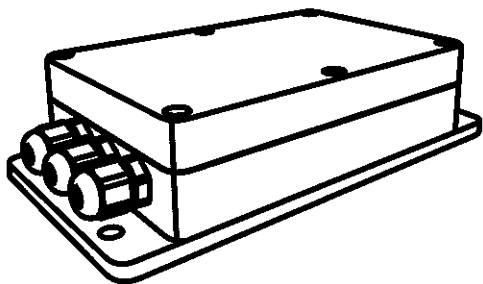


Inverter Condensing Unit Control Module

Technical Manual

Model:KA8243/KA8245



1.Introduction

KA8243/KA8245 control module enables to control inverter type outdoor unit without the needs of airconditioner factory produced indoor unit. It gives possibility to control outdoor unit capacity and state to produce heat or cooling for AHU or water heater/cooler.

KA8243/KA8245 control module enables to control inverter condensing unit capacity between 0 - 10%~100% by external input 0~10VDC signal.

Dry contact signal is used to control outdoor unit to work in cooling or heating mode.

KA8243 do not have temp sensor and anti-frozen protection must be from AHU controller or water heater/cooler controller.

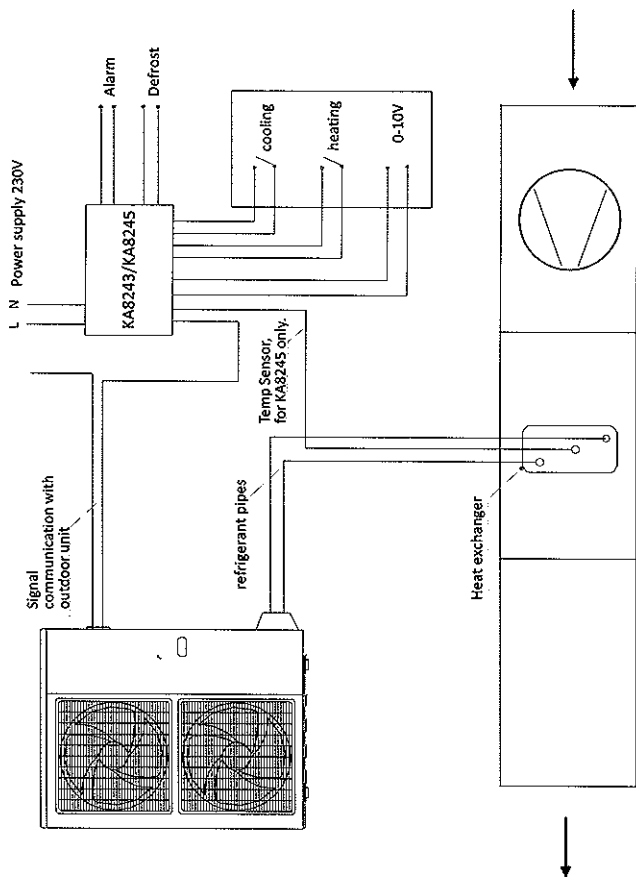
KA8245 have temp sensor and provide evaporator anti-frozen protection.

The installation and operation of outdoor unit as well controller must be done according to the manuals (i.e. Uer's manual, Installation manual, Technical Specification, Service Manual).

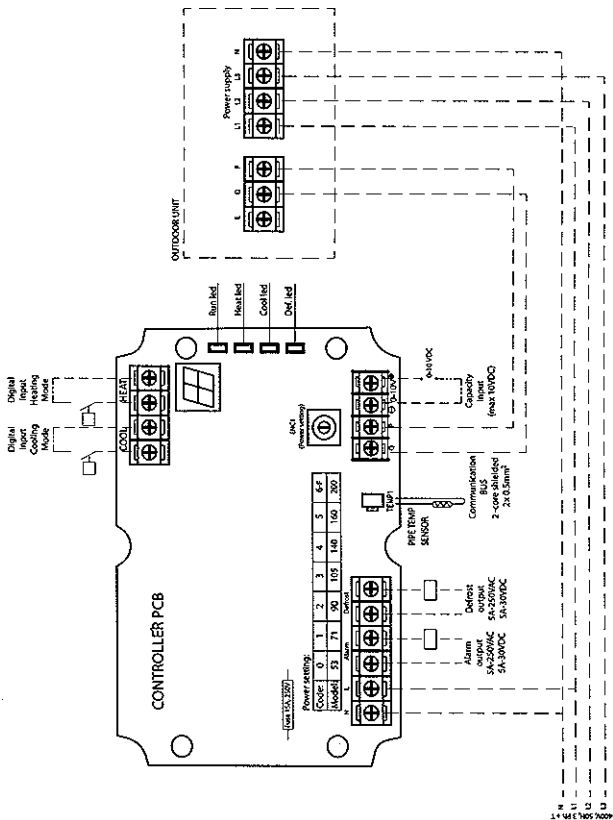
2.Specification and packing list

Model	KA8243/KA8245	
Casing	Plastic	
Dimension (h x w x d)	45 x100 x191mm	
Weight	0.35KG	
Operation Temperature Range	-25°C ~ +45 °C	
Operation Humidity Range	40-90 %	
Power Supply	230VAC, 1 Phase, 50/60Hz	
Voltage Range	208-240V	
Fuse	15A, 250V	
Resistance class	IP54	
Packing list	Box body	1 piece
	Box cover	1 piece
	Anti-water seal between box body and box cover	1 piece
	Temp sensor	1 piece (for KA8245 only)
	Gland	3 pieces
	Manual	1 piece

3. System design



4. Function and Setting



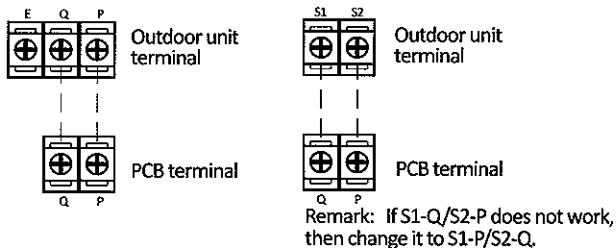
Connection Terminal Introduction:

N, L---Power supply connection terminal 230V,1-phase, 50/60Hz.

ALARM---Digital output 5A-250VAC or 5A-30VDC. When outdoor unit has malfunction signal is activated.

DEFROST---Digital output 5A-250VAC or 5A-30VDC. When outdoor unit is in defrost mode is activated.

PQ---Terminal to communication cable between controller and outdoor unit. Should not be less than 2x0, 5mm² (shielded). Different outdoor units may have different signal terminal. Please refer to following connection:



TEMP1---Anti-frozen protection sensor terminal.(This connection is for KA8245 only). Temp sensor must be placed at middle of heat changer.

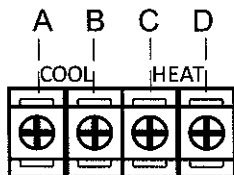
0-10V---Analog input terminal to control outdoor unit capacity.

Analog input	Capacity output	LED display
0-0.5V	0%	None(Unit stopped)
0.5-1.5V	10%	digit 1
1.5-2.5V	20%	digit 2
2.5-3.5V	30%	digit 3
3.5-4.5V	40%	digit 4
4.5-5.5V	50%	digit 5
5.5-6.5V	60%	digit 6
6.5-7.5V	70%	digit 7
7.5-8.5V	80%	digit 8
8.5-9.5V	90%	digit 9
9.5-10.5V	100%	digit 10

Warning:
Negative(0/-) and Positive(10/+)
terminals can not be mixed, otherwise it may destroy this control module.
Signal input can not exceed 10.5VDC, otherwise it may destroy this control module.

COOL---Digital input. When terminals are closed, the unit will run in cooling mode and "COOL" LED will be on. Terminal A is Positive(+) and terminal B is Negative(-)

HEAT---Digital input. When terminals are closed, the unit will run in heating mode and "HEAT" LED will be on. Terminal C is Positive(+) and terminal D is Negative(-)



Note: Terminal B and D are connected as one Negative(-), so 3 cables to control cooling/heating are feasible.

ENC1 - Knob to select condensing unit model.

Knob selection	Condensing unit	Knob selection	Condensing unit
0	5,3 kW unit	3	10,5 kW unit
1	7,1 kW unit	4	14,0 kW unit
2	9,0 kW unit	5	16,0 kW unit

LED lamps introduction:

RUN LED is lightened when controller is powered on.

HEAT LED is lightened when the unit is operating in heating mode.

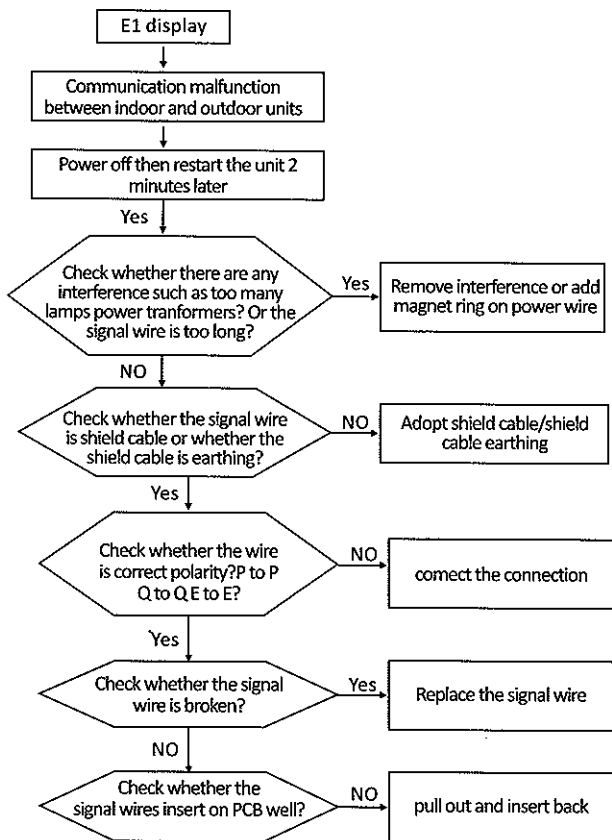
COOL LED is lightened when the unit is operating in cooling mode.

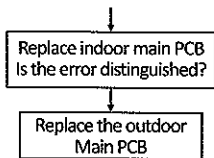
DEF LED is lightened when unit is in defrost mode.

5.Malfunction, Error Code and Solving steps

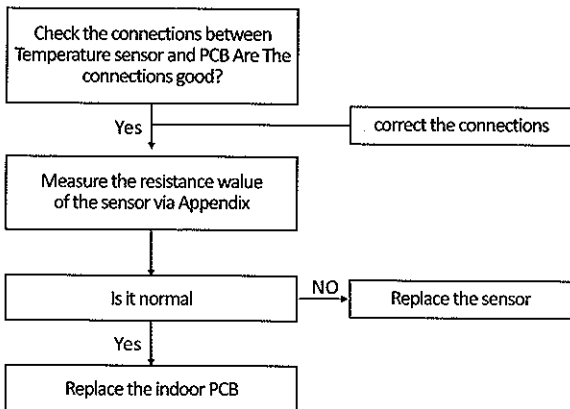
Display Code	Malfunction or Protection	Solving steps
E1	communication error with outdoor unit.	Please refer to 5.1
E2	temp sensor malfunction	Please refer to 5.2
Ed	outdoor unit temperature sensor malfunction or outdoor unit protection	Please refer to 5.3
dF	outdoor is defrosting	It's normal or refer to outdoor unit service manual

5.1 E1 solving step--communication error with outdoor unit

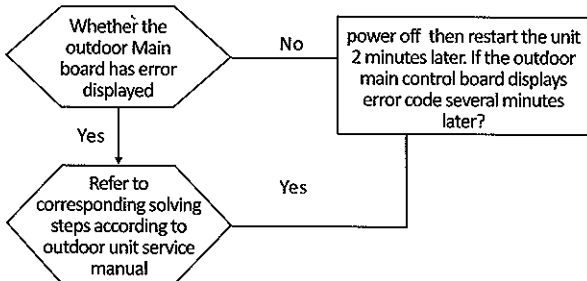




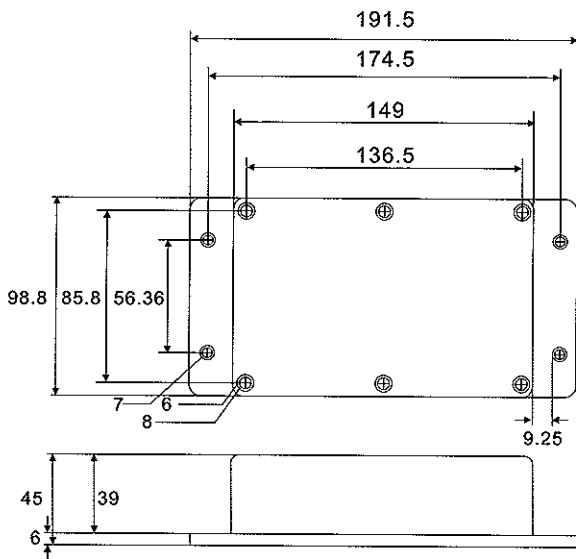
5.2 E2--temp sensor malfunction



5.3 Ed-- outdoor unit malfunction



6. Dimensions(mm)



Appendix 1 Temperature Sensor Resistance Value Table (°C—K)

°C	K Ohm	°C	K Ohm	°C	K Ohm	°C	K Ohm
-20	115.266	20	12.6431	60	2.35774	100	0.62973
-19	108.146	21	12.0561	61	2.27249	101	0.61148
-18	101.517	22	11.5000	62	2.19073	102	0.59386
-17	96.3423	23	10.9731	63	2.11241	103	0.57683
-16	89.5865	24	10.4736	64	2.03732	104	0.56038
-15	84.2190	25	10.0000	65	1.96532	105	0.54448
-14	79.3110	26	9.55074	66	1.89627	106	0.52912
-13	74.5360	27	9.12445	67	1.83003	107	0.51426
-12	70.1698	28	8.71983	68	1.76647	108	0.49989
-11	66.0898	29	8.33566	69	1.70547	109	0.48600
-10	62.2756	30	7.97078	70	1.64691	110	0.47256
-9	58.7079	31	7.62411	71	1.59068	111	0.45957
-8	56.3694	32	7.29464	72	1.53668	112	0.44699
-7	52.2438	33	6.98142	73	1.48481	113	0.43482
-6	49.3161	34	6.68355	74	1.43498	114	0.42304
-5	46.5725	35	6.40021	75	1.38703	115	0.41164
-4	44.0000	36	6.13059	76	1.34105	116	0.40060
-3	41.5878	37	5.87359	77	1.29078	117	0.38991
-2	39.8239	38	5.62961	78	1.25423	118	0.37956
-1	37.1988	39	5.39689	79	1.21330	119	0.36954
0	35.2024	40	5.17519	80	1.17393	120	0.35982
1	33.3269	41	4.96392	81	1.13604	121	0.35042
2	31.5635	42	4.76253	82	1.09958	122	0.3413
3	29.9058	43	4.57050	83	1.06448	123	0.33246
4	28.3459	44	4.38736	84	1.03069	124	0.32390
5	26.8778	45	4.21263	85	0.99815	125	0.31559
6	25.4954	46	4.04589	86	0.96681	126	0.30754
7	24.1932	47	3.88673	87	0.93662	127	0.29974
8	22.5662	48	3.73476	88	0.90753	128	0.29216
9	21.8094	49	3.58962	89	0.87950	129	0.28482
10	20.7184	50	3.45097	90	0.85248	130	0.27770
11	19.6891	51	3.31847	91	0.82643	131	0.27078
12	18.7177	52	3.19183	92	0.80132	132	0.26408
13	17.8005	53	3.07075	93	0.77709	133	0.25757
14	16.9341	54	2.95896	94	0.75373	134	0.25125
15	16.1156	55	2.84421	95	0.73119	135	0.24512
16	15.3418	56	2.73823	96	0.70944	136	0.23916
17	14.6181	57	2.63682	97	0.68844	137	0.23338
18	13.9180	58	2.53973	98	0.66818	138	0.22776
19	13.2631	59	2.44677	99	0.64862	139	0.22231