

HYUNDAI

MODBUS REGISTRY

EN

HPM0-04-D2L1H3-A1B
HPM0-06-D2L1H3-A1B
HPM0-08-D2L1H3-A1B
HPM0-10-D2L1H3-A1B
HPM0-12-D2L3H9-A1B
HPM0-14-D2L3H9-A1B
HPM0-16-D2L3H9-A1B

HPM0-**-D2L*H*-*1*

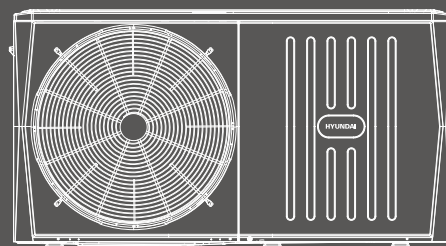
TEPELNÁ ČERPADLA

VZDUCH-VODA
MONOBLOK R290
4-16kW



UPOZORNĚNÍ:

Před instalací nebo servisem zařízení si pozorně přečtěte tento návod. Ušchovejte jej pro pozdější použití.



1.1 MODBUS PORT COMMUNICATION SPECIFICATION

Port: RS-485; H1“-” and H2“+” are the Modbus communication ports.

Communication address: Only one-to-one connection is available for the host computer and wired controller, and the wired controller is a slave unit. The communication address of the host computer and wired controller is consistent with the address of HMI Address for BMS (In FOR SERVICEMAN mode).

Baud rate:9600.Number of digits: 8 Verification:none

Stop bit: 1 bit

Communication protocol: Modbus RTU(Modbus ASCII not supported)

1.2 MAPPING OF REGISTERS IN THE WIRED CONTROLLER

The following addresses can use 03H, 06H (write single register), and 10H (write multiple registers)

Register address	Description	Remarks	
0 (PLC:40001)	Power on or off	BIT15	Reserved
		BIT14	Reserved
		BIT13	Reserved
		BIT12	Reserved
		BIT11	Reserved
		BIT10	Reserved
		BIT9	Reserved
		BIT8	Reserved
		BIT7	Reserved
		BIT6	Reserved
		BIT5	Reserved
		BIT4	Reserved
		BIT3	0: power off Zone 2; 1: power on Zone 2; (water flow temperature control)
		BIT2	0: power off DHW; 1: power on DHW
BIT1	0: power off Zone 1; 1: power on Zone 1; (water flow temperature control)		
BIT0	0: power off Zone 1/2; 1: power on Zone 1/2; (room temperature control)		
1 (PLC: 40002)	Mode setting	1: Auto; 2: Cooling; 3: Heating; Others: Invalid	
2 ⁽¹⁾ (PLC: 40003)	Set water temperature T1s	Bit 8-Bit 15	Set water temperature T1s2 (for Zone 2).
		Bit 0-Bit 7	Set water temperature T1s (for Zone 1).
3 ⁽¹⁾ (PLC: 40004)	Set air temperature Tas	The setting room temperature(for room temperature control), in °C, for the setting range, please refer to the manual	
4 ⁽²⁾ (PLC: 40005)	Set DHW temperature T5s	The domestic hot water tank setting temperature, in °C, for the setting range, please refer to the manual	
5 (PLC: 40006)	Function setting	BIT 15	Reserved
		BIT 14	C2 fault restore, 1: valid; 0: invalid
		BIT 13	Climate curve setting (Zone 2), 1: valid; 0: invalid
		BIT 12	Climate curve setting (Zone 1), 1: valid; 0: invalid
		BIT 11	DHW circulation pump(pump_D), 1: on; 0: off
		BIT 10	ECO mode, 1: on; 0: off
		BIT 9	Reserved
		BIT 8	Holiday home (only read), 1: on; 0: off
		BIT 7	0: Silent mode level 1; 1: Silent mode level 2
		BIT 6	Silent mode, 1: on; 0: off
		BIT 5	Holiday away (only read), 1: on; 0: off
		BIT 4	Disinfection, 1: on; 0: off
		BIT 3	Reserved
		BIT 2	Reserved
BIT 1	Reserved		
BIT 0	Reserved		
6 (PLC: 40007)	Temperature curve selection	Bit 8-Bit 15	Temperature curves 1-9 (Zone 2)
		Bit 0-Bit 7	Temperature curves 1-9 (Zone 1)
7 (PLC: 40008)	Forced DHW	0: Invalid	TBH is the electric domestic hot water tank heater. IBH1 and IBH2 are the heating loop electric heaters. IBH1 and IBH2 can be activated together. TBH cannot be activated together with IBH1 or IBH2.
8 (PLC: 40009)	Forced TBH	1: Forced on	
9 (PLC: 40010)	Forced IBH	2: Forced off	
10 (PLC: 40011)	t SG_MAX	Maximum operation time at high electricity price for smart grid: t_SG_MAX: 0-24hrs	
11*(PLC: 40012)	T1s	Water temperature T1s corresponds to Zone 1.	
12*(PLC: 40013)	T1s2	Water temperature T1s2 corresponds to Zone 2.	
13 (PLC: 40014)	t_antilock	SV1 and SV4 antilock action time, range: 0~60s	
14 (PLC: 40015)	Power on or off(zone2)	0: power off; 1: power on; (water flow temperature control)	
15 (PLC: 40016)	Power on or off(DHW)	0: power off; 1: power on	
16 (PLC: 40017)	Power on or off(zone1)	0: power off; 1: power on; (water flow temperature control)	
17 (PLC: 40018)	Power on or off(zone1/zone2)	0: power off; 1: power on; (room temperature control)	
18 (PLC: 40019)	Temperature curve selection(zone1)	Temperature curves 1-9 (Zone 2)	
19 (PLC: 40020)	Temperature curve selection(zone2)	Temperature curves 1-9 (Zone 1)	
20 (PLC: 40021)	Silent mode level	0: Silent mode level 1; 1: Silent mode level 2; 2: Boost mode (for the specific unit)	
1. Point 0 has the same functions as points 14, 15, 16, and 17. It is recommended to use points 14-17 for control.			
2. Point 6 has the same function as points 18 and 19. It is recommended to use points 18-19 for control.			
3. Point 2 has the same function as points 11 and 12. It is recommended to use points 11-12 for control.			

When the wired controller is connected to the hydraulic module, the parameters of the whole unit can be checked:
The following address table can only use 03H function code (read register).

Whole unit parameter mapping addresses

1) Operating parameters			
Register address	Description	Remarks	
100 (PLC: 40101)	Operating frequency	Compressor operating frequency, Hz	
101 (PLC: 40102)	Operating mode	Unit actual operating mode, 2: cooling, 3:heating, 0: off	
102 (PLC: 40103)	Fan speed	Fan motor running speed, r/min	
103 (PLC: 40104)	EXV1	Openness of the expansion valve 1 of outdoor unit, P	
104**(PLC: 40105)	Tw_in	Plate heat exchanger water inlet temperature, °C	
105**(PLC: 40106)	Tw_out	Plate heat exchanger water outlet temperature, °C	
106**(PLC: 40107)	T3	Condenser temperature, °C	
107**(PLC: 40108)	T4	Outdoor ambient temperature, °C	
108**(PLC: 40109)	Tp	Compressor discharge temperature , °C	
109**(PLC: 40110)	Th	Compressor suction temperature, °C	
110**(PLC: 40111)	T1	Total outlet water temperature, °C	
111**(PLC: 40112)	Tw2	Water temperature of Zone 2, °C	
112**(PLC: 40113)	T2	Refrigerant liquid side temperature, °C	
113**(PLC: 40114)	T2B	Refrigerant gas side temperature, °C	
114**(PLC: 40115)	Ta	Room temperature (in room temperature control), °C	
115**(PLC: 40116)	T5	Domestic hot water tank temperature, °C	
116 (PLC: 40117)	P1	High pressure of refrigerant loop, kPa	
117 (PLC: 40118)	P2	Low pressure of refrigerant loop, kPa	
118 (PLC: 40119)	ODU current	Outdoor unit gross operating current, A	
119 (PLC: 40120)	ODU voltage	Outdoor unit gross operating voltage, V	
120**(PLC: 40121)	Tbt1	Buffer tank top temperature, °C	
121**(PLC: 40122)	Tbt2	Buffer tank bottom temperature, °C	
122 (PLC: 40123)	Compressor operation time	Compressor operating time, hour	
123 (PLC: 40124)	Unit capacity	Reserved if register 200 = 0702. Represent the capacity of the unit, e.g. 4 = 4kW, if register 200 = 071x.	
124 (PLC: 40125)	Current error	Check the Error code table 1 for detailed error codes	
125 (PLC: 40126)	Reserved	Reserved	
126 (PLC: 40127)	Reserved		
127 (PLC: 40128)	Reserved		
128 (PLC: 40129)	Status bit 1	BIT15	Reserved
		BIT14	Reserved
		BIT13	Reserved
		BIT12	Reserved
		BIT11	EUV status, 1: free electricity; 0: judged by SG's signal
		BIT10	SG status: For A-series R32 units: 0:high price electricity(when EUV is 0); 1: normal electricity
			For other units: 0:normal electricity(when EUV is 0); 1: high price electricity
		BIT9	Anti-freezing operation for domestic hot water tank
		BIT8	Solar thermal(for DHW heating) signal input
		BIT7	CL on/off status of room thermostat
		BIT6	HT on/off status of room thermostat
		BIT5	Reserved
		BIT4	Remote On/Off control, 0: invalid; 1: valid
129 (PLC: 40130)	Load output	BIT3	Oil return
		BIT2	Anti-freezing
		BIT1	Defrosting
		BIT0	Reserved
		BIT15	Reserved
		BIT14	Auxiliary heat source
		BIT13	Reserved
		BIT12	Alarm
		BIT11	Solar thermal loop water pump(Pump_s)
		BIT10	Crankcase heater
		BIT9	SV3

129 (PLC: 40130)	Load output	BIT8	Mixed water loop pump(Pump_c), for Zone 2
		BIT7	Domestic hot water circulation pump(Pump_d)
		BIT6	External circulation pump(Pump_o)
		BIT5	SV2
		BIT4	SV1
		BIT3	Internal circulation pump(Pump_i)
		BIT2	Electric heater TBH
		BIT1	Electric heater IBH2
		BIT0	Electric heater IBH1
130 (PLC: 40131)	IDU software version	1-99 is the software version of the hydraulic module	
131 (PLC: 40132)	HMI software version	Reserved	
132 (PLC: 40133)	Unit target frequency	Hz	
133 (PLC: 40134)	DC bus current	Actual value*10, A	
134 (PLC: 40135)	DC bus voltage	Actual value/10, V	
135**(PLC: 40136)	TF	TF module temperature of the PCB, °C	
136 (PLC: 40137)	Temperature curve T1s calculated value 1	Calculated T1s of Zone 1 according to the temperature curve	
137 (PLC: 40138)	Temperature curve T1s calculated value 2	Calculated T1s of Zone 2 according to the temperature curve	
138 (PLC: 40139)	Water flow	Actual value*100, m³/h	
139 (PLC: 40140)	ODU current limit	Current limitation code of outdoor unit	
140 (PLC: 40141)	Capacity of hydraulic module	Actual value*100, kW	
141**(PLC: 40142)	Tsolar	Temperature of solar thermal panel	
142 (PLC: 40143)	Slave unit status	BIT1-BIT15	Respectively represent the online status of slaves units 1-15
		BIT0	Reserved
143 (PLC: 40144)	Higher bits for electricity consumption	Actual value*100	For R290 units: actual value*100; for other units: actual value; kWh
144 (PLC: 40145)	Lower bits for electricity consumption	Actual value*100	For R290 units: actual value*100; for other units: actual value; kWh
145 (PLC: 40146)	Higher bits for power output	Actual value*100	For R290 units: actual value*100; for other units: actual value; kWh
146 (PLC: 40147)	Lower bits for power output	Actual value*100	For R290 units: actual value*100; for other units: actual value; kWh
148 (PLC40149)	Real-time heating Capacity	Actual value*100, kW	
149 (PLC40150)	Real-time renewable heating capacity	Actual value*100, kW	
150 (PLC40151)	Real-time heating power consumption	Actual value*100, kW	
151 (PLC40152)	Real-time heating COP	Actual value*100	
152 (PLC40153)	Higher bits for cumulative system heating energy	For R290 units: actual value*100; for other units: actual value; kWh. System means cascade system	
153 (PLC40154)	Lower bits for cumulative system heating energy	For R290 units: actual value*100; for other units: actual value; kWh. System means cascade system	
154 (PLC40155)	Higher bits for cumulative system renewable heating energy	For R290 units: actual value*100; for other units: actual value; kWh. System means cascade system	
155 (PLC40156)	Lower bits for cumulative system renewable heating energy	For R290 units: actual value*100; for other units: actual value; kWh. System means cascade system	
156 (PLC40157)	Higher bits for cumulative system power consumption	For R290 units: actual value*100; for other units: actual value; kWh. System means cascade system	
157 (PLC40158)	Lower bits for cumulative system power consumption	For R290 units: actual value*100; for other units: actual value; kWh. System means cascade system	
158 (PLC40159)	Higher bits for cumulative heating energy	For R290 units: actual value*100; for other units: actual value; kWh	
159 (PLC40160)	Lower bits for cumulative heating energy	For R290 units: actual value*100; for other units: actual value; kWh	
160 (PLC40161)	Higher bits for cumulative renewable heating energy	For R290 units: actual value*100; for other units: actual value; kWh	
161 (PLC40162)	Lower bits for cumulative renewable heating energy	For R290 units: actual value*100; for other units: actual value; kWh	
162 (PLC40163)	Higher bits for cumulative power consumption for heating	For R290 units: actual value*100; for other units: actual value; kWh	
163 (PLC40164)	Lower bits for cumulative power consumption for heating	For R290 units: actual value*100; for other units: actual value; kWh	
164 (PLC40165)	Cumulative heating efficiency ratio	Actual value*100	

165 (PLC40166)	Higher bits for cumulative cooling energy	For R290 units: actual value*100; for other units: actual value; kWh	
166 (PLC40167)	Lower bits for cumulative cooling energy	For R290 units: actual value*100; for other units: actual value; kWh	
167 (PLC40168)	Higher bits for cumulative renewable cooling energy	For R290 units: actual value*100; for other units: actual value; kWh	
168 (PLC40169)	Lower bits for cumulative renewable cooling energy	For R290 units: actual value*100; for other units: actual value; kWh	
169 (PLC40170)	Higher bits for cumulative power consumption for cooling	For R290 units: actual value*100; for other units: actual value; kWh	
170 (PLC40171)	Lower bits for cumulative power consumption for cooling	For R290 units: actual value*100; for other units: actual value; kWh	
171 (PLC40172)	Cumulative cooling efficiency ratio	Actual value*100	
172 (PLC40173)	Higher bits for cumulative DHW heating energy	For R290 units: actual value*100; for other units: actual value; kWh	
173 (PLC40174)	Lower bits for cumulative DHW heating energy	For R290 units: actual value*100; for other units: actual value; kWh	
174 (PLC40175)	Higher bits for cumulative DHW heating renewable energy	For R290 units: actual value*100; for other units: actual value; kWh	
175 (PLC40176)	Lower bits for cumulative DHW heating renewable energy	For R290 units: actual value*100; for other units: actual value; kWh	
176 (PLC40177)	Higher bits for cumulative power consumption for DHW heating	For R290 units: actual value*100; for other units: actual value; kWh	
177 (PLC40178)	Lower bits for cumulative power consumption for DHW heating	For R290 units: actual value*100; for other units: actual value; kWh	
178 (PLC40179)	Cumulative DHW heating COP	For R290 units: actual value*100; for other units: actual value; kWh	
180 (PLC40181)	Real-time cooling capacity	Actual value*100, kW	
179 (PLC40180)	Real-time renewable cooling capacity	Actual value*100, kW	
181 (PLC40182)	Real-time cooling power consumption	Actual value*100, kW	
182 (PLC40183)	Real-time cooling EER	Actual value*100, kW	
183 (PLC40184)	Real-time DHW heating capacity	Actual value*100, kW	
184 (PLC40185)	Real-time renewable DHW heating capacity	Actual value*100, kW	
185 (PLC40186)	Real-time DHW heating power consumption	Actual value*100, kW	
186 (PLC40187)	Real-time DHW heating COP	Actual value*100	
187(PLC40188)	Modbus protocol version	Format: 29 = V2.9	
188 (PLC40189)	Error code	0: invalid; 1: refer to Error code table 2	
189 (PLC40190)	Status bit 2	BIT9-BIT15	Reserved
		BIT8	Temperature value in 1°C or 0.1°C, 0: in 1°C; 1: in 0.1°C.
		BIT7	Power type, 0: 1-phase; 1: 3-phase
		BIT0-BIT6	Reserved
190 (PLC40191)	Hydraulic module sub-model	0: R32-P; 1: Aqua; 2: C-R32-P; 3: R290-A; 4: R290-N; 5: C-R290-A; 6: C-R290-N; 7: R32-A; 8: C-R32-A; 9: R290-M; 10: R32-H. Default is 0. For more information about the model, please consult your local dealer.	
191**(PLC40192)	TL	Outdoor unit refrigerant pipe temperature, °C	
192 (PLC40193)	Pump_i PWM	Internal circulation pump feedback PWM duty cycle, actual value*10	
193**(PLC40194)	T9i	Inlet temperature of the second PHE, actual value*10, 0x7fff: invalid	
194**(PLC40195)	T9o	Outlet temperature of the second PHE, actual value*10, 0x7fff: invalid	
195 (PLC40196)	EXV2 openness	Openness of expansion valve 2, P	
196 (PLC40197)	EXV3 openness	Openness of expansion valve 3, P	
197 (PLC40198)	Fan2 speed	Fan2 speed, r/min	

198	Status bit 3	BIT15	TBH, 1: Enable, 0: Disable
		BIT14	AHS, 1: Enable, 0: Disable
		BIT13	Reserved
		BIT12	T1B, 1: Enable, 0: Disable
		BIT11	AHS mode, 1: Heating & DHW, 0: Heating only
		BIT10	IBH, 1: Enable, 0: Disable
		BIT9	T1, 1: Enable, 0: Disable
		BIT8	Energy metering, 1: Enable, 0: Disable
		BIT7	Reserved
		BIT6:	Reserved
		BIT5:	DHW operation status, 1: On, 0: Off
		BIT4:	Heating operation status, 1: On, 0: Off
		BIT3:	Cooling operation status, 1: On, 0: Off
		BIT2:	Reserved
		BIT1:	Reserved
		BIT0:	Reserved
199	Heat pump operation mode		0: Off; 2: Cooling; 3: Heating; 5: DHW; Else: Invalid
Note : 1. When Tw2 is unavailable, "25" would be displayed in upper unit address 111. 2. When Ta is unavailable, "25" would be displayed in upper unit address 114.			

The following register addresses 200-208 can only use 03H (read register) function code. Register address 209 and subsequent addresses can use 03H, 06H (write single register), and 10H (write multiple registers)

2) Parameter setting		
Register address	Description	Remarks
201*(PLC: 40202)	Upper limit of T1s for cooling	Lower 8 bits for Zone 1 and higher 8 bits for Zone 2
202*(PLC: 40203)	Lower limit of T1s for cooling	Lower 8 bits for Zone 1 and higher 8 bits for Zone 2
203*(PLC: 40204)	Upper limit of T1s for heating	Lower 8 bits for Zone 1 and higher 8 bits for Zone 2
204*(PLC: 40205)	Lower limit of T1s for heating	Lower 8 bits for Zone 1 and higher 8 bits for Zone 2
205*(PLC: 40206)	Upper limit for Tas setting	Protocol value = actual value * 2
206*(PLC: 40207)	Lower limit for Tas setting	Protocol value = actual value * 2
207**(PLC: 40208)	Upper limit for T5s setting	T5s upper limit
208**(PLC: 40209)	Lower limit for T5s setting	T5s lower limit
209 (PLC: 40210)	Pump_D running time	Pump_D running duration. It is 5 minutes by default and can be adjusted between 5 and 120 min at an interval of 1 min.
210 (PLC: 40211)	Parameter setting 1	BIT15 Enable domestic hot water function, 1: Enable; 0: Disable
		BIT14 Enablement status of DHW tank electric heater TBH (read-only)
		BIT13 Enable disinfection function, 1: Enable; 0: Disable
		BIT12 Enable Pump_d function, 1: Enable; 0: Disable
		BIT11 Enable DHW priority function, 1: Enable; 0: Disable
		BIT10 Enable Pump_d disinfect function, 1: Enable; 0: Disable
		BIT9 Enable cooling function, 1: Enable; 0: Disable
		BIT8 Status of T1S cooling high/low temperature settings (read-only)
		BIT7 Enable heating function, 1: Enable; 0: Disable
		BIT6 Status of T1S heating high/low temperature settings (read-only)
		BIT5 Enable Pump_i silent mode function, 1: Enable; 0: Disable
		BIT4 Enable Room temp. function, 1: Enable; 0: Disable
		BIT3 Enable Room thermostat function, 1: Enable; 0: Disable
		BIT2 Enable Room thermostat, Mode set, 1: Enable; 0: Disable
		BIT1 Enable Room thermostat, Double zone, 1: Enable; 0: Disable
		BIT0 DHW priority setting, 0: No; 1: Yes
211 (PLC: 40212)	Parameter setting 2	BIT15 Enablement status of ACS function (read-only)
		BIT14 Enable M1M2, AHS ON/OFF, 1: Enable; 0: Disable
		BIT13 T1T2 setting, 0: No; 1: RT/Ta_PCB
		BIT12 Enable Tbt1 function, 1: Enable; 0: Disable
		BIT11 F-pipe length setting, 1: ≥10 m; 0: <10 m
		BIT10 Solar control setting: For A-series R32 units: 1: CN18; 0: CN11 For other units: 0: Tsolar; 1: SL1L2
		BIT9 Solar energy kit enable, For A-series R32 units: 1:Yes; 0:No For other units: see address 273
		BIT8 M1M2 setting, 0: Remote ON/OFF; 1: TBH ON/OFF
		BIT7 Enable smart grid, 1: Enable; 0: Disable
		BIT6 Reserved.
		BIT5 High/low temperature of cooling mode of Zone 2 (read-only)
		BIT4 High/low temperature of heating mode of Zone 2 (read-only)
		BIT3 Enable Double zone, 1: Enable; 0: Disable
		BIT2 Reserved.
		BIT1 Enable Tbt function, 1: Enable; 0: Disable
		BIT0 Reserved.
212**(PLC: 40213)	dT5_On	in °C, for the setting range, please refer to the manual
213**(PLC: 40214)	dT1S5	in °C, for the setting range, please refer to the manual
215**(PLC: 40216)	T4DHWmax	in °C, for the setting range, please refer to the manual
216**(PLC: 40217)	T4DHWmin	in °C, for the setting range, please refer to the manual
217 (PLC: 40218)	t_TBH_delay	in min, for the setting range, please refer to the manual
218**(PLC: 40219)	dT5_TBH_off	in °C, for the setting range, please refer to the manual
219**(PLC: 40220)	T4_TBH_on	in °C, for the setting range, please refer to the manual
220**(PLC: 40221)	T5s_DI	in °C, for the setting range, please refer to the manual
221 (PLC: 40222)	t_DI_max	in min, for the setting range, please refer to the manual
222 (PLC: 40223)	t_DI_hightemp	in min, for the setting range, please refer to the manual

224**(PLC: 40225)	dT1SC	in °C, for the setting range, please refer to the manual
225**(PLC: 40226)	dTSC	in °C, for the setting range, please refer to the manual
226**(PLC: 40227)	T4cmax	in °C, for the setting range, please refer to the manual
227**(PLC: 40228)	T4cmin	in °C, for the setting range, please refer to the manual
229**(PLC: 40230)	dT1SH	in °C, for the setting range, please refer to the manual
230**(PLC: 40231)	dTSH	in °C, for the setting range, please refer to the manual
231**(PLC: 40232)	T4hmax	in °C, for the setting range, please refer to the manual
232**(PLC: 40233)	T4hmin	in °C, for the setting range, please refer to the manual
233**(PLC: 40234)	T4_IBH_on	Ambient temperature for enabling the auxiliary electric heating IBH of the hydraulic module, in °C, for the setting range, please refer to the manual
234**(PLC: 40235)	dT1_IBH_on	Temperature return difference for enabling the hydraulic module auxiliary electric heating IBH, in °C, for the setting range, please refer to the manual
235 (PLC: 40236)	t_IBH_delay	Delay time of enabling the hydraulic module auxiliary electric heating IBH, in min, for the setting range, please refer to the manual
237**(PLC:40238)	T4_AHS_on	The trigger ambient temperature for turning on external heating source AHS, in °C, for the setting range, please refer to the manual
238**(PLC:40239)	dT1_AHS_on	Temperature return difference for enabling the external heating source AHS; in °C, for the setting range, please refer to the manual
240 (PLC: 40241)	t_AHS_delay	Delay time for enabling the external heating source AHS, in min, for the setting range, please refer to the manual
241 (PLC: 40242)	t_DHWHP_max	Max. duration of water heating by the heat pump, in min, for the setting range, please refer to the manual
242 (PLC: 40243)	t_DHWHP_restrict	Duration of limited water heating by the heat pump, in min, for the setting range, please refer to the manual;
243**(PLC: 40244)	T4autocmin	In °C, for the setting range, please refer to the manual
244**(PLC: 40245)	T4autohmax	In °C, for the setting range, please refer to the manual
245**(PLC: 40246)	T1S_H.A_H	In the holiday mode, setting of T1 in heating mode, in °C, for the setting range, please refer to the manual
246**(PLC: 40247)	T5S_H.A_DHW	In the holiday mode, setting of T5 in DHW mode, in °C, for the setting range, please refer to the manual
250 (P LC: 40251)	IBH1 power	In 100 W, for the setting range, please refer to the manual
251 (PLC: 40252)	IBH2 power	In 100 W, for the setting range, please refer to the manual
252 (P LC: 40253)	TBH power	In 100 W, for the setting range, please refer to the manual
255 (PLC: 40256)	t_DRYUP	In days, for the setting range, please refer to the manual
256 (PLC: 40257)	t_HIGHPEAK	In days, for the setting range, please refer to the manual
257 (PLC: 40258)	t_DRYDOWN	In days, for the setting range, please refer to the manual
258**(PLC: 40259)	t_DRYPEAK	In °C, for the setting range, please refer to the manual
259 (PLC: 40260)	t_ARSTH	In hrs, for the setting range, please refer to the manual
260**(PLC: 40261)	T1S (Preheating for floor)	In °C, for the setting range, please refer to the manual
261**(PLC: 40262)	T1SetC1	Custom curve temperature setting in cooling mode for Zone 1, in °C, for the setting range, please refer to the manual
262**(PLC: 40263)	T1SetC2	Custom curve temperature setting in cooling mode for Zone 1, in °C, for the setting range, please refer to the manual
263**(PLC: 40264)	T4C1	Custom curve temperature setting in cooling mode for Zone 1, in °C, for the setting range, please refer to the manual
264**(PLC: 40265)	T4C2	Custom curve temperature setting in cooling mode for Zone 1, in °C, for the setting range, please refer to the manual
265**(PLC: 40266)	T1SetH1	Custom curve temperature setting in heating mode for Zone 1, in °C, for the setting range, please refer to the manual
266**(PLC: 40267)	T1SetH2	Custom curve temperature setting in heating mode for Zone 1, in °C, for the setting range, please refer to the manual
267**(PLC: 40268)	T4H1	Custom curve temperature setting in heating mode for Zone 1, in °C, for the setting range, please refer to the manual
268**(PLC: 40269)	T4H2	Custom curve temperature setting in heating mode for Zone 1, in °C, for the setting range, please refer to the manual
269 (PLC: 40270)	Power input limitation	The level of power input limitation, for the setting range, please refer to the manual
270*(P LC: 40271)	Bit 8-Bit 15	t_T4_Fresh_C, in °C, for the setting range, please refer to the manual
	Bit 0-Bit 7	t_T4_Fresh_H, in °C, for the setting range, please refer to the manual
271*(PLC: 40272)	t_Delay pump	in °C, for the setting range, please refer to the manual

272 (PLC: 40273)	EMISSION TYPE	Bit 12-Bit 15	Zone 2 C-emission, 0: FLH; 1: FCU; 2:RAD
		Bit 8-Bit 11	Zone 1 C-emission, 0: FLH; 1: FCU; 2:RAD
		Bit 4-Bit 7	Zone 2 H-emission, 0: FLH; 1: FCU; 2:RAD
		Bit 0-Bit 3	Zone 1 H-emission, 0: FLH; 1: FCU; 2:RAD
273 ⁽²⁾ (PLC: 40274)	Bit 8-Bit 15	Deltatsol, in °C, for the setting range, please refer to the manual	
		Bit 0-Bit 7	Solar function, 0: No; 1: Solar and HP; 2: Only solar; Other: No
274 (PLC: 40275)	AHS_PDC	Bit 0	EnSwitchPDC, 1=Enable; 0=Disable
275 (PLC: 40276)	GAS-COST	Gas price, sending value=actual value *100, for the setting range, please refer to the manual	
276 (PLC: 40277)	ELE-COST	Electricity price, sending value=actual value *100, for the setting range, please refer to the manual	
277 ⁽¹⁾ (PLC: 40278)	SETHEATER	Bit 8-Bit 15	MAX-SETHEATER, in °C, for the setting range, please refer to the manual
		Bit 0-Bit 7	MIN-SETHEATER, in °C, for the setting range, please refer to the manual
278 (PLC: 40279)	SIGHEATER	Bit 8-Bit 15	MAX-SIGHEATER, in V, for the setting range, please refer to the manual
		Bit 0-Bit 7	MIN-SIGHEATER, in V, for the setting range, please refer to the manual
279 (PLC: 40280)	t2_Antilock SV run	In s, for the setting range, please refer to the manual	
280 ⁽²⁾ (PLC: 40281)	Zone2T1SetC1	Custom curve temperature setting in cooling mode for Zone 2, in °C, for the setting range, please refer to the manual	
281 ⁽²⁾ (PLC: 40282)	Zone2T1SetC2	Custom curve temperature setting in cooling mode for Zone 2, in °C, for the setting range, please refer to the manual	
282 ⁽²⁾ (PLC: 40283)	Zone2T4C1	Custom curve temperature setting in cooling mode for Zone 2, in °C, for the setting range, please refer to the manual	
283 ⁽²⁾ (PLC: 40284)	Zone2T4C2	Custom curve temperature setting in cooling mode for Zone 2, in °C, for the setting range, please refer to the manual	
284 ⁽²⁾ (PLC: 40285)	Zone2T1SetH1	Custom curve temperature setting in heating mode for Zone 2, in °C, for the setting range, please refer to the manual	
285 ⁽²⁾ (PLC: 40286)	Zone2T1SetH2	Custom curve temperature setting in heating mode for Zone 2, in °C, for the setting range, please refer to the manual	
286 ⁽²⁾ (PLC: 40287)	Zone2T4H1	Custom curve temperature setting in heating mode for Zone 2, in °C, for the setting range, please refer to the manual	
287 ⁽²⁾ (PLC: 40288)	Zone2T4H2	Custom curve temperature setting in heating mode for Zone 2, in °C, for the setting range, please refer to the manual	
288 ⁽²⁾ (PLC: 40289)	Ta_adj	In °C, for the setting range, please refer to the manual	

3) Slave units parameters (read register)			
Register address	Description	Remarks	
1000	Operation mode	Actual operating mode of the unit, 2: cooling, 3: heating, 0: off	
1001	Operation frequency	Compressor operating frequency, in Hz. Sent value = actual value	
1002 ⁽²⁾	TW_in	Plate heat exchanger water inlet temperature, in °C	
1003 ⁽²⁾	TW_out	Plate heat exchanger water outlet temperature, in °C	
1004 ⁽²⁾	Tsolar	Solar thermal panel temperature, in °C	
1005	Error code of slave unit	Check the code table for detailed fault codes	
1007	Unit status 1	Bit2	Oil return operation status, 1: on; 2: off
		Bit1	Anti-freeze operation status, 1: on; 2: off
		Bit0	Defrost operation status, 1: on; 2: off
1008	Unit status 2	Bit4	T1 enablement status. 1: enable; 2: disable
		Bit3	IBH enablement status. 1: enable; 2: disable
		Bit2	DHW operation status, 1: on; 2: off
		Bit1	Heating operation status, 1: on; 2: off
		Bit0	Cooling operation status, 1: on; 2: off
1009	Unit status 3	Bit7	Crankcase heater operation status, 1: on; 2: off
		Bit6	AHS operation status, 1: on; 2: off
		Bit3	Pump_i operation status, 1: on; 2: off
		Bit2	TBH operation status, 1: on; 2: off
		Bit1	IBH2 operation status, 1: on; 2: off
		Bit0	IBH1 operation status, 1: on; 2: off
1011 ⁽²⁾	T1	Total outlet water temperature, in °C	
1012 ⁽²⁾	Tw2	Water temperature of Zone 2, in °C	
1013 ⁽²⁾	T2	Refrigerant liquid side temperature, in °C	
1014 ⁽²⁾	T2B	Refrigerant gas side temperature, in °C	
1015	Reserved		
1016	Reserved		
1017	Reserved		
1018	Reserved		
1019	Water flow rate	Actual value*100, in m³/h	
1020	Unit model	E.g. 12-16 means the unit model is 12-16 kW	
1021	Unit target frequency	In Hz	
1022	IDU software version	1-99 is the software version of the hydraulic module	
1023	Higher bits: power output	For R290 units: actual value*100; for other units: actual value; in kWh	
1024	Lower bits: power output	For R290 units: actual value*100; for other units: actual value; in kWh	
1025	Capacity of hydraulic module	Actual value *100, in kW	
1026	Fan speed	Fan speed, in r/min	
1027	EXV openness	Expansion valve openness in P	
1028 ⁽²⁾	T3	Condenser temperature, in °C	
1029 ⁽²⁾	T4	Outdoor ambient temperature, in °C	
1030 ⁽²⁾	Tp	Compressor discharge temperature Tp, in °C	
1031 ⁽²⁾	Th	Suction temperature of compressor Tp, in °C	
1032 ⁽²⁾	TF	TF module temperature of the PCB, in °C	
1033	P1	High pressure of refrigerant loop, in kPa	
1034	P2	Low pressure of refrigerant loop, in kPa	
1035	DC bus current	Actual value*10, in A	
1036	DC bus voltage	Actual value/10, in V	
1037	ODU current	Outdoor unit gross operating current, in A.	
1038	ODU voltage	Outdoor unit gross operating voltage, in V.	
1039	ODU current limitation	Current limitation code of outdoor unit	
1040	Higher bits: electricity consumption	For R290 units: actual value*100; for other units: actual value; in kWh	
1041	Lower bits: electricity consumption	For R290 units: actual value*100; for other units: actual value; in kWh	
1042	Software version of ODU		
1043	Error code	0: invalid; 1: refer to Error code table 1	

1044	Status indication	BIT7	Power type, 0: 1-phase; 1: 3-phase
1045	Pump_i PWM	Internal circulation pump feedback PWM duty cycle, actual value*10	
1046 ⁽²⁾	TL	Outdoor unit refrigerant pipe temperature, in °C	

Note:

1) The table above shows the mapped addresses of slave unit 1.

2) The mapped address of slave unit X(2-15) = The mapped address of slave unit 1 + (X-1)*200. E.g. The mapped address of slave unit 4 is 1600-1642.

3) There are some addresses invalid if corresponding function is disabled or unavailable.

4) Operating parameters (read register)			
Register address	Description	Remarks	
600	Pc prediction value	High pressure prediction value, actual value/10, in kPa	
601	Pe prediction value	Low pressure prediction value, actual value/10, in kPa	
602 ⁽²⁾	TP prediction value	Compressor discharge temperature prediction value, in °C	
603 ⁽²⁾	Th prediction value	Compressor suction temperature prediction value, in °C	
604 ⁽²⁾	T3 prediction value	Condenser temperature prediction value, in °C	
605 ⁽²⁾	TL prediction value	Outdoor unit refrigerant pipe temperature prediction value, in °C	
606 ⁽²⁾	T4 prediction value	Outdoor ambient temperature prediction value, in °C	
607 ⁽²⁾	T2 prediction value	Refrigerant liquid side temperature prediction value, in °C	
608 ⁽²⁾	T2b prediction value	Refrigerant gas side temperature prediction value, in °C	
609 ⁽²⁾	Twin prediction value	Inlet water temperature prediction value, in °C	
610 ⁽²⁾	Twout prediction value	Outlet water temperature prediction value, in °C	
611	Sensor backup time	Sensor backup remaining time, in h	
612	Function availability of the unit (0: not available, 1: available),	BIT15	Reserved
		BIT14	Zone 2 cooling
		BIT13	AHS pump control
		BIT12	Room thermostat mode priority level
		BIT11	Pump_o control
		BIT10	Boost mode
		BIT9	Energy metering
		BIT8	Sensor backup
		BIT7	Energy correction
		BIT6	P-PIPE LENGTH
		BIT5	Pump_i Silent mode
		BIT4	TBH set via controller
		BIT3	AHS set via controller
		BIT2	IBH set via controller
		BIT1	ACS function
		BIT0	T1SClimit

Error code table 1

Error code	Value	Content
E0	1	Water flow fault(E8 displayed 3 times)
E1	2	Phase loss or neutral wire and live wire are connected reversely(only for three phase unit)
E2	3	Communication fault between controller and hydraulic module
E3	4	Final outlet water temp. sensor(T1) fault
E4	5	Water tank temp. sensor(T5) fault
E5	6	The condenser outlet refrigerant temperature sensor(T3) fault
E6	7	The ambient temperature sensor(T4) fault
E7	8	Buffer tank up temp. sensor(Tbt1) fault
E8	9	Water flow failure
E9	10	Suction temp. sensor (Th) fault
EA	11	Discharge temp. sensor (Tp) fault
Eb	12	Solar temp. sensor(Tsolar) fault
Ec	13	Buffer tank low temp. sensor(Tbt2) fault
Ed	14	Inlet water temp. sensor(Tw_in) malfunction
EE	15	Hydraulic module EEprom failure
P0	20	Low pressure switch protection
P1	21	High pressure switch protection
P3	23	Compressor overcurrent protection
P4	24	High discharge temperature protection
P5	25	Tw_out - Tw_in value too big protection
P6	26	Inverter module protection
Pb	31	Anti-freeze mode
Pd	33	High temperature protection of refrigerant outlet temp. of condenser
PP	38	Tw_out - Tw_in unusual protection
H0	39	Communication fault between main board PCB B and main control board of hydraulic module
H1	40	Communication fault between inverter module PCB A and main control board PCB B
H2	41	Refrigerant liquid temp. sensor(T2) fault
H3	42	Refrigerant gas temp. sensor(T2B) fault
H4	43	Three times P6(L0/L1) protection
H5	44	Room temo. sensor (Ta) fault
H6	45	DC fan motor fault
H7	46	Voltage protection
H8	47	Pressure sensor fault
H9	48	Outlet water for zone 2 temp. sensor(Tw2) fault
HA	49	Outlet water temp. sensor(Tw_out) fault
Hb	50	3 times PP protection and Tw_out<7℃
Hd	52	Communication fault between hydraulic module parallel
HE	53	Communication error between main board and thermostat transfer board
HF	54	Inverter module board EE PROM fault
HH	55	H6 display 10 times in 2 hours
HP	57	Low pressure protection (Pe<0.6) occurred 3 times in 1 hour
C7	65	Transducer module temperature too high protection
bH	112	PED PCB fault
F1	116	Low DC generatrix voltage protection
L0	134	Module protection
L1	135	DC generatrix low voltage protection
L2	136	DC generatrix high voltage protection
L4	138	MCE fault
L5	139	Zero speed protection
L7	141	Phase sequence fault
L8	142	Speed difference > 15Hz protection between the front and the back clock
L9	143	Speed difference > 15Hz protection between the real and the setting speed

Error code table 2

Error code lower bits + high bits Bit0	Error code list	0: No error
		1~20: A0~AF, AH, AL, AP, AU
		21~40: b0~bF, bH, bL, bP, bU
		41~60: C0~CF, CH, CL, CP, CU
		61~80: E0~EF, EH, EL, EP, EU
		81~100: F0~FF, FH, FL, FP, FU
		101~120: H0~HF, HH, HL, HP, HU
		121~140: L0~LF, LH, LL, LP, LU
		141~160: J0~JF, JH, JL, JP, JU
		161~180: n0~nF, nH, nL, nP, nU
		181~200: P0~PF, PH, PL, PP, PU
		201~220: r0~rF, rH, rL, rP, rU
		221~240: t0~tF, tH, tL, tP, tU
		241~260: U0~UF, UH, UL, UP, UU
		Others, reserved
Error code higher bits Bit1~Bit4	Error details	0, null 1~15, represent error details 1~15, display behind the main error code"
Error code higher bits Bit5~Bit7	System malfunction or compressor error code	0, 1~7"

NOTE

Points with ⁽¹⁾: When register address 189 bit8 = 0, protocol value = actual value. When register address 189 bit8 = 1, protocol value = actual value * 2.

Points with ⁽²⁾: When register address 189 bit8 = 0, protocol value = actual value. When register address 189 bit8 = 1, protocol value = actual value * 10.

For all temperature related points, when register address 189 bit8 = 0, 0x7F is invalid value. when register address 189 bit8 = 1, 0x7FFF is invalid value

NOTE

There are some points that are invalid if the function is disabled or unavailable of the unit type.

NOTE

Use both address 124 and 188 to parse the heat pump error.

NOTE

To apply to this mapping table, it is recommended to update the wired controller software to the latest version.

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