

Modbus

Sommario

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1. SUMMARY

This protocol is the communication between the host computer and the HMI controller. The host computer is the master and the hmi controller is the slave.

The slave address set by the host computer corresponds to the address set under the Project Menu/Controller Select of the HMI corresponding to Modbus Address: 1~64.

1.1 Communication specifications RS-485

Communication protocol: ModbusRTU : 9600,8,N,1

- Baud rate: 9600bps
- Data bits: 8 Data bits
- Parity: None Parity
- Stop bit: 1 stop bit

1.1.1 4 Wiring method

Connection of HMI and Main PCB is made by the XYE port of the PCB. Where Y is "+", X is "-", and E is "GND".

Connection with BMS is done by H1(-) H2 (+) on HMI port

1.1.2 Supported function codes and exception codes

03	Read Holding Registers	The number of registers read continuously at a time ≤ 20
06	Write Single Register	
16	Write Multiple Registers	The number of registers written continuously in a single time ≤ 20

1.1.3 Exception code description:

01	Illegal function code	Unsupported function code
02	Illegal data address	The address sent during query or setting is not defined in the online controller
03	Illegal data value	The set parameter is an illegal value, exceeds the reasonable setting range or a parameter cannot be set in the current state of the wire controller.

Note: Address 138 before the Modbus control switch of the line controller is set to 1, except for address 138, cannot be written.

Use Protocol Addresses (Base 0).

1.1.4 Table 1 (Read & Write)

Register address	Data content	Remarks
0	Mode set	(1 Cool , 2 Heat , 4 DHW , 8 Off) DHW mode is only available with hot water model and is valid for single pump system External remote control = invalid when ON Single cooling/FC model can only be set: 1 Cooling, 8 Off

Register address	Data content	Remarks
1	Set Two Temperature A	COOL MODE Only Cool & Free Cooling : (Max(-8 , TSafe) °C ~20°C) Heat Pump : (0°C ~20°C) HEAT MODE (25°C ~55°C)
2	Set Two Temperature B	COOL MODE Only Cool & Free Cooling : (Max(-8 , TSafe) °C ~20°C) Heat Pump : (0°C ~20°C) HEAT MODE (25°C ~55°C)
3	Offset Temperature OFFSET-C / OFFSET- H	COOL(0~15 °C) HEAT (0~ 30 °C)
4	Water Set Temperature	T5sMin °C~ T5sMax °C (Available for single pump) Invalid without hot water model
5	Water O fset Temperature	Reserved: Set=0
6	Clear Lock Errs	(0 invalid, 1=clearing it to malfunction , other invalid value) to clear all locked fault the Clear All Lock errors
7	Snow blowing switch	Enable/Disable 1/0

1.1.5 Table 2 (Read & Write)

Register address	Data content	Remarks
100	Silent mode	1: Standard mode
		2: Silent mode
		3: Night silent mode. 1
		4: Night silent mode 2
		5: Night silent mode. 3
		6: Night silent mode. 4
		7: Super Silent mode
101	DOUBLE SETPOINT Dual target temperature setting	Enable/Disable 1/0
102	SETPOINT COOL_1 First target temperature in cooling	Only Cool & Free Cooling: (Max (-8, TSafe) °C ~ 20°C) Heat Pump(0°C ~20°C)
103	SETPOINT COOL_2 Second target temperature in cooling	Only Cool & Free Cooling (Max (-8, TSafe) °C ~20°C) Heat Pump : (0°C ~20°C)
104	SETPOINT HEAT_1 First target temperature in heating	(25~55 °C)
105	SETPOINT HEAT_2 Second target temperature in heating	(25~55 °C)
106	COOL MODE ENABLE Temperature compensation function setting in cooling	Enable/Disable
107	T4_COOL_1 Temperature compensation point 1 in cooling mode	15 ~30 °C
108	T4_COOL_2 Temperature compensation point 2 in cooling mode	35 ~45 °C

Register address	Data content	Remarks
109	OFFSET-C Temperature compensation value in cooling	0~15 °C
110	HEAT MODE ENABLE Temperature compensation function setting in heating	Enable/Disable
111	T4_HEAT_1 Temperature compensation point 1 in heating mode	-10~ 10 °C
112	T4_HEAT_2 Temperature compensation point 2 in heating mode	15~ 30 °C
113	OFFSET- H Temperature compensation value in heating	0~ 30 °C
114	FORCED HEAT2 OPEN Forced auxiliary electric heater 2 of single pump	Enable/Disable 1/0 (Available for single pump) Before electric auxiliary heating 2 is enabled, it is not allowed to set the forced on Invalid without hot water model
115	DHW SWITCH Water heating switch	Enable/Disable 1/0 (Available for single pump)
116	TWO_COOL_DIFF Differential temperature of unit outlet water in cooling	1°C ~ 5°C
117	TWO_HEAT_DIFF Differential temperature of unit outlet water in heating	1°C ~ 5°C
118	DT5_ON Differential temperature of unit outlet water in DHW water heating	2°C ~ 10°C Invalid without hot water model
119	DT1S5 Temperature difference of heat exchange in DHW water heating	5°C ~ 20°C Invalid without hot water model
120	TIM_CAP_ADJ Capacity adjustment period	60S - 360S adjustment range 20s
121	TW_COOL_DIFF/TW_HEAT_DIFF Differential temperature of total outlet water	COOL MODE: 1°C ~ 5°C HEAT MODE: 1°C ~ 5°C
122	RATIO_COOL_FIRST Initial startup ratio in cooling	5 ~100% adjustment range 5%
123	RATIO_HEAT_FIRST Initial startup ratio in heating	5 ~100% adjustment range 5%
124	T_DIFF_PRO Protection of temperature difference between inlet and outlet water	8°C ~ 15°C
125	T_FROST Defrost cycle	20min ~120min, adjustment range 5min
126	T_DEFROST_IN Entry temperature of defrosting	-5°C ~ 5°C
127	T_FROST_OUT Exit temperature of defrosting	-10°C ~ 10°C
128	HEAT1 ENABLE Auxiliary electric heater	Enable/Disable 1/0
129	TEMP_AUXHEAT1_ON Available ambient temperature of auxiliary electric heater	0°C~10°C Single cooling/FC model is invalid

Register address	Data content	Remarks
130	TW_HEAT1_ON Opening water temperature of auxiliary electric heater	Heat Pump: 0°C~ 49 °C Only Cool & Free Cooling: Tsafe- 4 ~ TW_HEAT1_OFF -1 °C "Turn on water temperature" must be lower than "off water temperature"
131	TW_HEAT1_OFF Closing water temperature of auxiliary electric heater	Heat Pump: 1 °C~50°C Only Cool & Free Cooling: Max(Tsafe- 3, TW_HEAT1_ON +1) ~ 15 °C "Close water temperature" must be higher than "open water temperature"
132	HEAT2 ENABLE Auxiliary electric heater of water tank is enabled/disabled	Enable/Disable 1/0 (effective for single pump) Invalid without hot water model
133	T_HEAT2_DELAY Delay opening time of auxiliary electric heater of water tank	60min~240min Adjustment range 5min (effective for single pump) Invalid without hot water model
134	DT5_HEAT2_OFF Hysteresis when auxiliary electric heater of water tank stops	2°C~10°C (Single pump is effective) Invalid without hot water model
135	T4_HEAT2_ON Available ambient temperature of auxiliary electric heater of water tank	-5°C~20°C (Single pump is effective) Invalid without hot water model
136	SWITCH ON THE PUMP Startup of inverter water pump	Enable/Disable 1/0 (effective for single pump) Invalid without hot water model
137	RATIO-PUMP Startup percentage of inverter water pump	3 0 -100% Adjustment range 5% (effective for single pump) Before the variable frequency water pump turns on Enable, it is not allowed to set the opening percentage
138	MODBUS ENABLE Modbus write enable switch	Enable/Disable Write operation is valid/write operation is invalid 1/0
139	Antifreeze type Glycol type	0: ETHYLENE glycol 1: PROPYLENE propylene glycol (Single cold / FC model effectively Available for Only Cool & Free Cooling)
140	Percent of glycol	0 ~ 50% Adjustment range 5% (Single cold / FC model effectively Available for Only Cool & Free Cooling)
141	Protection pressure compensation value ΔPaf	0 ~ 20: of 0. The 0 ~ of 0. The 2 Mpa Actual value*100, adjustment range 5: 0.05Mpa (Single cold / FC model effectively Available for Only Cool & Free Cooling)
142	Water Coil Control	0: AUTOMATIC 1: MANUAL 1 2: MANUAL 2 (Available for Free Cooling for FC models)
143	Into the mix after TwS on appreciation DtTws	1°C~3°C (Available for Free Cooling for FC models)
144	Enter mix back difference Dtmix	1°C~3°C (Available for Free Cooling for FC models)
145	Enter FC margin FCooffset	1°C~15°C (Available for Free Cooling for FC models)
146	Enter FC hysteresis FChy	1°C~3°C (Available for Free Cooling for FC models)

Register address	Data content	Remarks
147	Abnormal value of inlet and outlet water temperature TWI-O ABNORMAL	1°C~5°C
148	Lowest cooling water LOW OUTLETWATER CONTROL	0~20°C
149	Power saving mode	40%~100% Adjustment range 10% 100% means power saving mode is off
150	E9 delay protection time	2~20s
151	E9 detection method	1: The rake flow is not detected before the pump is turned on 2: Detect the rake flow before the pump is turned on
152	Minimum opening ratio of variable frequency pump	40~Min(100%, Invert pump max ratio) Adjustment range 5% Multi-pump hot water model is effective
153	Maximum opening ratio of variable frequency pump	Max(70%, Invert pump min ratio)~100% Adjustment range 5% Multi-pump hot water model is effective
154	Pump running time	5~60min Adjustment range 5min
155	Pump off time	0~60min Adjustment range 5min
156	TW_COOL_DIFF Cool mode differential temperature of total outlet water	1°C ~ 5°C Conventional heat pump models, only valid for the host when the setting mode is heating
157	TW_HEAT_DIFF Heat mode differential temperature of total outlet water	1°C ~ 5°C Single cooling and FC models are invalid Conventional heat pump models, only valid for the host when the setting mode is heating
158-199	Reserve Reserved	

1.1.6 Table 3 (Read & Write)

Unit Address is the address of the outside machine, and the value range is (0-15).

Unit Address (0-15) indicates the selected unit address

201 + (Unit Address) *100 +200 - 239 + (Unit Address) *100, support reading and writing.

201 + (Unit Address) *100 +200 - 239 + (Unit Address) *100, which can be read and written.

Register address	Data Content	Remarks
200 +(Unit Address)*100	Reserve Reserved	
201+(Unit Address)*100	HEAT2 EANBLE Auxiliary electric heater HEAT2 of the selected unit is enabled.	Enable/Disable 1/0 (valid for multi-pump hot water model)
202+(Unit Address)*100	FORCED HEAT2 ON Auxiliary electric heater HEAT2 forced ON of the selected unit	ON/OFF 1/0 (valid for multi-pump hot water model) Before HEAT2 is valid, it is not allowed to set HEAT2 switch state. After the wire control sends a command to the external machine, it is automatically cleared
203+(Unit Address)*100	T-HEAT2-DELAY Delay opening time of auxiliary electric heater HEAT2 of the selected unit	60min~240min Adjustment range 5min (valid for multi-pump hot water model)
204+(Unit Address)*100	DT5-HEAT2-OFF Hysteresis when auxiliary electric heater HEAT2 of the selected unit stops	2°C~10°C (valid for multi-pump hot water model)
205+(Unit Address)*100	T4-HEAT2-ON Available ambient temperature of auxiliary electric heater HEAT2 of the selected unit	-5°C~20°C (valid for multi-pump hot water model)
206+(Unit Address)*100	DHW SWITCH Water heating function of the selected unit is enabled	Enable/Disable 1/0 (valid for multi-pump hot water model) After the hot water is turned on, write 0 and the hot water mode will be automatically set to off
207+(Unit Address)*100	DHW MODE ON/OFF Water heating function switch of the selected unit	ON / OFF 1/0 (valid for multi-pump hot water model) This register cannot be written to before the hot water function is valid.
208+(Unit Address)*100	DHW FIRST Water heating priority of the selected unit	Enable/Disable 1/0 (valid for multi-pump hot water model)
209+(Unit Address)*100	COOL MAX TIME Maximum cooling time in the water heating mode of the selected unit	30~1440min 30min adjustment range (effective for multi-pump hot water model)
210+(Unit Address)*100	COOL MIN TIME Minimum cooling time in the water heating mode of the selected unit	30~1440min 30min adjustment range (effective for multi-pump hot water model)
211+(Unit Address)*100	HEAT MAX TIME Maximum heating time in the water heating mode of the selected unit	30~1440min 30min adjustment range (effective for multi-pump hot water model)
212+(Unit Address)*100	HEAT MIN TIME Minimum heating time in the water heating mode of the selected unit	30~1440min 30min adjustment range (effective for multi-pump hot water model)
213+(Unit Address)*100	DHW MAX TIME Maximum water heating time in the water heating mode of the selected unit	30~1440min 30min adjustment range (effective for multi-pump hot water model)
214+(Unit Address)*100	DHW MIN TIME Minimum water heating time in the water heating mode of the selected unit	30~1440min 30min adjustment range (effective for multi-pump hot water model)

Register address	Data Content	Remarks
215+(Unit Address)*100	SWITCH ON THE PUMP Startup of inverter water pump of the selected unit	Enable/Disable 1/0 (Multiple pumps are effective)
216+(Unit Address)*100	RATIO-PUMP Startup percentage of inverter water pump of the selected unit	30 ~ 100% Adjustment range 5% (multiple pumps are effective)
217 +(Unit Address)*100	T5S Water Set Temperature of the selected unit	30°C~ 60°C (Effective for multi-pump hot water model)
(218~239)+(Unit Address)*100	Reserved	

1.1.7 Table 4 (Read only)

Unit Address is the address of the outside machine, and the value range is (0-15).

Unit Address (0-15) indicators the selected unit address

240 + (Unit Address)* 100 - 299+ (Unit Address)* 100 only supports reading.

240 + (Unit Address)* 100 - 299+ (Unit Address)* 100, which are read-only.

Register address	Data content	Remarks
240+(Unit Address)* 100	Running Mode	1 Shut down 2 cooling 3 heating 4 hot water
241+(Unit Address)* 100	Current silent mode	Silent Mode Standard Standard mode Silent mode Silent mode Super Quiet Mode Super silent mode Night silent mode 1 Night silent mode 2 Night silent mode 3 Night silent mode 4
242+(Unit Address)* 100	DHW Set Temperature T5s	Hot water set temperature Unit: 1°C Single pump system: all outdoor machines have the same value Multi-pump system: independent setting of each external machine
243+(Unit Address)* 100	DHW Set Temperature B (reserved)	Reserved Reserved the Set 0
244+(Unit Address)* 100	Tw Unit inlet water temperature	Unit: 1°C 255: Invalid data
245+(Unit Address)* 100	Two Unit outlet water temperature	Unit: 1°C 255: Invalid data
246+(Unit Address)* 100	Tw Total outlet water temperature	Unit: 1°C Only the data of host 0 is valid 255: Invalid data
247+(Unit Address)* 100	T4 Outdoor ambient temperature	Unit: 1°C 255: Invalid data
248+(Unit Address)* 100	Compressor Speed	Unit: 1Hz
249+(Unit Address)* 100	Current of Compressor 1	Unit: 1A
250+(Unit Address)* 100	Fan1Speed	Actual speed
251+(Unit Address)* 100	Fan2Speed	Actual speed
252+(Unit Address)* 100	Fan3Speed	Actual speed
253+(Unit Address)* 100	EXVA	Actual opening

Register address	Data content	Remarks
254+(Unit Address)* 100	EXVB	Actual opening
255+(Unit Address)* 100	EXVC	Actual opening
256+(Unit Address)* 100	SV4	0 off, 1 on
257+(Unit Address)* 100	SV5	0 off, 1 on
258+(Unit Address)* 100	SV8A	0 off, 1 on
259+(Unit Address)* 100	SV8B	0 off, 1 on
260+(Unit Address)* 100	FOUR-WAY VAL V E	0 off, 1 on
261+(Unit Address)* 100	WATER PUMP STATE	0 off, 1 on
262+(Unit Address)* 100	SV1 STATE	0 off, 1 on
263+(Unit Address)* 100	SV2 STATE	0 off, 1 on
264+(Unit Address)* 100	HEAT1 STATE	0 off, 1 on Only the data of host 0 is valid
265+(Unit Address)* 100	HEAT2 STATE	0 off, 1 on This item is not configured for non-hot water models and the data is invalid Only the data of No. 0 host is valid for single pump system
266+(Unit Address)* 100	Tp1 Discharge temperature 1	Unit: 1°C 255: Invalid data
267+(Unit Address)* 100	Th Suction temperature	Unit: 1°C 255: Invalid data
268+(Unit Address)* 100	T3 TEMP	The minimum value of T3A and T3B, unit: 1°C 255: Invalid data
269+(Unit Address)* 100	Tz TEMP	Unit: 1°C 255: Invalid data
270+(Unit Address)* 100	T5 TEMP	Unit: 1°C This item is not configured for non-hot water models, and the data is invalid The single pump system only has this data for No. 0 255: Invalid data
271+(Unit Address)* 100	Heat Pump: P PRESSURE Only Cool & Free Cooling: EVA PRESSURE	Unit: 10 kPa 0: Invalid data
272+(Unit Address)* 100	MainBoard Err or protect	See the fault code table of the external machine
273+(Unit Address)* 100	MainBoard L ast Err or protect	See the fault code table of the external machine
274+(Unit Address)* 100	HMI Software Version	Current HMI version number
275+(Unit Address)* 100	Tp 2 Discharge temp erature 2	Unit: 1°C 255: Invalid data
276+(Unit Address)* 100	T5sMin	Unit: 1°C This item is not configured for non-hot water models, and the data is invalid 255: Invalid data
277+(Unit Address)* 100	T6A TEMP	Unit: 1°C 255: Invalid data
278+(Unit Address)* 100	Wire Control Err	See the wire control fault code table
279+(Unit Address)* 100	SV6 STATE	0 off, 1 on
280+(Unit Address)* 100	Current of Compressor 2	Unit : 1A
281+(Unit Address)* 100	Unit C ap a city	Unit : 1kw
282+(Unit Address)* 100	Defrost	0 no, 1 yes
283+(Unit Address)* 100	Antifreeze heating belt/ Anti-freezing electric heater	0 off, 1 on

Register address	Data content	Remarks
284+(Unit Address)* 100	Remote control	0 off, 1 on Reading the address of external machine 0 is valid
285+(Unit Address)* 100	FCT working status	0 off, 1 on Reading the address of external machine 0 is valid Only valid when the host enters FCT2/FCT3
286+(Unit Address)* 100	Pump group status	1: Multiple pumps 0: Single pump
287+(Unit Address)* 100	ODU Type	0: Normal Heat Pump conventional heat pump 1: Only Cool single cold 2: as Free Cooling natural cooling
288+(Unit Address)* 100	T5sMax	Unit: 1°C This item is not configured for non-hot water models, and the data is invalid
289+(Unit Address)* 100	Safe temperature Tsafe	Unit: 1°C (valid for single cooling /FC model)
290+(Unit Address)* 100	Protection pressure PAF	Unit: 10 kPa (valid for single cooling/FC model)
291+(Unit Address)* 100	Taf1 IN-LET BPHE TEMP	Unit: 1°C 255: Invalid data
292+(Unit Address)* 100	MainBoard Software Version	The current main control board program version number Note: The old heat pump model does not have this value; when the value is 0, it means that the outside machine does not have this data
293+(Unit Address)* 100	MainBoard EEPROM Version	Version number of current main control board EEPROM program Note: The old heat pump model does not have this value; when the value is 0, it means that the outside machine does not have this data
294+(Unit Address)* 100	COND PRESSURE	Unit: 10 kPa (valid for FC model) 0: Invalid data Note: Old heat pump models do not have this value
295+(Unit Address)* 100	T6B TEMP	Unit: 1°C 255: Invalid data
296+(Unit Address)* 100	TAF2 TEMP	Unit: 1°C 255: Invalid data
297+(Unit Address)* 100	TFIN1 TEMP	Unit: 1°C 255: Invalid data
298+(Unit Address)* 100	TFIN2 TEMP	Unit: 1°C 255: Invalid data
299+(Unit Address)* 100	TFIN3 TEMP (Reserve d)	Unit: 1°C 255: Invalid data

1.1.8 Table 5 (Read/Write) Reserved

Unit Address is the address of the outside machine, and the value range is (0-15).

Unit Address (0-15) indicators the selected unit address

2200+ (Unit Address)* 2000 - 2299 + (Unit Address)* 200, support reading and writing.

2200+ (Unit Address)* 2000 - 2299 + (Unit Address)* 200, which can be read and written .

Register address	Data content	Remarks
(2200 ~ 2299) +(Unit Address)*200	Reserve d	

1.1.9 Table 6 (Read only)

Unit Address is the address of the outside machine, and the value range is (0-15).

Unit Address (0-15) indicators the selected unit address

2300+ (Unit Address) * 2000 - 2399+ (Unit Address) * 200 only supports reading.

2300+ (Unit Address) * 2000 - 2399+ (Unit Address) * 200, which are read-only.

Register address	Data content	Remarks
2300+(Unit Address)* 200	DSH TEMP	Unit: 1°C 255: Invalid data
2301+(Unit Address)* 200	SSH TEMP	Unit: 1°C 255: Invalid data
2302+(Unit Address)* 200	CSH TEMP	Unit: 1°C 255: Invalid data
2303+(Unit Address)* 200	Frequency conversion pump operation percentage Invert Pump Running Percent	0 ~ 100%
(2304 ~ 2399) +(Unit Address)*200	Reserved	

1.1.10 fault code table

Modbus code	Error code	Description	Note
1	E0	Main control E party failure	Recovery is recovery
2	E1	Phase sequence fault detected by the main control board	Recovery is recovery
3	E2	The main control and the line control communication failure, the main machine reports E2 Communication failure between master and slave, slave reports E2	Recovery is recovery
4	E3	The total outlet water temperature sensor is faulty (the host is valid)	Recovery is recovery
5	E4	Unit outlet water temperature sensor failure	Recovery is recovery
8	E7	Ambient temperature sensor failure	Recovery is recovery
9	E8	Power phase sequence protector output failure	Recovery is recovery
10	E9	Water flow detection failure	There are 3 protections within 60 minutes, and the power is cut off or the remote controller button is restored ;
11	EA	Reserved	
12	Eb	2Eb-->T af2 refrigeration evaporator low temperature antifreeze protection sensor failure	Recovery is recovery
13	EC	Slave module reduction	
14	Ed	Exhaust gas temperature sensor failure (when both of them are disconnected)	Recovery is recovery
15	EE	1EE injection enthalpy plate change refrigerant temperature T6A sensor failure 2EE Jet enthalpy plate change refrigerant temperature T6B sensor failure	Recovery is recovery
16	EF	Unit return water temperature sensor failure	Recovery is recovery
17	EH	System self-check failure alarm	Recovery is recovery

Modbus code	Error code	Description	Note
18	EL	Reserved	Recovery is recovery
19	EP	Exhaust sensor failure failure alarm	Recovery is recovery
20	EU	Tz sensor failure	Recovery is recovery
twenty one	P0	P 0 exhaust temperature protection 1P0 compressor module 1 high pressure protection 2P0 compressor module 2 high pressure protection	. 6 0 min occur within 3 times protected, non-off unrecoverable
twenty two	P1	System low voltage protection	. 6 0 min occur within 3 times protected, non-off unrecoverable
twenty three	P2	Tz total cold out temperature is too high	Recovery is recovery
twenty four	P3	Refrigeration T4 ambient temperature protection	Refrigeration is effective, and the failure will be restored immediately
25	P4	1 P4 system A AC current protection 2 P4 system A bus current protection	. 6 0 min occur within 3 times protected, non-off unrecoverable
26	P5	1 P 5 System B AC current protection 2 P5 system B bus current protection	3 times of protection within 60 minutes , non-recoverable without power failure
27	P6	Module failure	
29	P8	Reserved (the line controller displays P8 to indicate other fault protection)	
30	P9	Inlet and outlet water temperature difference protection	Recovery is recovery
31	PA	Protection for abnormal temperature difference between inlet and outlet water	Recovery is recovery
32	Pb	Anti-freeze protection in winter	
33	PC	The evaporator pressure is too low during cooling	There are 3 protections within 60 minutes, and it cannot be restored without power failure
34	Pd	Reserved	
35	PE	Refrigeration evaporator low temperature antifreeze protection	There are 3 protections within 60 minutes, and it cannot be restored without power failure
36	PF	Reserved	
38	PL	Tfin module over temperature protection	3 times of protection within 100 minutes , non-recoverable without power failure
39	PP	1PP-->IPM module failure, system A protection (reserved)	
		2PP-->IPM module failure, system B protection (reserved)	
40	PU	1PU-->DC fan A module protection	
		2PU-->DC fan B module protection	
		3 PU-->DC fan C module protection	
41	H0	Reserved	
42	H1	Reserved	
43	H2	Reserved	
44	H3	Reserved	
45	H4	Reserved	

Modbus code	Error code	Description	Note
46	H5	The voltage is too high or too low	
47	H6	Reserved	
48	H7	Reserved	
49	H8	Reserved	
50	x H9	Drive model does not match	x represents which press, 1 is A press, 2 is B press
51	HA	Reserved	
52	Hb	Reserved	
53	HC	High pressure pressure sensor failure	Specific to FC model
54	Hd	Reserved	
55	HE	A valve is not inserted fault 1HE	Recovery is recovery
		B valve not inserted fault 2HE	Recovery is recovery
		C valve not inserted fault 3HE	Recovery is recovery
56	HF	Reserved	
57	HH	Reserved	
58	HL	Reserved	
59	HP	Reserved	
60	HU	Reserved	
61	F0	1F0: IPM module communication failure	Recovery is recovery
		2F0: IPM module communication failure	Recovery is recovery
62	F1	Reserved	Recovery is recovery
64	F3 (reserved)	No. 1 fan communication failure 1F3	Recovery is recovery
		No. 2 fan communication failure 2F3	Recovery is recovery
		No. 3 fan communication failure 3F3	Recovery is recovery
65	F4	1F4 L0 or L1 protection occurred 3 times within 60 min (power failure recovery)	
		2F4 L0 or L1 protection occurred 3 times within 60 min (power failure recovery)	
66	F5	Reserved	
67	F6	1F6 A system bus voltage failure (PTC)	
		2F6 B system bus voltage failure (PTC)	
69	F8	Reserved	
72	Fb	Heat pump: Pressure sensor failure Single cold and FC: low pressure pressure sensor failure	Recovery is recovery
73	FC	Reserved	
74	Fd	Return air temperature sensor failure	Recovery is recovery
75	FE	Reserved	
76	FF	1FF DC fan A failure	Non-recoverable without power failure
		2FF DC fan B failure	Non-recoverable without power failure
		3 FF DC fan B failure	Non-recoverable without power failure
77	FH	Reserved	
78	FL	Reserved	

Modbus code	Error code	Description	Note
79	FP	The dial codes of multiple pumps are inconsistent	Need to recover from power failure
80	FU	Reserved	
81	C0	Reserved	
82	C1	Reserved	
83	C2	Reserved	
84	C3	Reserved	
85	C4	Reserved	
86	C5	Reserved	
87	C6	Reserved	
88	C7	3 times PL reported C7	Power failure recovery
89	C8	Reserved	
90	C9	Reserved	
91	CA	Reserved	
92	Cb	Reserved	
93	CC	Reserved	
94	Cd	Reserved	
95	CE	Reserved	
96	CF	Reserved	
97	CH	Reserved	
98	CL	Reserved	
99	CP	Reserved	
100	CU	Reserved	
101	L0	DC compressor module failure: 1L0—compressor 1 protection; 2L0—compressor 2 protection.	
10 2	L1	L1 low voltage protection	
10 3	L2	L2 high voltage protection	
10 4	L3	Reserved	
10 5	L4	L4MCE failure	
10 6	L5	L5 zero speed protection	
10 7	L6	Reserved	
10 8	L7	L7 phase loss	
10 9	L8	L8 frequency changes more than 15Hz	
1 10	L9	L9 frequency difference 15Hz	
11 1	LA	Reserved	
11 2	Lb	Reserved	
11 3	LC	Reserved	
11 4	Ld	Reserved	
115	LE	Reserved	
11 6	LF	Reserved	
11 7	LH	Reserved	

Modbus code	Error code	Description	Note
11 8	LL	Reserved	
11 9	LP	Reserved	
120	LU	Reserved	
12 1	d0	Reserved	Reserved
122	d1	Reserved	
123	d2	Reserved	
124	d3	Reserved	
125	d4	Reserved	
126	d5	Reserved	
127	d6	Reserved	
128	d7	Reserved	
129	d8	Reserved	
130	d9	Reserved	
131	dA	Reserved	
13 2	Db	Reserved	
13 3	dC	Reserved	
13 4	Dd	Reserved	
13 5	dE	Reserved	
13 6	dF	Defrosting tips	
13 7	dH	Reserved	
13 8	dL	Reserved	
13 9	dP	Reserved	
140	dU	Reserved	
14 1	b0	Reserved	
14 2	b1	Reserved	
14 3	b2	Reserved	
14 4	b3	Reserved	
145	b4	Reserved	
14 6	b5	Reserved	
14 7	b6	Reserved	
14 8	b7	Reserved	
14 9	b8	Reserved	
150	b9	Reserved	
151	bA	Reserved	
152	Bb	Reserved	
153	bC	Reserved	
154	Bd	Reserved	
155	bE	Reserved	
156	bF	Reserved	

Modbus code	Error code	Description	Note
157	bH	1bH : Module 1 relay adhesion or 908 chip self-test failure 2 bH : Module 2 relay stuck or 908 chip self-test failed	Continuous 60s failure cycle
158	bL	Reserved	
159	bP	Reserved	
160	bU	Reserved	



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