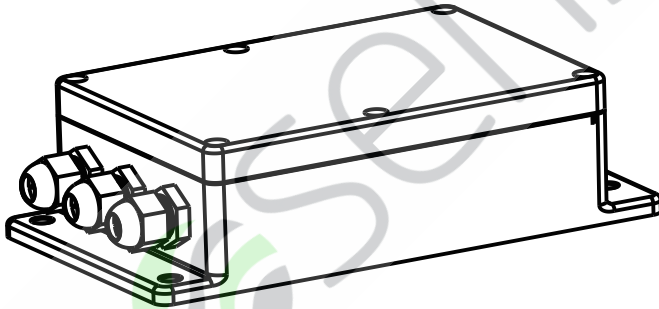


Haier

AHU-BOX - R32

inosens

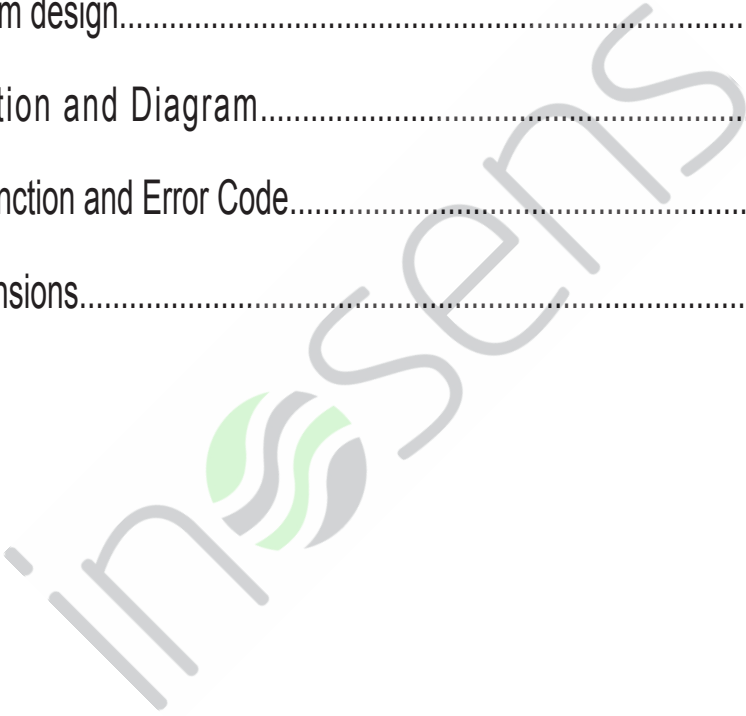


AH1-LCAC1(7.1kW-16kW)

English

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1. Introduction

AHUBOX control module enables to control inverter type outdoor unit without the needs of air conditioner factory produced indoor unit. It gives possibility to control outdoor unit capacity and state to produce heat or cooling for AHU .

AHUBOX 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.

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

2. Specification and packing list

Model		AH1-RAC1/AH1-LCAC1	
Casing		Plastic	
Dimension(h×w×d)	mm	206×110×52.5	
weight	kg	0.4	
Operation Temperature Range	°C	-25 ~ +55	
Operation Humidity Range	%	40-90	
Power Supply	Ph-V-Hz	1,220~240 ,50/60,	
Fuse	A	15	
	V	250	
Resistance class		IP54	
Packing list	Box body	piece	1
	Box cover	piece	1
	Anti-water seal between Box body and Box cover	piece	1
	Temp sensor	piece	1
	Gland	pieces	3
	Manual	piece	1
	Plastic cap	pieces	5
	Screw	pieces	5

3. System design

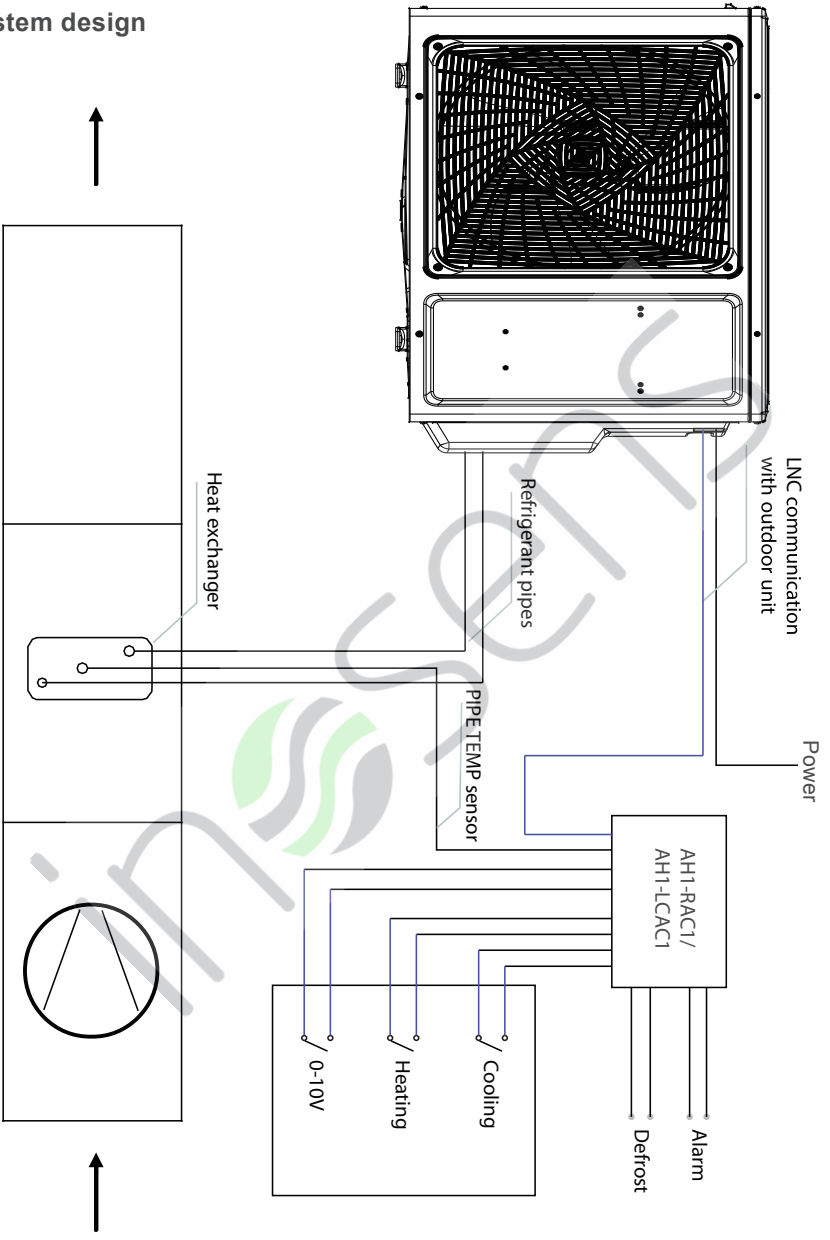
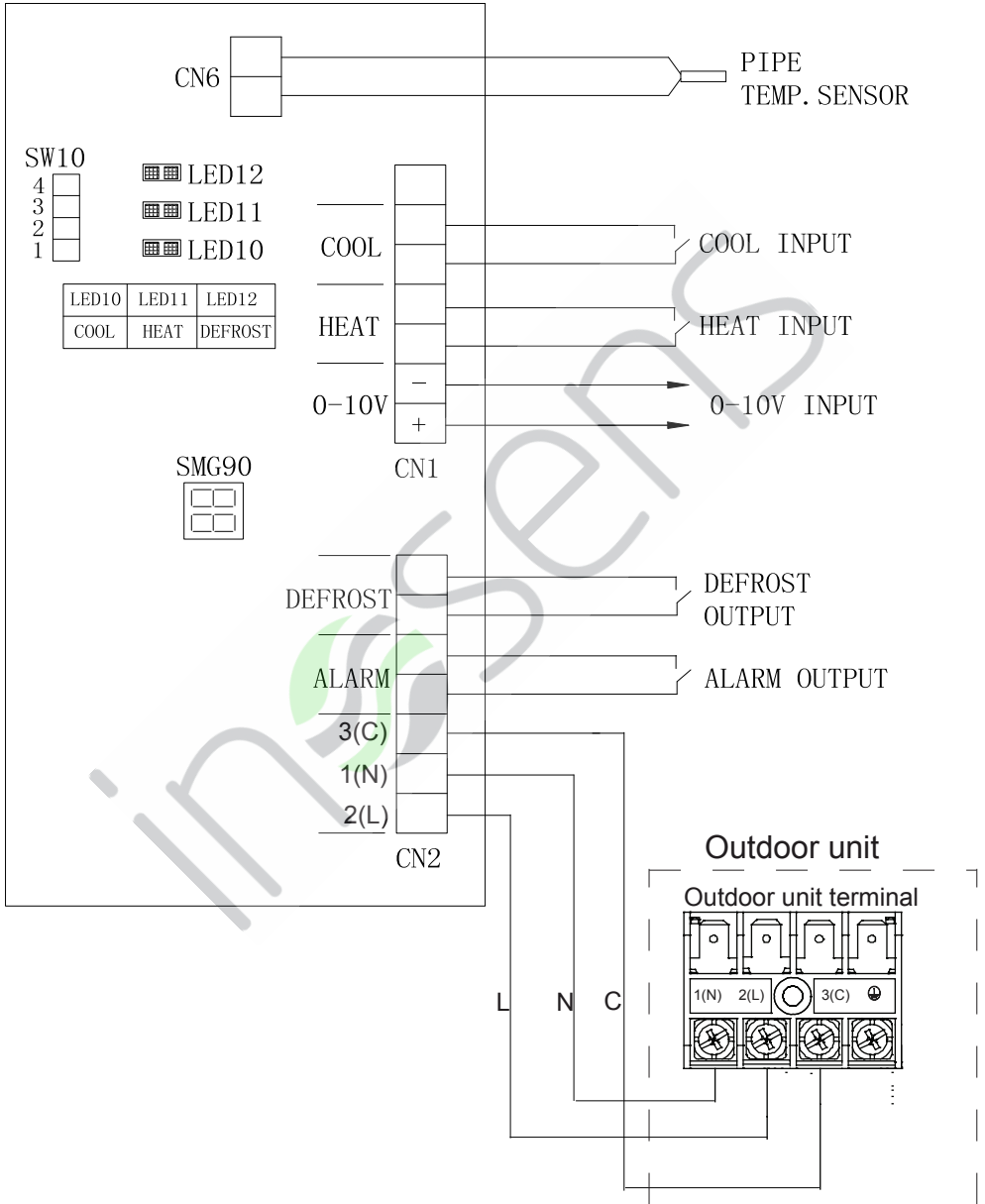


DIAGRAM AH1-RAC1/AH1-LCAC1



4.1. Connection Terminal Introduction

4.1.1. L, N, C

Power Supply and communication with outdoor unit 220-240V, 1-phase, 50/60Hz, through CN2.

Cable dimension 3×1.0 mm²

4.1.2. ALARM

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

4.1.3. DEFROST

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

4.1.4. Pipe.Temp.Sensor

Pipe temp sensor (indoor unit piping temperature sensor) terminal. Temp sensor must be placed at middle of heat changer.

4.1.5. 0-10V input

Analog input terminal to control outdoor unit capacity through CN1.

Analog input	Capacity output	LED display
0-0.5V	0%	00
0.5-1.5V	10%	01
1.5-2.5V	20%	02
2.5-3.5V	30%	03
3.5-4.5V	40%	04
4.5-5.5V	50%	05
5.5-6.5V	60%	06
6.5-7.5V	70%	07
7.5-8.5V	80%	08
8.5-9.5V	90%	09
9.5-10.5V	100%	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 module.

4.1.6. COOL

Digital input. When terminals are closed, the unit will run in cooling mode and "COOL" LED will be on.

4.1.7. HEAT

Digital input. When terminals are closed, the unit will run in heating mode and "HEAT" LED will be on.

4.1.8. SW10

knob selection 1	knob selection 2	knob selection 3	indoor unit capacity
OFF	OFF	OFF	2.6KW
OFF	OFF	ON	3.5KW
OFF	ON	OFF	5.0KW
OFF	ON	ON	7.1KW
ON	OFF	OFF	9.0KW/10.5KW
ON	OFF	ON	12.0KW
ON	ON	OFF	14.0KW
ON	ON	ON	≥16.0KW

The outdoor unit of the same capacity section must match the indoor unit of the same capacity section.

Knob selection 4: "ON" means having Coldair proof operation, "OFF" means no Coldair proof operation.

4.1.9. LED lamps introduction:

COOL (LED10) is lightened when the unit is operating in cooling mode.

HEAT (LED11) is lightened when the unit is operating in heating mode.

DEF (LED12) is lightened when the unit is in defrost mode.

5. Malfunction and Error Code

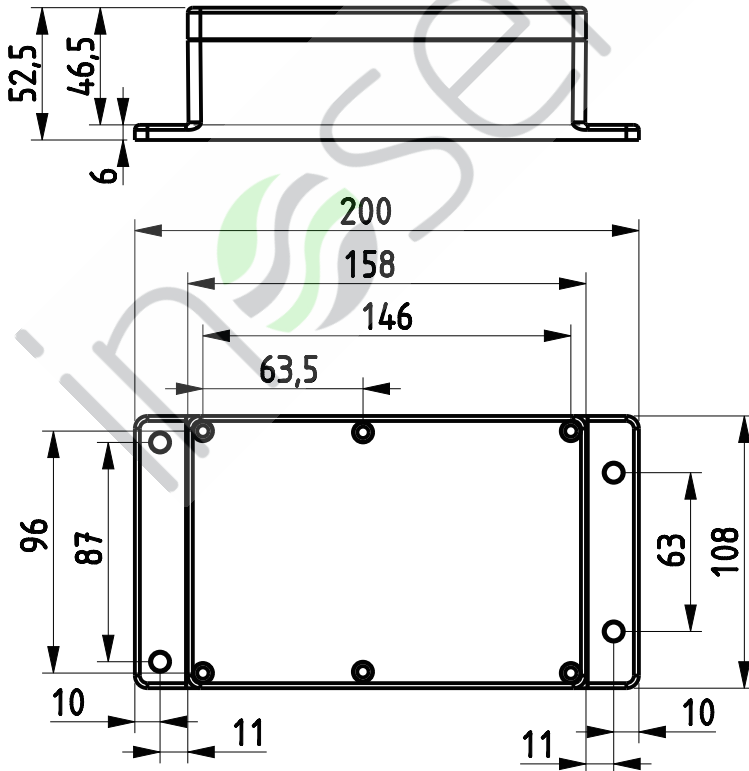
Error Code	Malfunction or Protection
E5	Internal unit antifreeze protection.
E2	Malfunction of indoor unit piping temperature sensor
E4	EEPROM wrong of indoor PCB
E7	Abnormal communication between indoor and outdoor units
E13	Lack of refrigerant.
F12	Faulty of outdoor unit EEPROM
F1	IPM overcurrent or short circuit
F22	AC current overcurrent protection
F27	Compressor stall / press instantaneous stop.

Error Code	Malfunction or Protection
F3	Communication failure between Module and ECU
F20	Module operated overload
F19	Module low or high voltage
F4	Discharging temperature overheating.Lack of refrigerant, ambient temperature too high or PMVs blocked.
F8	Malfunction of the DC fan motor
F21	Malfunction of defrosting temp. sensor
F7	Malfunction of compressor suction temp. sensor
F6	Malfunction of ambient temp. sensor
F25	Malfunction of compressor discharge temp. sensor
E7	Communication failure between indoor&outdoor unit
F14	4-way valve switching failure
F11	Loss of synchronism detection
E9	Indoor thermal overload
F28	Module PWM select circuit error.
F2	Compressor start failure
F23	Module input overcurrent
F9	MCU reset (only for multi)
F24	Module current detect circuit malfunction
F10	Malfunction of liquid pipe temp. sensor for indoor unit A
F16	Malfunction of liquid pipe temp. sensor for indoor unit B
F17	Malfunction of liquid pipe temp. sensor for indoor unit C
F18	Malfunction of liquid pipe temp. sensor for indoor unit D
F29	Malfunction of gas pipe temp. sensor for indoor unit A
F30	Malfunction of gas pipe temp. sensor for indoor unit B
F31	Malfunction of gas pipe temp. sensor for indoor unit C
F32	Malfunction of gas pipe temp. sensor for indoor unit D
F26	Malfunction of gas pipe temp. sensor for indoor unit E
F35	Malfunction of module temp.sensor Momentary power failure detection

Error Code	Malfunction or Protection
F36	Malfunction of condensing temp. sensor
F33	Malfunction of liquid pipe temp. sensor for indoor unit E
F39	System high pressure switch off
F40	System low pressure switch off
F41	System high pressure protection.Refrigerant overabundance,high condensing temp. or malfunction of fan motor.
F42	System low pressure protection.Refrigerant shortage,low defrosting temp. or malfunction of fan motor.

For troubleshooting,please refer to outdoor unit factory technical manual and solution

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	37.198	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

Producent:

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Qingdao 266555, Shandong, R.P.C.

