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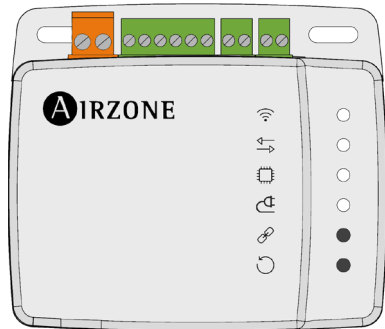
Integration manual

Aidoo Pro Modbus Aquarea M

Panasonic

For PAW-AZAW-MBS-M

[For AZAI6WSPPN9]



AIRZONE

Index

PRECAUTIONS AND ENVIRONMENTAL POLICY	3
> Precautions	3
> Environmental policy	3
RS-485 COMMUNICATION PORT	4
> Connection	4
MODBUS PROTOCOL	5
> Configuration of the slave address for the Aidoo Pro Modbus Panasonic Aquarea M device	5
MODBUS FUNCTION CODES	6
MODBUS COMMANDS	6
> Write commands	7
> Write a single holding register	7
> Write multiple registers	7
> Read commands	8
> Question	8
> Response	8
GATEWAY SETUP FOR PANASONIC	9
> Network configuration	9
> Configuration Modbus RS-485	11
MODBUS REGISTERS	12
> Aidoo Pro Modbus Panasonic Aquarea M (PAW-AZAW-MBS-M [AZAI6WSPPN9])	12
ERROR CODES	26
> Aidoo Pro Modbus Panasonic Aquarea M (PAW-AZAW-MBS-M [AZAI6WSPPN9])	26

Precautions and environmental policy

PRECAUTIONS

- For your security, and to protect the devices, follow these instructions:
- Do not manipulate the system with wet or damp hands.
- Disconnect the power supply before making any connections.
- Take care not to cause a short circuit in any of the system connections.

ENVIRONMENTAL POLICY



Do not dispose of this equipment in the household waste. Electrical and electronic equipment contain substances that may damage the environment if they are not handled appropriately. The symbol of a crossed-out waste bin indicates that electrical equipment should be collected separately from other urban waste. For correct environmental management, it must be taken to the collection centers provided for this purpose, at the end of its useful life.

The equipment components may be recycled. Act in accordance with current regulations on environmental protection.

If you replace it with other equipment, you must return it to the distributor or take it to a specialized collection center.

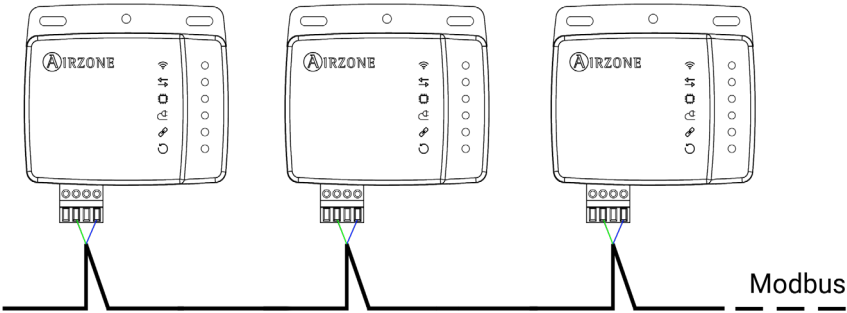
Those breaking the law or by-laws will be subject to such fines and measures as are laid down in environmental protection legislation.

RS-485 Communication port

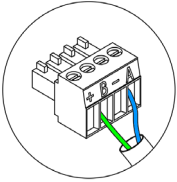
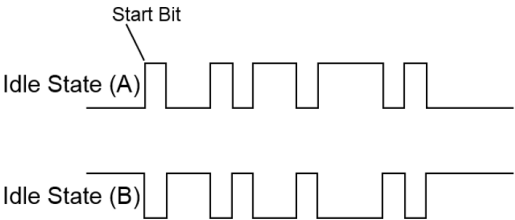
RS-485, also known as EIA-485, is a communication standard in bus.

Integration bus	
Speed of the communication port	9600 bps
Communication	Half duplex
Frame length	8-bits
Stop bit	2-bit
Stream control	None
Parity	None

CONNECTION



For proper operation of the system, verify that only the communication cables (green-blue) are connected to their matching domotic buses. Attach the wires with the terminal screws following the color code.



- A Blue
- B Green

Modbus protocol

Modbus protocol is a communication structure used to establish **master-slave/client-server communication** between intelligent devices connected on different types of buses or networks.

Each device intended to communicate using Modbus is given a unique address. Master devices send a command in a frame which contains the address of the device or the end-devices (slaves). All devices are sent the frame, but only the recipient interprets and executes the command. Modbus commands contain checksum information, to allow the recipient to detect transmission errors.

Note: It is possible to send information to multiple devices simultaneously using a frame called "Broadcast".

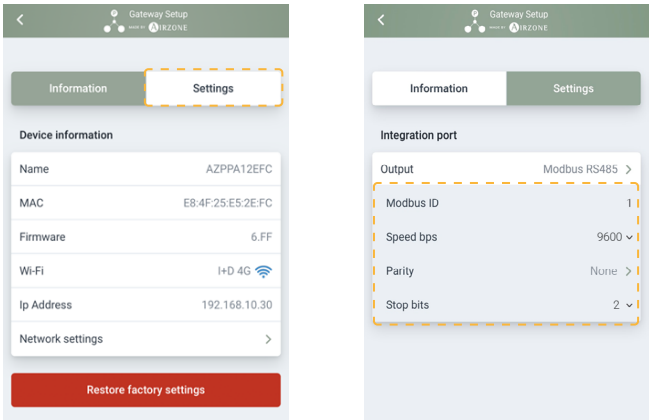
Each message includes redundant information that ensures it is properly received. If, after a certain time, the master does not receive a confirmation it interprets that an error has occurred and terminates communication.

The mode of transmission used is MODBUS-RTU. Each byte of data is represented by two 4-bit characters in hexadecimal format. The format of the frame is the following:

Start	0	1	2	3	4	5	6	7	Parity	Stop
-------	---	---	---	---	---	---	---	---	--------	------

CONFIGURATION OF THE SLAVE ADDRESS FOR THE AIDOO PRO MODBUS PANASONIC AQUAREA M DEVICE

Aidoo is a **Modbus slave device**, so it is necessary to indicate its address. To do this, associate your Aidoo via the Gateway Setup for Panasonic app (available for iOS and Android) by following the steps described in the "Gateway Setup for Panasonic" section.



Modbus function codes

Modbus basic commands allow the control of a device to change the value of its registers (memory slot) or to request the content of these registers, depending on the codes:

Code	Function
03	Read holding registers
04	Read input registers
06	Preset/write single holding register
16	Preset/write multiple holding registers

Modbus commands

The format of the commands for the read/write operations is as follows (8 byte):

Slave address	Operation code	Register address	Data	CRC
1 byte	1 byte	1 byte	1...2-N bytes	2 bytes

- **Slave address:** Defines the system to access. A Modbus command contains the Modbus address of the device it is intended for (1 to 247). 0 address is reserved for a transmission to all devices (broadcast).
- **Operation code:** Specifies the operation to be performed.
- **Register address:** Specifies the operation to be accessed. In commands to be performed in multiple registers, defines the boot log, from which you want to operate consecutively.
- **Data:** Formed by 2 bytes (simple operations) or a set of 2 bytes (multiple operations) that contain the information in the command.
- **CRC:** Two bytes are added to the end of the stream in order to detect transmission or reception errors. This action is done using the Cyclic Redundant Code.

Generator polynomial: **CRC-16** = $x^{16} + x^{15} + x^2 + 1$.

WRITE COMMANDS

Write a single holding register

Byte	Field
0	Address of the slave (1 - 247) (0: Broadcast)
1	Write single register (6)
2	Register address
3	
4	Data to be written
5	
6	CRC
7	

The response, as long as there is no error type, must be exactly the same format as the write command.

Write multiple registers

Byte	Field
0	Address of the slave (1 - 247) (0: Broadcast)
1	Write multiple register (16)
2	Starting register address
3	Number of registers to be written (N)
4	
5	Total number of bytes of write data ($2 \cdot N$)
6	Data to be written in register 1
7	
...	
$5 + 2 \cdot N$	Data to be written in register N
$6 + 2 \cdot N$	
$7 + 2 \cdot N$	CRC
$8 + 2 \cdot N$	

The response, as long as it is error-free, will be:

Byte	Field
0	Address of the slave (1-247) (0: Broadcast)
1	Write multiple registers (16)
2	Starting register address
3	
4	Number of registers to be written (N)
5	
6	CRC
7	

READ COMMANDS

Question

Byte	Field
0	Address of the slave (1 - 247) (0: Broadcast)
1	Reading records (3/4)
2	Starting register address
3	
4	Number of registers to be read (N)
5	
6	CRC
7	

Response

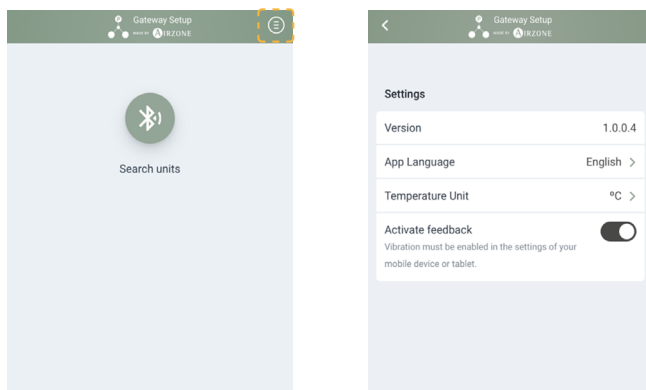
Byte	Field
0	Slave address (1 - 247) (0: Broadcast)
1	Read holding registers (3/4)
2	Number of response bytes (2·N)
3	Data to be read in register 0
4	
...	
3 + 2·N	Data to be read in register N
4 + 2·N	
5 + 2·N	CRC
6 + 2·N	

Gateway Setup for Panasonic

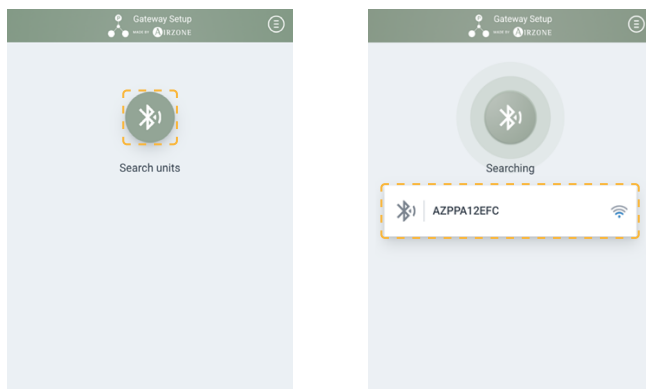
NETWORK CONFIGURATION

If you click the *Configuration* button on the main screen of the “Gateway Setup for Panasonic” app, you can select the application’s working language, as well as the temperature units.

- **Version.** It indicates the application version.
- **Language.** The app is available in 9 languages (German, Greek, English, Spanish, French, Italian, Polish, Portuguese and Turkic).
- **Units.** Celsius (°C) or Fahrenheit (°F).
- **Active feedback.** This functionality requires the device’s vibration to be activated.



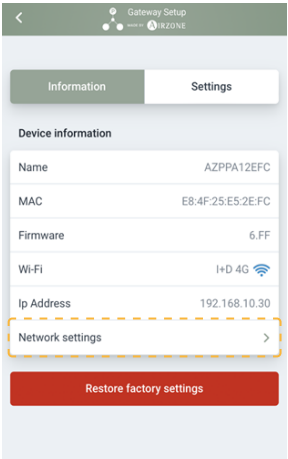
Once again, on the main screen, click the *Bluetooth* item to begin to search for nearby devices. Select your “Aidoo Pro Modbus Panasonic Aquarea M” to continue.



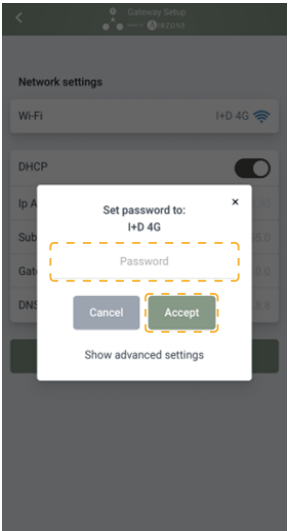
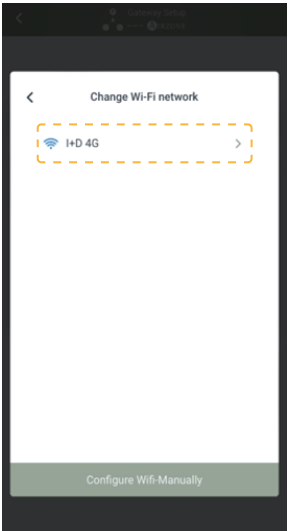
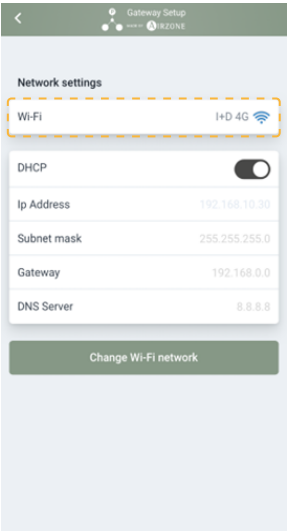
Once the device has been selected, the information menu will be displayed.

- **Name.** Device name.
- **MAC.** Device's MAC address.
- **Firmware.** It indicates the device version.
- **Wi-Fi.** Network linked to the device.
- **IP Address.** It displays the device's IP address.
- **Network configuration.** It is used to configure the device.

Press the *Factory reset* button to restore the initial values.



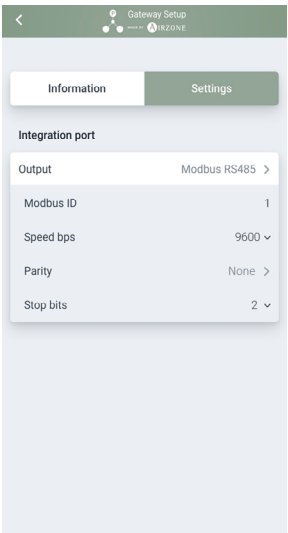
By entering the *Network configuration* submenu you can change the Wi-Fi network if necessary.



CONFIGURATION MODBUS RS-485

By accessing the configuration menu you can change the following device parameters:

- **Modbus ID.** Value between 1 and 255.
- **Speed in bps.** There are 14 selectable speeds (100, 300, 500, 600, 1200, 2400, 4800, 7800, 9600 (default), 19200, 38400, 57600, 76800 and 115200 bps).
- **Parity.** None, even or odd.
- **Stop bit.** Select a value between 1 and 2.



Download the Gateway Setup for Panasonic App

Modbus registers

AIDOO PRO MODBUS PANASONIC AQUAREA M (PAW-AZAW-MBS-M [AZAI6WSPPN9])

Registers	Description	Values	Read (R) Write (W)	Operations
0	Operation	0 → Off 1 → On	R & W	0x03, 0x04, 0x06, 0x10, 0x16
1	Outdoor actual temperature	- 127 °C ~ 127 °C	R	0x03, 0x04
2	Outlet water temperature	- 127 °C ~ 127 °C	R	0x03, 0x04
3	Inlet water temperature	- 127 °C ~ 127 °C	R	0x03, 0x04
4	Mode	1 → Heat 2 → Heat tank 3 → Tank 4 → Cool tank 5 → Cool 6 → Auto (default) 7 → Auto tank	R & W	0x03, 0x04, 0x06, 0x10, 0x16
		8 → Auto heat 9 → Auto heat tank 10 → Auto cool 11 → Auto cool tank	R	0x03, 0x04
5	Heat mode water temperature sensor	1 → Compensation curve 2 → Direct	R & W	0x03, 0x04, 0x06, 0x10, 0x16
6	Cool mode water temperature sensor	1 → Compensation curve 2 → Direct	R & W	0x03, 0x04, 0x06, 0x10, 0x16
9	Zone 1 / Zone 2 On/Off	1 → On/Off 2 → Off/On 3 → On/On	R & W	0x03, 0x04, 0x06, 0x10, 0x16
10	Zone 1 sensors	1 → Water temperature 2 → External 3 → Internal 4 → Thermistor	R & W	0x03, 0x04, 0x06, 0x10, 0x16
11	Zone 2 sensors	1 → Water temperature 2 → External 3 → Internal 4 → Thermistor	R & W	0x03, 0x04, 0x06, 0x10, 0x16

Registers	Description	Values	Read (R) Write (W)	Operations
12	Zone 1: [Water shift/room/pool] set point temperature	HEAT Water Shift → - 5 °C ~ 5 °C Water → 20 °C ~ 75 °C ¹ Room → 10 °C ~ 30 °C Pool → 15 °C ~ 35 °C COOL Water Shift → - 5 °C ~ 5 °C Water → 5 °C ~ 20 °C Room → 18 °C ~ 35 °C	R & W	0x03, 0x04, 0x06, 0x10, 0x16
13	Zone 2: [Water shift/room/pool] set point temperature	HEAT Water Shift → - 5 °C ~ 5 °C Water → 20 °C ~ 75 °C ¹ Room → 10 °C ~ 30 °C Pool → 15 °C ~ 35 °C COOL Water Shift → - 5 °C ~ 5 °C Water → 5 °C ~ 20 °C Room → 18 °C ~ 35 °C	R & W	0x03, 0x04, 0x06, 0x10, 0x16
14	Zone 1: Actual [water outlet/ room/pool] temperature	- 127 °C ~ 127 °C	R	0x03, 0x04
15	Zone 2: Actual [water outlet/ room/pool] temperature	- 127 °C ~ 127 °C	R	0x03, 0x04
16	Zone 1: Temperature conf. mode	1 → Room 2 → Compensation curve 3 → Direct 4 → Pool	R	0x03, 0x04
17	Zone 2: Temperature conf. mode	1 → Room 2 → Compensation curve 3 → Direct 4 → Pool	R	0x03, 0x04
18	Zone 1: Min. set point temperature	HEAT Water Shift → - 5 °C Water → 20 °C Room → 10 °C Pool → 15 °C COOL Water Shift → - 5 °C Water → 5 °C Room → 18 °C	R	0x03, 0x04

¹ Values may vary depending on the indoor unit model. The maximum value is specified in Register 36.

Registers	Description	Values	Read (R) Write (W)	Operations
19	Zone 1: Max. set point temperature	HEAT Water Shift → 5 °C Water → 75 °C ¹ Room → 30 °C Pool → 35 °C COOL Water Shift → 5 °C Water → 20 °C Room → 35 °C	R	0x03, 0x04
20	Zone 2: Min. set point temperature	HEAT Water Shift → - 5 °C Water → 20 °C Room → 10 °C Pool → 15 °C COOL Water Shift → - 5 °C Water → 5 °C Room → 18 °C	R	0x03, 0x04
21	Zone 2: Max. set point temperature	HEAT Water Shift → 5 °C Water → 75 °C ¹ Room → 30 °C Pool → 35 °C COOL Water Shift → 5 °C Water → 20 °C Room → 35 °C	R	0x03, 0x04
30	Tank On/Off	0 → Off 1 → On	R & W	0x03, 0x04, 0x06, 0x10, 0x16
32	Tank actual temperature	- 127 °C ~ 127 °C	R	0x03, 0x04
33	Tank water set temperature	40 °C ~ 75 °C ¹	R & W	0x03, 0x04, 0x06, 0x10, 0x16
34	Tank heater	1 → Internal 2 → External	R & W	0x03, 0x04, 0x06, 0x10, 0x16
35	Tank water min. set point temperature	40 °C	R	0x03, 0x04
36	Tank water max. set point temperature	55 °C ~ 75 °C	R	0x03, 0x04
45	Tank mode energy consumption	0 ~ 65.534 W	R	0x03, 0x04

¹ Values may vary depending on the indoor unit model. The maximum value is specified in Register 36.

Registers	Description	Values	Read (R) Write (W)	Operations
46	Heat mode energy consumption	0 ~ 65.534 W	R	0x03, 0x04
47	[Cool mode / Heat recovery mode] energy consumption	0 ~ 65.534 W	R	0x03, 0x04
49	<i>For future use</i>			
50	Version of Modbus gateway	Example: 0x0100 → v1.0.1	R	0x03, 0x04
52	Error code	0 → No error 1XXX → H + error 2XXX → F + error 3XXX → U + error	R	0x03, 0x04
64	Deice status	0 → Off 1 → On	R	0x03, 0x04
70	Current error status	0 → No error 1 → Error	R	0x03, 0x04
81	Tank connection	0 → No 1 → Yes	R & W	0x03, 0x04, 0x06, 0x10, 0x16
82	Number zones	1 → 1 zone 2 → 2 zones	R & W	0x03, 0x04, 0x06, 0x10, 0x16
83	Zone 1 setup	1 → Room 2 → Pool	R & W	0x03, 0x04, 0x06, 0x10, 0x16
84	Zone 2 setup	1 → Room 2 → Pool	R & W	0x03, 0x04, 0x06, 0x10, 0x16
85	Direction	1 → Room 2 → Tank	R	0x03, 0x04
86	Outdoor type	1 → STD 2 → TCAP 3 → HWT	R	0x03, 0x04
105	Heat / Cool meter	If K Series onwards: 0 → No 1 → Yes	R	0x03, 0x04
106	Tank meter	If K Series onwards: 0 → No 1 → Yes	R	0x03, 0x04
107	Electricity meter HP	If K Series onwards: 0 → No 1 → Yes	R	0x03, 0x04

Registers	Description	Values	Read (R) Write (W)	Operations
111	SG ready: Control pattern	If K Series onwards: 1 → Normal 2 → HP Stop 3 → Capacity 1 4 → Capacity 2	R	0x03, 0x04
112	Water pressure	If K Series onwards: 0 ~ 5080 mbar	R	0x03, 0x04
113	Water inlet 2 temperature	If L Series onwards: - 127 °C ~ 127 °C	R	0x03, 0x04
116	RC-1: Room thermostat internal sensor temperature	- 127 °C ~ 127 °C	R	0x03, 0x04
117	Model series	1 → H-Series 2 → J-Series 3 → K-Series 4 → L-Series 5 → M-Series	R	0x03, 0x04
118	RC-2: Room thermostat internal sensor temperature	- 127 °C ~ 127 °C	R	0x03, 0x04
120	Heat mode energy consumption total (MSB)	0 ~ 4.294.967.294 kWh	R	0x03, 0x04
121	Heat mode energy consumption total (LSB)			
122	Heat mode energy generation total (MSB)	0 ~ 4.294.967.294 kWh	R	0x03, 0x04
123	Heat mode energy generation total (LSB)			
124	[Cool mode / Heat recovery mode] energy consumption total (MSB)	0 ~ 4.294.967.294 kWh	R	0x03, 0x04
125	[Cool mode / Heat recovery mode] energy consumption total (LSB)			
126	[Cool mode / Heat recovery mode] energy generation total (MSB)	0 ~ 4.294.967.294 kWh	R	0x03, 0x04
127	[Cool mode / Heat recovery mode] energy generation total (LSB)			

Registers	Description	Values	Read (R) Write (W)	Operations
128	Tank mode energy consumption (MSB)	0 ~ 4.294.967.294 kWh	R	0x03, 0x04
129	Tank mode energy consumption (LSB)			
130	Tank mode energy generation (MSB)	0 ~ 4.294.967.294 kWh	R	0x03, 0x04
131	Tank mode energy generation (LSB)			
150	External SW	0 → No 1 → Yes	R & W	0x03, 0x04, 0x06, 0x10, 0x16
151	Heat / Cool SW	0 → Disable 1 → Enable	R & W	0x03, 0x04, 0x06, 0x10, 0x16
152	External compressor SW	If H/J/K/L Series: 0 → No 1 → Yes	R & W	0x03, 0x04, 0x06, 0x10, 0x16
		If M Series: 0 → No 1 → Yes - Heat source 2 → Yes - Heater	R & W	0x03, 0x04, 0x06, 0x10, 0x16
153	Solar connection	0 → No 1 → Yes - Buffer tank 2 → Yes - DHW tank	R & W	0x03, 0x04, 0x06, 0x10, 0x16
154	SG ready	If H/J/K/L Series: 0 → No 1 → Yes	R & W	0x03, 0x04, 0x06, 0x10, 0x16
		If M Series: 0 → No 1 → Yes - Capacity 2 → Yes - Power consumption	R & W	0x03, 0x04, 0x06, 0x10, 0x16
155	Δt Buffer tank	0 ~ 10 °C	R & W	0x03, 0x04, 0x06, 0x10, 0x16
156	SG ready: DHW capacity up (I-0)	50 % ~ 150 % Resolution: ± 5 %	R & W	0x03, 0x04, 0x06, 0x10, 0x16
157	SG ready: Heat capacity up (I-1)	50 % ~ 150 % Resolution: ± 5 %	R & W	0x03, 0x04, 0x06, 0x10, 0x16
158	Compensation curve - Heat - Zone 1 - Max. temperature	20 °C ~ 75 °C ¹	R & W	0x03, 0x04, 0x06, 0x10, 0x16

¹ Values may vary depending on the indoor unit model. The maximum value is specified in Register 36.

Registers	Description	Values	Read (R) Write (W)	Operations
159	Compensation curve - Heat - Zone 1 - Min. temperature	20 °C ~ 75 °C ¹	R & W	0x03, 0x04, 0x06, 0x10, 0x16
160	Compensation curve - Heat - Zone 1 - Outdoor air min. temperature	- 20 °C ~ 15 °C	R & W	0x03, 0x04, 0x06, 0x10, 0x16
161	Compensation curve - Heat - Zone 1 - Outdoor air max. temperature	- 20 °C ~ 15 °C	R & W	0x03, 0x04, 0x06, 0x10, 0x16
162	Compensation curve - Heat - Zone 2 - Max. temperature	20 °C ~ 75 °C ¹	R & W	0x03, 0x04, 0x06, 0x10, 0x16
163	Compensation curve - Heat - Zone 2 - Min. temperature	20 °C ~ 75 °C ¹	R & W	0x03, 0x04, 0x06, 0x10, 0x16
164	Compensation curve - Heat - Zone 2 - Outdoor air min. temperature	- 20 °C ~ 15 °C	R & W	0x03, 0x04, 0x06, 0x10, 0x16
165	Compensation curve - Heat - Zone 2 - Outdoor air max. temperature	- 20 °C ~ 15 °C	R & W	0x03, 0x04, 0x06, 0x10, 0x16
166	Compensation curve - Cool - Zone 1 - Max. temperature	5 °C ~ 20 °C	R & W	0x03, 0x04, 0x06, 0x10, 0x16
167	Compensation curve - Cool - Zone 1 - Min. temperature	5 °C ~ 20 °C	R & W	0x03, 0x04, 0x06, 0x10, 0x16
168	Compensation curve - Cool - Zone 1 - Outdoor air min. temperature	15 °C ~ 30 °C	R & W	0x03, 0x04, 0x06, 0x10, 0x16
169	Compensation curve - Cool - Zone 1 - Outdoor air max. temperature	15 °C ~ 30 °C	R & W	0x03, 0x04, 0x06, 0x10, 0x16
170	Compensation curve - Cool - Zone 2 - Max. temperature	5 °C ~ 20 °C	R & W	0x03, 0x04, 0x06, 0x10, 0x16
171	Compensation curve - Cool - Zone 2 - Min. temperature	5 °C ~ 20 °C	R & W	0x03, 0x04, 0x06, 0x10, 0x16
172	Compensation curve - Cool - Zone 2 - Outdoor air min. temperature	15 °C ~ 30 °C	R & W	0x03, 0x04, 0x06, 0x10, 0x16

¹ Values may vary depending on the indoor unit model. The maximum value is specified in Register 36.

Registers	Description	Values	Read (R) Write (W)	Operations
173	Compensation curve - Cool - Zone 2 - Outdoor air max. temperature	15 °C ~ 30 °C	R & W	0x03, 0x04, 0x06, 0x10, 0x16
174	Solar (actual)	0 → Off 1 → On	R	0x03, 0x04
175	2-way valve direction (actual)	0 → Off 1 → On	R	0x03, 0x04
176	Zone 1: Water temperature	- 127 °C ~ 127 °C	R	0x03, 0x04
177	Zone 2: Water temperature	- 127 °C ~ 127 °C	R	0x03, 0x04
180	Buffer tank: Water temperature	- 127 °C ~ 127 °C	R	0x03, 0x04
181	Solar: Water temperature	- 127 °C ~ 127 °C	R	0x03, 0x04
182	Pool: Water temperature	- 127 °C ~ 127 °C	R	0x03, 0x04
184	Compressor total On time (MSB)	0 ~ 16.777.214 hours	R	0x03, 0x04
185	Compressor total On time (LSB)			
187	Tank mode energy generation	0 ~ 65.534 W	R	0x03, 0x04
188	Heat mode energy generation	0 ~ 65.534 W	R	0x03, 0x04
189	[Cool mode / Heat recovery mode] energy generation	0 ~ 65.534 W	R	0x03, 0x04
197	Powerful	1 → Off 2 → On 30 mins 3 → On 60 mins 4 → On 90 mins	R & W	0x03, 0x04, 0x06, 0x10, 0x16
198	Quiet	1 → Off 2 → Level 1 3 → Level 2 4 → Level 3	R & W	0x03, 0x04, 0x06, 0x10, 0x16
199	Quiet timer	1 → Cancel 2 → Set	R & W	0x03, 0x04, 0x06, 0x10, 0x16
200	System reset request	0 → No request 1 → Request	W	0x06, 0x10, 0x16
202	Sterilization request	0 → No request 1 → Request	W	0x06, 0x10, 0x16

Registers	Description	Values	Read (R) Write (W)	Operations
208	Opcional PCB connection	0 → No 1 → Yes	R & W	0x03, 0x04, 0x06, 0x10, 0x16
212	Buffer tank connection	0 → No 1 → Yes	R & W	0x03, 0x04, 0x06, 0x10, 0x16
213	Heater capacity	If NOT Big-A2W: 3 kW 6 kW 9 kW	R & W	0x03, 0x04, 0x06, 0x10, 0x16
		If Big-A2W and Big-A2W heater capacity ≤ 18kW: 6 kW 12 kW 18 kW	R & W	0x03, 0x04, 0x06, 0x10, 0x16
		If Big-A2W and Big-A2W heater capacity > 18 kW: 1 htr 2 htr 3 htr	R & W	0x03, 0x04, 0x06, 0x10, 0x16
217	Bivalent heat mode	0 → No 1 → Yes	R & W	0x03, 0x04, 0x06, 0x10, 0x16
218	Bivalent DHW mode	0 → No 1 → Yes	R & W	0x03, 0x04, 0x06, 0x10, 0x16
219	Demand control	0 → No 1 → Yes	R & W	0x03, 0x04, 0x06, 0x10, 0x16
222	Defrost signal	If J Series onwards: 0 → No 1 → Yes	R & W	0x03, 0x04, 0x06, 0x10, 0x16
226	Zone 1: [Water shift/water/room/ pool] set temperature for heat mode	Range water shift: [- 5 °C ~ 5 °C] Range water: [20 °C ~ 75 °C] Range room: [10 °C ~ 30 °C] Range pool: [15 °C ~ 35 °C]	R & W	0x03, 0x04, 0x06, 0x10, 0x16
227	Zone 1: [Water shift/water/room] set temperature for cool mode	Range water shift: [- 5 °C ~ 5 °C] Range water: [5 °C ~ 20 °C] Range room: [18 °C ~ 35 °C]	R & W	0x03, 0x04, 0x06, 0x10, 0x16

¹ Values may vary depending on the indoor unit model. The maximum value is specified in Register 36.

Registers	Description	Values	Read (R) Write (W)	Operations
228	Zone 2: [Water shift/water/room/pool] set temperature for heat mode	Range water shift: [- 5 °C ~ 5 °C] Range water: [20 °C ~ 75 °C] Range room: [10 °C ~ 30 °C] Range pool: [15 °C ~ 35 °C]	R & W	0x03, 0x04, 0x06, 0x10, 0x16
229	Zone 2: [Water shift/water/room] set temperature for cool mode	Range water shift: [- 5 °C ~ 5 °C] Range water: [5 °C ~ 20 °C] Range room: [18 °C ~ 35 °C]	R & W	0x03, 0x04, 0x06, 0x10, 0x16
235	Current Lv	0 ~ 20 Lv	R & W	0x03, 0x04, 0x06, 0x10, 0x16
248	SG ready: DHW capacity up (2-0)	50 % ~ 150 % Resolution: ± 5 %	R & W	0x03, 0x04, 0x06, 0x10, 0x16
249	SG ready: Heat capacity up (2-1)	50 % ~ 150 % Resolution: ± 5 %	R & W	0x03, 0x04, 0x06, 0x10, 0x16
256	Tank: Floor operation time (maximum)	0 ~ 600 min Resolution: ± 30 min	R & W	0x03, 0x04, 0x06, 0x10, 0x16
257	Tank: Heat up time (maximum)	5 min ~ 240 min Resolution: ± 5 min	R & W	0x03, 0x04, 0x06, 0x10, 0x16
258	Tank: Re-heat temperature	- 12 °C ~ - 2 °C	R & W	0x03, 0x04, 0x06, 0x10, 0x16
259	Tank: Sterilization boiling temperature	55 °C ~ 75 °C	R & W	0x03, 0x04, 0x06, 0x10, 0x16
260	Tank: Sterilization operation time (maximum)	If J Series onwards: 10 min ~ 60 min Resolution: ± 10 min	R & W	0x03, 0x04, 0x06, 0x10, 0x16
261	SG ready: Cool capacity up (1-2)	If J Series onwards: - 15 °C ~ 0 °C	R & W	0x03, 0x04, 0x06, 0x10, 0x16
262	SG ready: Cool capacity up (2-2)	If J Series onwards: - 15 °C ~ 0 °C	R & W	0x03, 0x04, 0x06, 0x10, 0x16
267	External SW	1 → Close 2 → Open	R	0x03, 0x04
268	Heat / Cool SW	1 → Heat 2 → Cool	R	0x03, 0x04

¹ Values may vary depending on the indoor unit model. The maximum value is specified in Register 36.

Registers	Description	Values	Read (R) Write (W)	Operations
269	Powerful (actual)	0 → Off 1 → On	R	0x03, 0x04
270	Quiet (actual)	0 → Off 1 → On	R	0x03, 0x04
271	Heat mode water set temperature range	1 → Range 1 2 → Range 2 3 → Range 3	R	0x03, 0x04
273	Room heater (actual)	0 → Off 1 → On	R	0x03, 0x04
274	Tank heater (actual)	0 → Off 1 → On	R	0x03, 0x04
275	Bivalent (actual)	0 → Off 1 → On	R	0x03, 0x04
276	Last error number (x1)	10 → No error 0 ~ 9	R	0x03, 0x04
277	Last error number (x2)	10 → No error 0 ~ 9	R	0x03, 0x04
278	Last error number (x3)	10 → No error 0 ~ 9	R	0x03, 0x04
280	Last error character	0 → No error 1 → U 2 → H 3 → F	R	0x03, 0x04
289	Sterilization status	0 → Off 1 → On	R	0x03, 0x04
305	Indoor unit model reference	To be read as hex. value (Example: 0x8170)	R	0x03, 0x04
314	Outdoor unit model reference	To be read as hex. value (Example: 0x8191)	R	0x03, 0x04
351	Capacity rank	0 ~ 30 kW	R	0x03, 0x04
352	Electricity meter HP	1 → No error 2 → Error	R	0x03, 0x04
353	Heat / Cool meter	1 → No error 2 → Error	R	0x03, 0x04
354	Tank meter	1 → No error 2 → Error	R	0x03, 0x04

Registers	Description	Values	Read (R) Write (W)	Operations
358	Modbus meter gateway	1 → No error 2 → Error 3 → Comm. not yet establish	R	0x03, 0x04
360 ²	Heat mode energy consumption	If K Series onwards: 0 ~ 65.534 W	R	0x03, 0x04
361 ³	[Cool mode / Heat recovery mode] energy consumption	If K Series onwards: 0 ~ 65.534 W	R	0x03, 0x04
362 ⁴	Tank mode energy consumption	If K Series onwards: 0 ~ 65.534 W	R	0x03, 0x04
363 ⁵	Heat mode energy generation	If K Series onwards: 0 ~ 65.534 W	R	0x03, 0x04
364 ⁶	[Cool mode / Heat recovery mode] energy generation	If K Series onwards: 0 ~ 65.534 W	R	0x03, 0x04
365 ⁷	Tank mode energy generation	If K Series onwards: 0 ~ 65.534 W	R	0x03, 0x04
366 ⁸ 367 ⁸	Total energy consumption	If K Series onwards: 0 ~ 4.294.967.294 Wh	R	0x03, 0x04
368 ⁸ 369 ⁸	Total heat mode energy generation	If K Series onwards: 0 ~ 4.294.967.294 Wh	R	0x03, 0x04
370 ⁸ 371 ⁸	Total [cool mode / heat recovery mode] energy generation	If K Series onwards: 0 ~ 4.294.967.294 Wh	R	0x03, 0x04
372 ⁸ 373 ⁸	Total tank mode energy generation	If K Series onwards: 0 ~ 4.294.967.294 Wh	R	0x03, 0x04
378	Consumption reset	0 → No request 1337 → Request to clear	W	0x06, 0x10, 0x16
417	SG ready: Power consumption (I-0): DHW	If M Series: 500 W to 10000 W Resolution: 100W	R & W	0x03, 0x04, 0x06, 0x10, 0x16
418	SG ready: Power consumption (I-1): Heat	If M Series: 500 W to 10000 W Resolution: 100W	R & W	0x03, 0x04, 0x06, 0x10, 0x16
419	SG ready: Power consumption (I-2): Cool	If M Series: 500 W to 10000 W Resolution: 100W	R & W	0x03, 0x04, 0x06, 0x10, 0x16

² From generation K onwards, this register is duplicated in Register 46.

³ From generation K onwards, this register is duplicated in Register 47.

⁴ From generation K onwards, this register is duplicated in Register 45.

⁵ From generation K onwards, this register is duplicated in Register 188.

⁶ From generation K onwards, this register is duplicated in Register 189.

⁷ From generation K onwards, this register is duplicated in Register 187.

⁸ Only available if a Meter Gateway has been installed with an external meter.

Registers	Description	Values	Read (R) Write (W)	Operations
420	SG ready: Power consumption (2-0): DHW	If M Series: 500 W to 10000 W Resolution: 100W	R & W	0x03, 0x04, 0x06, 0x10, 0x16
421	SG ready: Power consumption (2-1): Heat	If M Series: 500 W to 10000 W Resolution: 100W	R & W	0x03, 0x04, 0x06, 0x10, 0x16
422	SG ready: Power consumption (2-2): Cool	If M Series: 500 W to 10000 W Resolution: 100W	R & W	0x03, 0x04, 0x06, 0x10, 0x16
423	SG ready: HPU Stop consumption	If M Series: 500 W to 10000 W Resolution: 100W	R & W	0x03, 0x04, 0x06, 0x10, 0x16
426	Anti-stick mode	If M Series: 0 → Disable 1 → Enable	R	0x03, 0x04
427	DHW circulation	If M Series: 0 → Off 1 → On	R	0x03, 0x04
428	SG ready power consumption: Minimum range	If M Series: 1 → 0.5 Kw 2 → 1.0 Kw 3 → 1.5 Kw 4 → 2.0 Kw 5 → 2.5 Kw 6 → 3.0 Kw 7 → 3.5 Kw 8 → 4.0 Kw 9 → 5.0 Kw 10 → 6.0 Kw 11 → 7.0 Kw 12 → 8.0 Kw 13 → 9.0 Kw 14 → 10.0 Kw 15 → Not yet receive data from outdoor unit	R	0x03, 0x04

Registers	Description	Values	Read (R) Write (W)	Operations
429	SG ready power consumption: Maximum range	If M Series: 1 → 0.5 Kw 2 → 1.0 Kw 3 → 1.5 Kw 4 → 2.0 Kw 5 → 2.5 Kw 6 → 3.0 Kw 7 → 3.5 Kw 8 → 4.0 Kw 9 → 5.0 Kw 10 → 6.0 Kw 11 → 7.0 Kw 12 → 8.0 Kw 13 → 9.0 Kw 14 → 10.0 Kw 15 → Not yet receive data from outdoor unit	R	0x03, 0x04
432	Electrical anode (actual)	If M Series: 0 → Off 1 → On	R	0x03, 0x04
437	Big-A2W heater capacity	If Big-A2W: 0 → ≤ 18kW 1 → > 18kW	R & W	0x03, 0x04, 0x06, 0x10, 0x16
438	Big-A2W	If M Series: 0 → No 1 → Yes	R	0x03, 0x04

Error codes

AIDOO PRO MODBUS PANASONIC AQUAREA M (PAW-AZAW-MBS-M [AZAI6WSPPN9])

Diagnosis display	Abnormality / Protection control	Abnormality judgement	Primary location to verify
H00	No abnormality detected	-	-
H12	Indoor / Outdoor capacity unmatched	90s after power supply	- Indoor / Outdoor connection wire - Indoor / Outdoor PCB - Specification and combination table in catalogue
H15	Outdoor compressor temperature sensor abnormality	Continue for 5s	Compressor temperature sensor (defective or disconnected)
H20	Water pump abnormality	Continue for 10s	- Indoor PCB - Water pump (malfunction)
H23	Indoor refrigerant liquid temperature sensor abnormality	Continue for 5s	Refrigerant liquid temperature sensor (defective or disconnected)
H27	Service valve error	Continue for 5 minutes	High pressure sensor (defective or disconnected)
H28	Abnormal solar sensor	Continue for 5s	Solar temperature sensor (defective or disconnected)
H31	Abnormal swimming pool sensor	Continue for 5s	Pool temperature sensor (defective or disconnected)
H36	Abnormal buffer tank sensor	Continue for 5s	Buffer tank sensor (defective or disconnected)
H38	Brand code not match	When indoor and outdoor brand code not same	-
H42	Compressor low pressure abnormality	-	- Outdoor pipe temperature sensor - Clogged expansion valve or strainer - Insufficient refrigerant - Outdoor PCB - Compressor
H43	Abnormal Zone 1 sensor	Continue for 5s	Water temperature Zone 1 sensor
H44	Abnormal Zone 2 sensor	Continue for 5s	Water temperature Zone 2 sensor
H62	Water flow switch abnormality	Continue for 1 minute	Water flow switch

Diagnosis display	Abnormality / Protection control	Abnormality judgement	Primary location to verify
H63	Refrigerant low pressure abnormality	Continue for 5s	· Outdoor low pressure sensor (defective or disconnected)
H64	Refrigerant high pressure abnormality	Continue for 5s	· Outdoor high pressure sensor (defective or disconnected)
H65	Deice circulation error	Continue for 10s	· Water flow switch sensor (defective or disconnected) · Water pump malfunction · Buffer tank (is used)
H67	Abnormal external thermistor 1	Continue for 5s	· Room temperature Zone 1 sensor
H68	Abnormal external thermistor 2	Continue for 5s	· Room temperature Zone 2 sensor
H70	Back-up heater OLP abnormality	Continue for 60s	· Back-up heater OLP (disconnection or activated)
H72	Tank sensor abnormal	Continue for 5s	· Tank sensor
H74	PCB communication error	Communication or transfer error	· Indoor main PCB and Sub PCB
H75	Low water temperature control	Room heater disable and deice request to operate under low water temperature	· Heater operation must enable to increase water temperature
H76	Indoor - control panel communication abnormality	-	· Indoor - control panel (defective or disconnected)
H90	Indoor / Outdoor abnormal communication	> 1 minute after starting operation	· Internal / External cable connections · Indoor / Outdoor PCB
H91	Tank heater OLP abnormality	Continue for 60s	· Tank heater OLP (disconnection or activated)
H95	Indoor / Outdoor wrong connection	-	· Indoor / Outdoor supply voltage
H98	Outdoor high pressure overload protection	-	· Outdoor high pressure sensor · Water pump or water leakage · Clogged expansion valve or strainer · Excess refrigerant · Outdoor PCB
H99	Indoor heat exchanger freeze prevention	-	· Indoor heat exchanger · Refrigerant shortage
F12	Pressure switch active	4 times occurrence within 20 minutes	· Pressure switch
F14	Outdoor compressor abnormal revolution	4 times occurrence within 20 minutes	· Outdoor compressor

Diagnosis display	Abnormality / Protection control	Abnormality judgement	Primary location to verify
F15	Outdoor fan motor lock abnormality	2 times occurrence within 30 minutes	· Compressor tank temperature sensor · Clogged expansion valve or strainer · Insufficient refrigerant · Outdoor PCB · Compressor
F16	Total running current protection	3 times occurrence within 20 minutes	· Excess refrigerant · Outdoor PCB
F20	Outdoor compressor overheating protection	4 times occurrence within 30 minutes	· Compressor tank temperature sensor · Clogged expansion valve or strainer · Insufficient refrigerant · Outdoor PCB · Compressor
F22	IPM (power transistor) overheating protection	3 times occurrence within 30 minutes	· Improper heat exchange · IPM (power transistor)
F23	Outdoor direct current (DC) peak detection	7 times occurrence continuously	· Outdoor PCB · Compressor
F24	Refrigeration cycle abnormality	2 times occurrence within 20 minutes	· Insufficient refrigerant · Outdoor PCB · Compressor low compression
F25	Cooling / Heating cycle changeover abnormality	4 times occurrence within 30 minutes	· 4-way valve · V-coil
F27	Pressure switch abnormality	Continue for 1 minute	· Pressure switch
F29	Low discharge superheat	1 time occurrence within 2550 minutes	· Discharge temperature sensor · Discharge pressure sensor · Pressure switch · Outdoor PCB
F30	Water outlet sensor 2 abnormality	Continue for 5s	· Water outlet sensor 2 (defective or disconnected)
F32	Abnormal internal thermostat	Continue for 5s	· Control panel PCB thermostat
F36	Outdoor air temperature sensor abnormality	Continue for 5s	· Outdoor air temperature sensor (defective or disconnected)
F37	Indoor water inlet temperature sensor abnormality	Continue for 5s	· Water inlet temperature sensor (defective or disconnected)
F40	Outdoor discharge pipe temperature sensor abnormality	Continue for 5s	· Outdoor discharge pipe temperature sensor (defective or disconnected)
F41	PFC control	4 times occurrence within 10 minutes	· Voltage at PFC

Diagnosis display	Abnormality / Protection control	Abnormality judgement	Primary location to verify
F42	Outdoor heat exchanger temperature sensor abnormality	Continue for 5s	· Outdoor heat exchanger temperature sensor (defective or disconnected)
F43	Outdoor defrost sensor abnormality	Continue for 5s	· Outdoor defrost sensor (defective or disconnected)
F45	Indoor water outlet temperature sensor abnormality	Continue for 5s	· Water outlet temperature sensor (defective or disconnected)
F46	Outdoor current transformer (CT) open circuit	-	· Insufficient refrigerant · Outdoor PCB · Compressor low
F48	Outdoor EVA outlet temperature sensor abnormality	Continue for 5s	· Outdoor EVA outlet temperature sensor (defective or disconnected)
F49	Outdoor bypass outlet temperature sensor abnormality	Continue for 5s	· Outdoor bypass outlet temperature sensor (defective or disconnected)
F95	Cooling high pressure overload protection	-	· Outdoor high pressure sensor · Water pump or water leakage · Clogged expansion valve or strainer · Excess refrigerant · Outdoor PCB

Panasonic



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