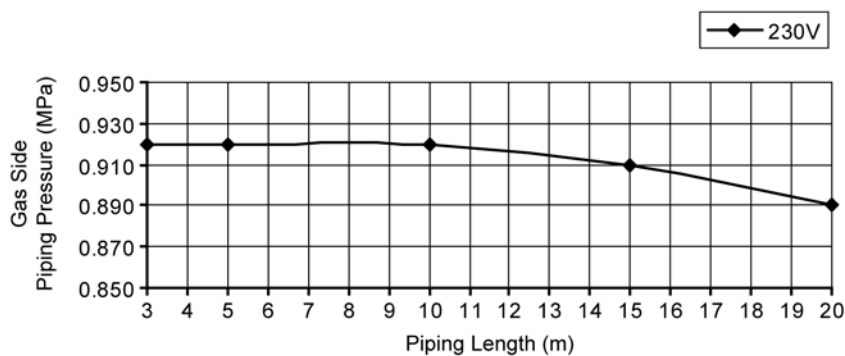
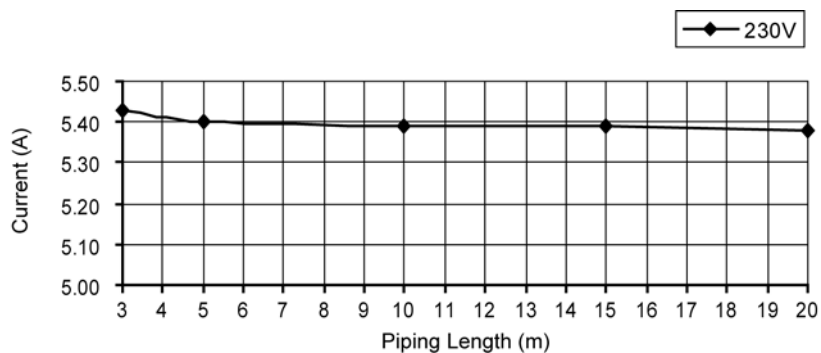


17.1.3 CS-E15PKEA CU-E15PKEA

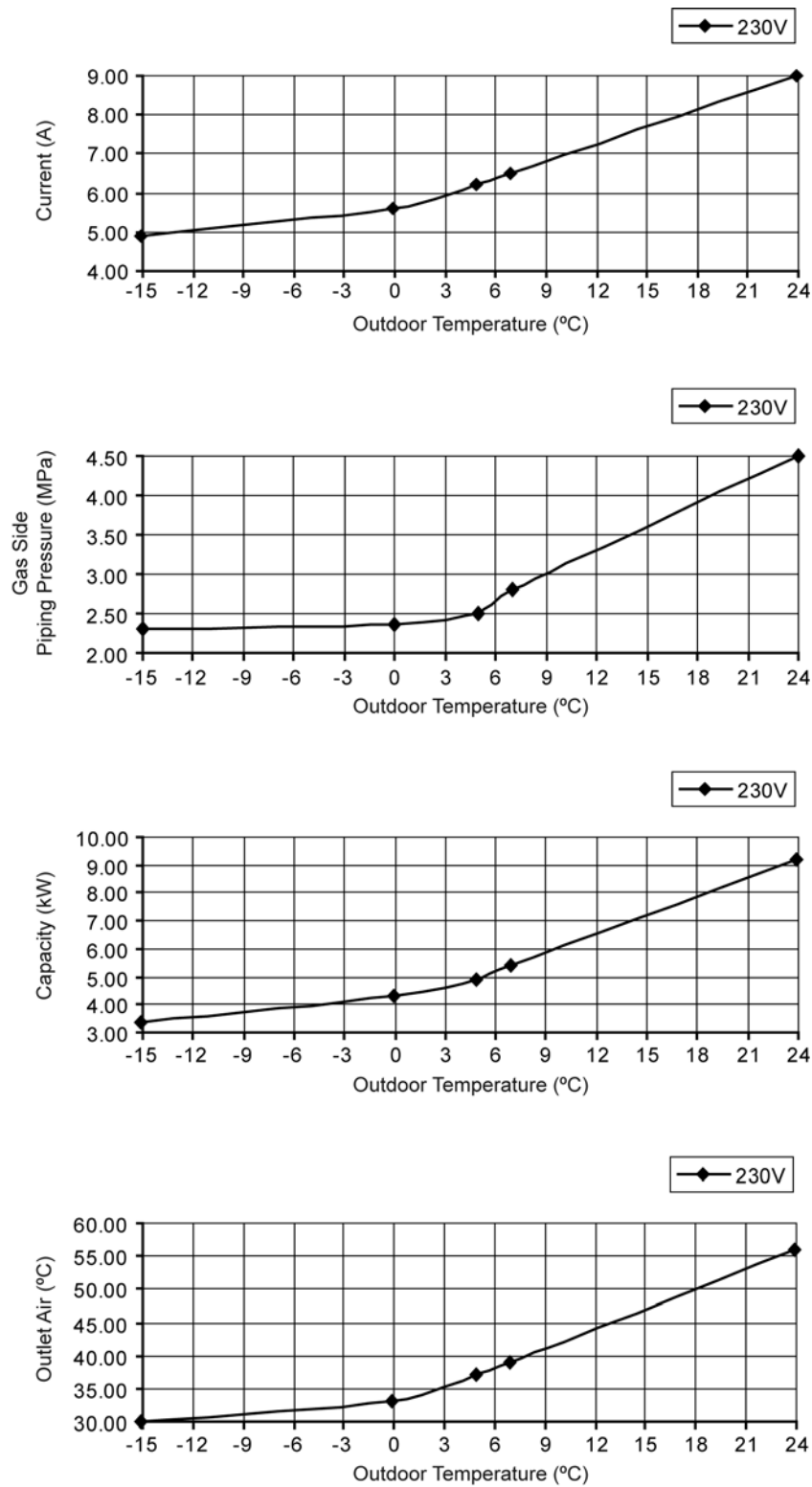
- Cooling Characteristic
- [Condition] Indoor temperature: 27/19°C
Piping Length: 5m
Remote condition: High fan speed, Cool 16°C
Comp. Hz: F_c



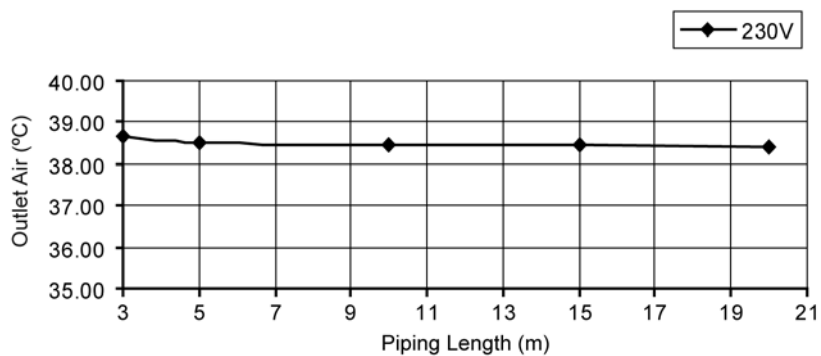
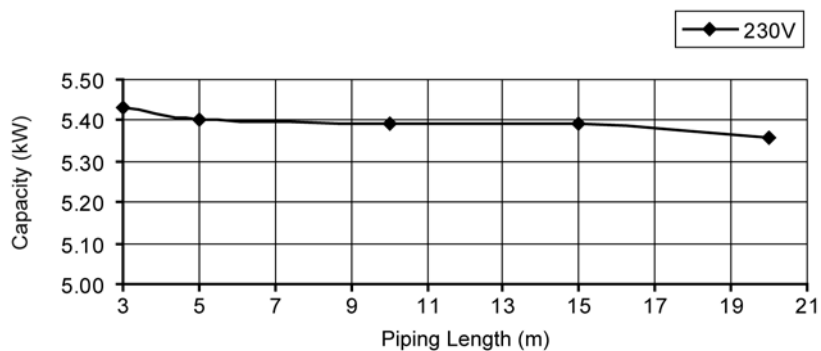
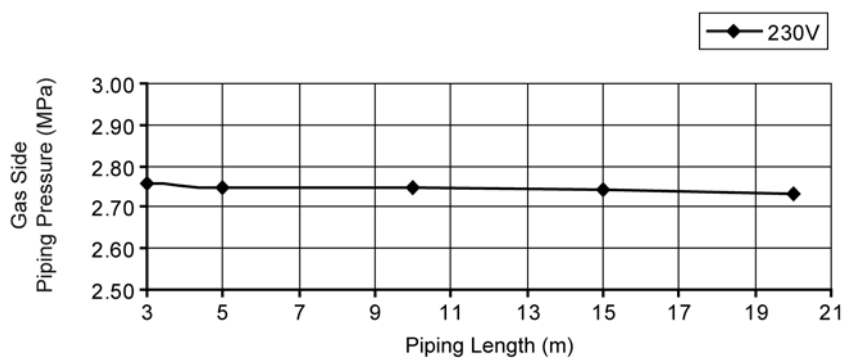
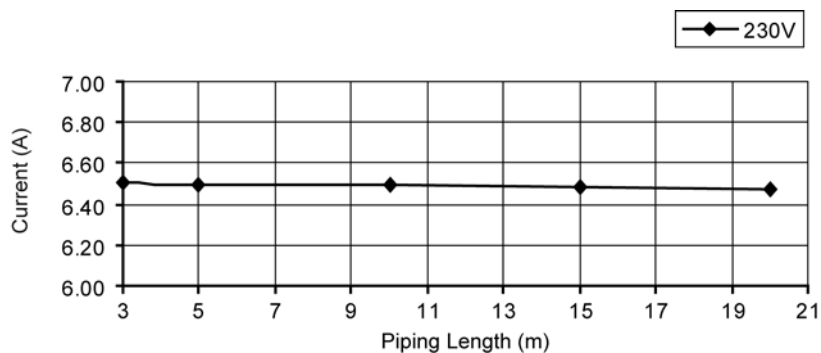
- Piping Length Characteristic
- [Condition] Indoor/Outdoor temperature: 27/19°C, 35/-°C
 Remote condition: High fan speed, Cool 16°C
 Comp. Hz: F_c



- Heating Characteristic
- [Condition] Indoor temperature: 20/-°C
Piping Length: 5m
Remote condition: High fan speed, Heat 30°C
Comp. Hz: F_h

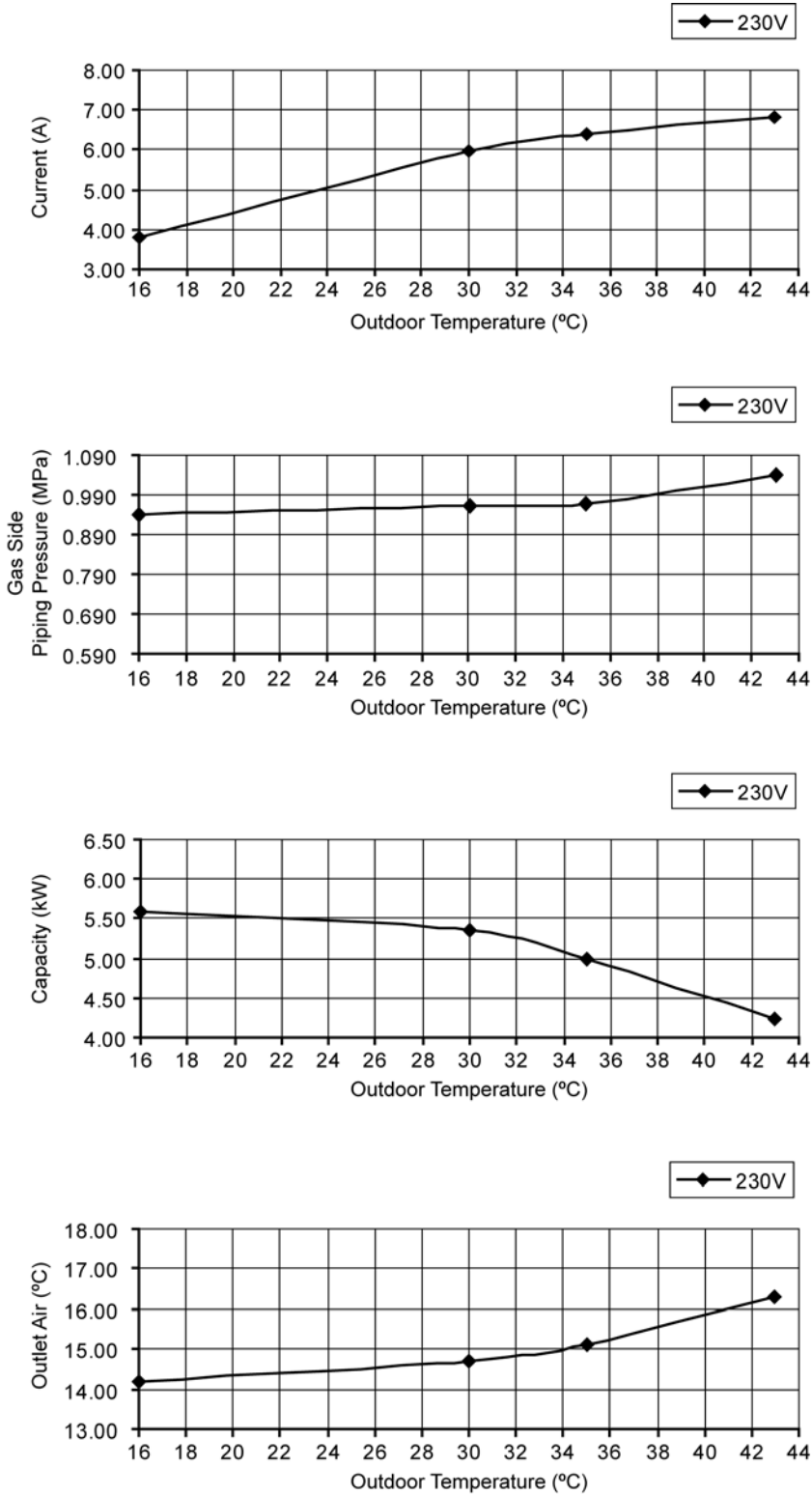


- Piping Length Characteristic
- [Condition] Indoor/Outdoor temperature: 20/-°C, 7/6°C
Remote condition: High fan speed, Heat 30°C
Comp. Hz: F_h

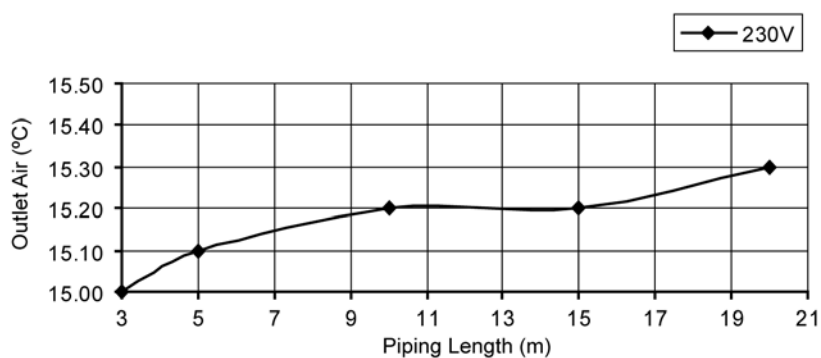
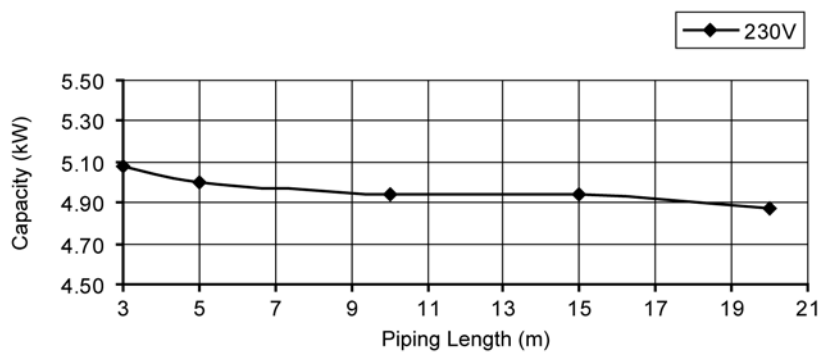
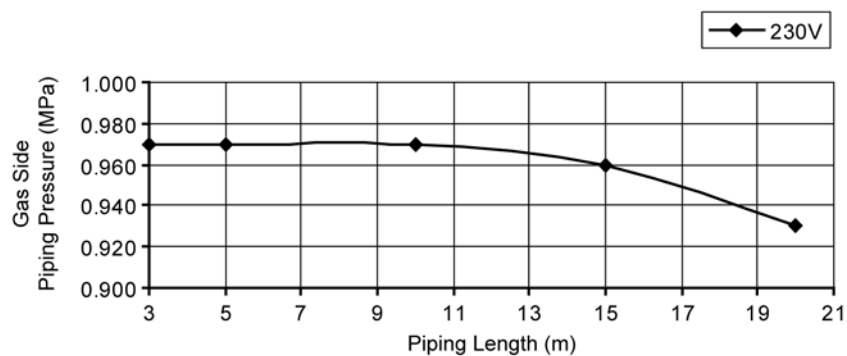
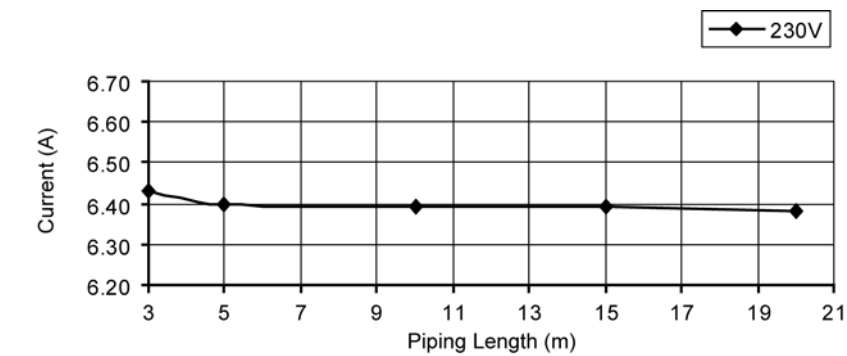


17.1.4 CS-E18PKEA CU-E18PKEA

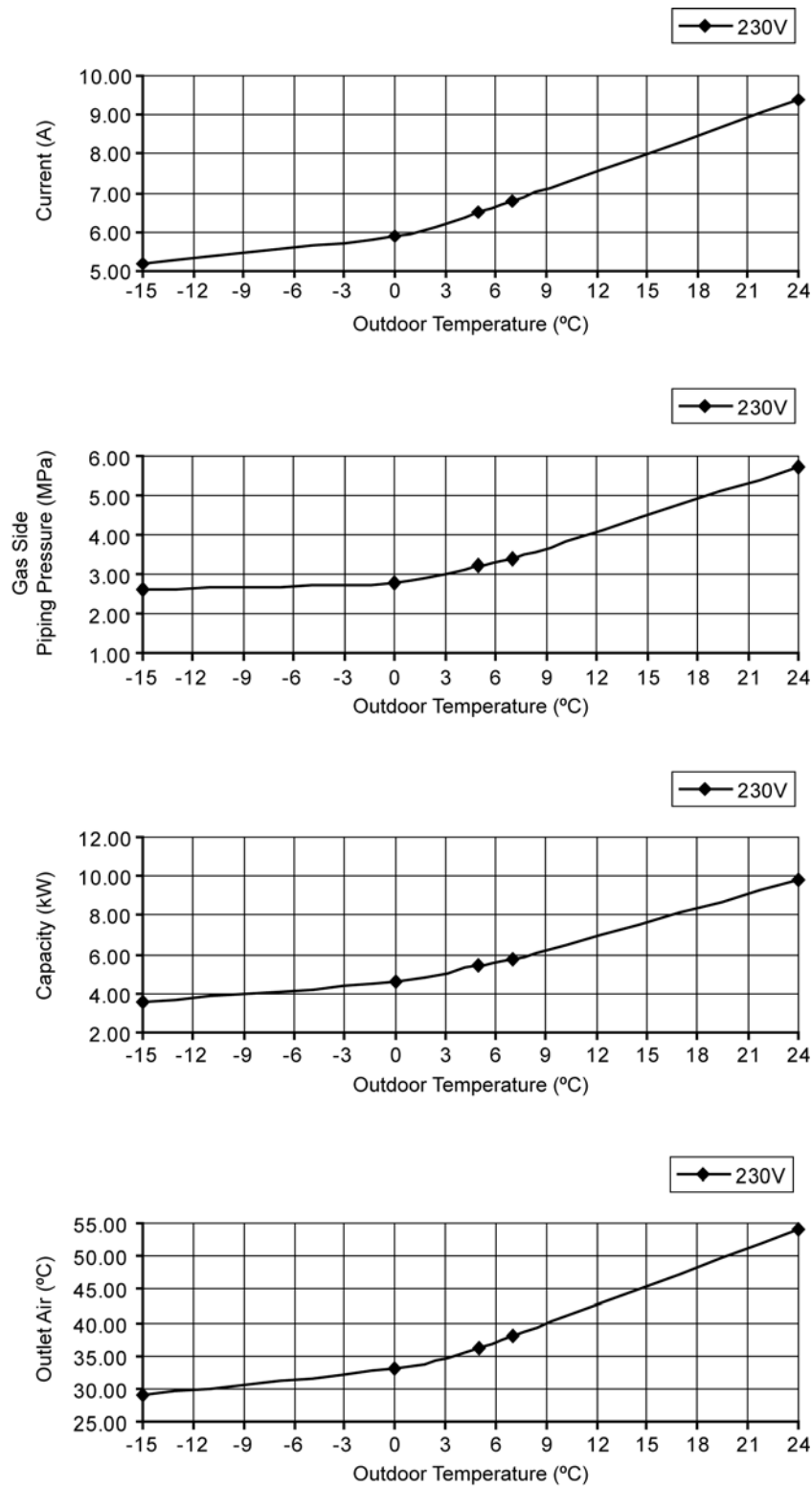
- Cooling Characteristic
- [Condition] Indoor temperature: 27/19°C
Piping Length: 5m
Remote condition: High fan speed, Cool 16°C
Comp. Hz: F_c



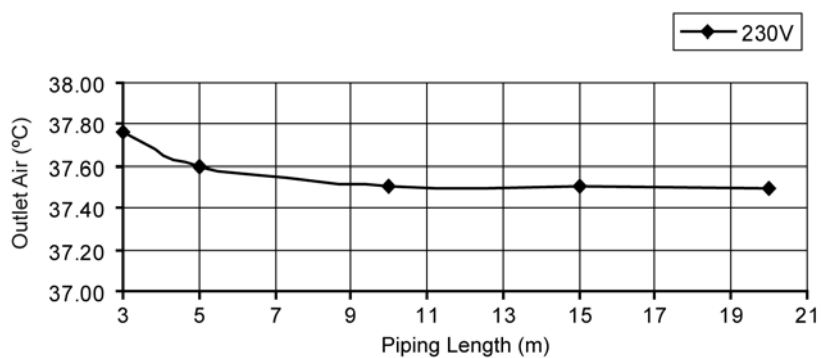
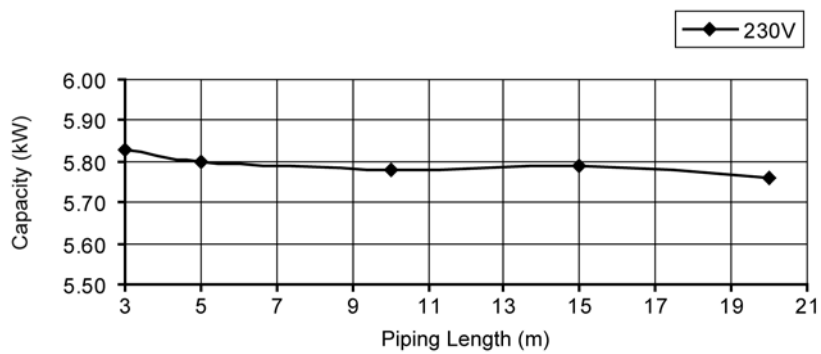
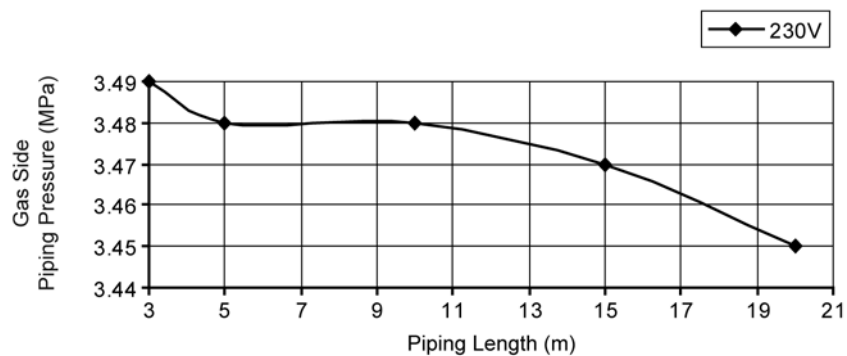
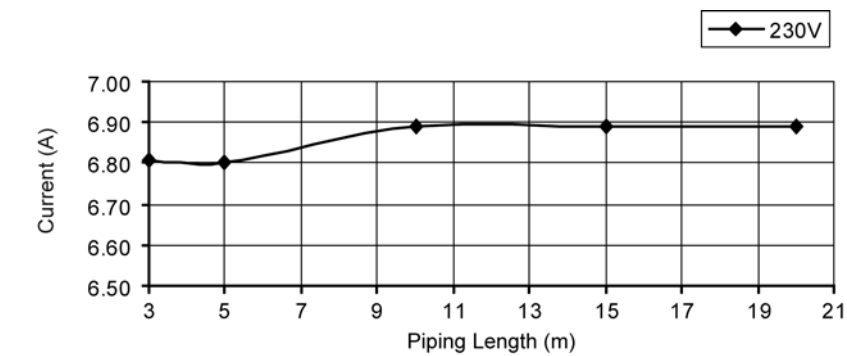
- Piping Length Characteristic
- [Condition] Indoor/Outdoor temperature: 27/19°C, 35/-°C
 Remote condition: High fan speed, Cool 16°C
 Comp. Hz: F_c



- Heating Characteristic
- [Condition] Indoor temperature: 20/-°C
Piping Length: 5m
Remote condition: High fan speed, Heat 30°C
Comp. Hz: F_h



- Piping Length Characteristic
- [Condition] Indoor/Outdoor temperature: 20/-°C, 7/6°C
 Remote condition: High fan speed, Heat 30°C
 Comp. Hz: F_h



17.2 Sensible Capacity Chart

• CU-E9PKEA

230V	Outdoor Temperature											
Indoor wet bulb	30 °C			35 °C			40 °C			46 °C		
	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
17.0 °C	2.48	1.88	0.47	2.32	1.80	0.51	2.16	1.73	0.54	1.96	1.65	0.59
19.0 °C				2.50		0.52						
19.5 °C	2.72	1.97	0.48	2.55	1.89	0.52	2.37	1.82	0.55	2.15	1.73	0.60
22.0 °C	2.97	2.04	0.49	2.77	1.96	0.53	2.58	1.89	0.56	2.35	1.81	0.61

• CU-E12PKEA

230V	Outdoor Temperature											
Indoor wet bulb	30 °C			35 °C			40 °C			46 °C		
	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
17.0 °C	3.47	2.63	0.80	3.24	2.52	0.86	3.02	2.43	0.92	2.74	2.30	0.99
19.0 °C				3.50		0.87						
19.5 °C	3.81	2.76	0.81	3.56	2.65	0.87	3.31	2.55	0.93	3.01	2.43	1.01
22.0 °C	4.15	2.86	0.83	3.88	2.75	0.89	3.61	2.65	0.95	3.28	2.53	1.03

• CU-E15PKEA

230V	Outdoor Temperature											
Indoor wet bulb	30 °C			35 °C			40 °C			46 °C		
	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
17.0 °C	4.17	3.16	1.10	3.89	3.03	1.18	3.62	2.91	1.26	3.29	2.77	1.36
19.0 °C				4.20		1.20						
19.5 °C	4.57	3.31	1.12	4.28	3.18	1.20	3.98	3.06	1.29	3.62	2.91	1.39
22.0 °C	4.99	3.43	1.14	4.66	3.30	1.23	4.33	3.18	1.31	3.94	3.03	1.41

• CU-E18PKEA

230V	Outdoor Temperature											
Indoor wet bulb	30 °C			35 °C			40 °C			46 °C		
	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
17.0 °C	4.96	3.76	1.32	4.64	3.61	1.42	4.31	3.47	1.52	3.92	3.29	1.64
19.0 °C				5.00		1.44						
19.5 °C	5.45	3.94	1.34	5.09	3.78	1.45	4.74	3.64	1.55	4.31	3.47	1.67
22.0 °C	5.94	4.08	1.37	5.55	3.93	1.47	5.16	3.79	1.57	4.69	3.61	1.70