

# Product Manual

**Kamoer Fluid Tech (Shanghai) Co., Ltd.**

Version: A/3

<b>Product name</b>	Reef Master SPA
<b>Product model</b>	Reef Master SPA
<b>Execution date</b>	2024.01.27
<b>Company name</b>	Kamoer Fluid Tech (Shanghai) Co.,Ltd.

## 1. Product Overview

### 1.1 Product physical picture



### 1.2 Model definition

Reef Master SPA-GB	Reef Master	SPA	GB
Model	Model	Reef Master-Sub model	Standard

**Reef Master:** Multi-parameter water quality testing

**SPA:** CMK: Hardbone Master SNP: Water Quality Master SPA: Sea God



**GB:** National Standard

**US:** American Standard

**UK:** British Standard

**EU:** European Standard

**AU:** Australian Standard

## 1.3 Interface definition



### Definition of each interface:

- |  |                                     |
|--|-------------------------------------|
| 1. Color display screen                            | 2. Front cover                      |
| 3. Front hood decorative light                     | 4. External communication interface |
| 5. DC24V power cord                                | 6. Sea water sample connection 1    |
| 7. KH detection reagent connector                  |                                     |
| 8. Calcium magnesium A detection reagent connector |                                     |
| 9. Calcium magnesium B detection reagent connector |                                     |
| 10. Waste liquid connector 1                       | 11. Sea water sample connection 2   |
| 12. Nitrate nitrite joint A                        | 13. Spare                           |



14. Nitrate nitrite joint C

15. Phosphate joint A

16. Phosphate joint B

17. Cleaning fluid connector

18. Waste liquid connector 2

## 1.4 Product main material

### Machine Body

ABS

## 1.5 Performance characteristics and typical applications

### 1.5.1 Performance characteristics

- SPA supports nitrite, nitrate and phosphate detection
- App remote control, able to view real-time values and historical records of sensors
- Supports manual and automatic detection modes
- App remote control, able to view real-time values and historical records of sensors
- Push abnormal detection value alarm
- Support for online firmware upgrades
- Equipped with a display screen for viewing inspection results and status
- Linkage control of F4 PRO titration pump and calcium reactor, achieving automatic adjustment of water quality parameters

### 1.5.2 Typical Applications

Mainly used in marine animal husbandry, aquaculture, or other occasions where water quality parameters need to be tested.



Seawater aquaculture



Aquaculture

## 2. Product specification

### 2.1 Technical Parameters

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Make it smart to pump fluid

Project		Technical parameters
Main indicators	Power supply	DC24V 2A
	Size	230*120*338mm
	Overall weight	About 3350 g
	Control method	Kamoer Remote App, supports Android, iOS
	Detection parameters supported	Calcium, Magnesium, KH, Nitrite, Nitrate, Phosphate
	Functions	Manual and automatic detection of calcium, magnesium, and KH parameters; View the history of detection values; Abnormal detection value push
	External interface	CAN communication, WIFI, Bluetooth
KH	Measurement range	3-19dKh
	Accuracy	Repetitive accuracy (CV value): $\leq 0.5\%$ Accuracy: $\pm 0.05dKh$
	Resolution	0.01dKh
	Testing agent required	1 KH testing reagent 250ml detection reagent can measure approximately 120 times
Calcium Ion	Measurement range	250-875ppm
	Accuracy	Repetitive accuracy (CV value): $\leq 1.5\%$ Accuracy: $\pm 15ppm$
	Resolution	1ppm
	Testing agent required	Calcium magnesium A 250ml, calcium magnesium B 250ml 250ml detection reagent can measure approximately 150 times
Magnesium Ion	Measurement range	850-1950ppm
	Accuracy	Repetitive accuracy (CV value): $\leq 0.5\%$ Accuracy: $\pm 15ppm$
	Resolution	1ppm
	Testing agent required	Calcium magnesium A 250ml, calcium magnesium B 250ml 250ml detection reagent can measure approximately 150 times
Nitrate	Measurement range	0.00-50.00ppm
	Accuracy	Repetitive accuracy (CV value): $\leq 0.5\%$ Accuracy: $\leq 5\%$
	Resolution	0.001ppm
	Testing agent required	Nitrite/nitrate A, 100ml can be used approximately 55 times
Nitrite	Measurement range	0.000-0.500ppm
	Accuracy	Repetitive accuracy (CV value): $\leq 0.1\%$







		Accuracy: $\pm 0.005\text{ppm}$
	<b>Resolution</b>	0.001ppm
	<b>Testing agent required</b>	Nitrite/nitrate C, 50ml can be used about 90 times
<b>Phosphate</b>	<b>Measurement range</b>	0.00-1.00ppm
	<b>Accuracy</b>	Repetitive accuracy (CV value): $\leq 0.5\%$ Accuracy: $\pm 0.007\text{ppm}$
	<b>Resolution</b>	0.001ppm
	<b>Testing agent required</b>	Phosphate A, 25ml can be used about 90 times Phosphate B, 50ml can be used about 90 times
<b>NOTE</b>	<b>Remarks</b>	Use reference User Manual

## 3. Accessories

Parts name	Accessories picture	Function introduction
Split type power adapter body (10.08.0178)		For power supply, it needs to be used in conjunction with adapter plugs
Split power adapter plug (10.08.0179) US (10.08.0175) UK (10.08.0176) EU (10.08.0180) AU	/	
KH detection reagent 250ml (CK.30.15.0060) English (CK.30.15.0061) Chinese		Used for detecting KH value



<p>Calcium Magnesium A Reagent 250ml (CK.30.15.0056) English (CK.30.15.0057) Chinese)</p>		<p>Used for detecting calcium and magnesium ions</p>
<p>Calcium Magnesium B Reagent 250ml (CK.30.15.0058) English (CK.30.15.0059) Chinese)</p>		<p>Used for detecting calcium and magnesium ions</p>
<p>Nitrite/Nitrate A (CK.30.15.0089) 100ml English (CK.30.15.0090) 100ml Chinese)</p>		<p>Used for detecting Nitrate</p>
<p>Nitrite/Nitrate C (CK.30.15.0093) 50ml English (CK.30.15.0094) 50ml Chinese)</p>		<p>Used for detecting Nitrate/Nitrite</p>
<p>Phosphate A (CK.30.15.0095) 25ml English (CK.30.15.0096) 25ml Chinese)</p>		<p>Used for detecting Phosphate</p>



<p>Phosphate B (CK.30.15.0097) 50ml English (CK.30.15.0098) 50ml Chinese</p>		<p>Used for detecting Phosphate</p>
<p>1*3mm; Silicone tube; Black; 2 meters (14.03.0107)</p>		<p>Two 2-meter tubes for extracting seawater samples</p>
<p>1*3.3mm; Silicone tube; Black; 2 meters (14.03.0002)</p>		<p>2 x 2 m tubes, waste pipes</p>
<p>1*3.2mm; Reagent tube; Perx; 1 meter (14.08.0059)</p>		<p>7, each reagent bottle requires 1 meter, and 7 reagent bottles require 7 meters</p>
<p>Reagent bottle cap; With holes; 250ml (31.54.0060)</p>		<p>With connectors and hoses, users can replace the original reagent bottle cap with this one with a connector after receiving the reagent</p>
<p>Reagent bottle cap; With holes; 100ml (31.54.0103)</p>		<p>Equipped with connectors and hoses. After receiving the reagent, the user will replace the original reagent bottle cap with this one with a connector</p>





<p>Calcium magnesium standard solution 100ml (CK.30.15.0101) 100ml English (CK.30.15.0102) 100ml Chinese</p>		<p>optional, used to calibrate calcium magnesium Calcium 400ppm Magnesium 1200ppm</p>
<p>KH standard solution 100ml (CK.30.15.0103) 100ml English (CK.30.15.0104) 100ml Chinese</p>		<p>optional, 9dKH</p>
<p>NO3/PO4 standard solution 100ml (CK.30.15.0077) 100ml English (CK.30.15.0076) 100ml Chinese</p>		<p>NO3 3ppm PO4 0.5 ppm</p>

