USER MANUAL

MI 411

Free & Total Chlorine and pH Meter

MARTINI
instruments

CE

Dear Customer,

Thank you for choosing a Martini product. This manual will provide you with the necessary information for the correct use of the instrument. Please read it carefully before using the meter.

This instrument is in compliance with CE directives.

SPECIFICATIONS:

Free & Total Chlorine	
Range	0.00 to 5.00 mg/L Cl_2
Resolution	0.01 mg/L (0.00-3.50 mg/L); 0.10 mg/L (above 3.50 mg/L)
Precision	±0.04 mg/L @ 1.50 mg/L
Method	Adaptation of the USEPA method 330.5 and Standard Method 4500-Cl G.
pH	
Range	6.5 to 8.0 pH
Resolution	0.1 pH
Precision	±0.1 pH @ 7.2 pH
Method	Adaptation of the phenol red method.
Other	
Light Source	Tungsten lamp
Light Detector	Silicon Photocell and 525 nm narrow band interference filter
Environment	0 to 50°C (32 to 122°F); 100% RH max.

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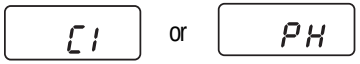
Battery Type	1 x 9 volt
Auto-Shut off	After 10' of non-use
Dimensions	192 x 104 x 52 mm (7.5 x 4.1 x 2")
Weight	380 g

CHANGE PARAMETER

To change parameter between Free & Total Chlorine and pH, press and hold for 3 seconds, the ZERO key. The selected parameter will be displayed as "Cl" (chlorine) or "PH" on the display.



MEASUREMENT PROCEDURE:

1• Turn the meter on by pressing ON/OFF. The last selected parameter is displayed on the Liquid Crystal Display ("Cl" or "PH").

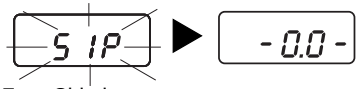
2• Choose the parameter that you want to measure.

3• Fill the cuvet with 10 mL of unreacted sample, up to the mark, and replace the cap.

4• Place the cuvet into the holder and ensure that the notch on the cap is positioned securely into the groove.

5• Press ZERO and "SIP" will blink on the display.

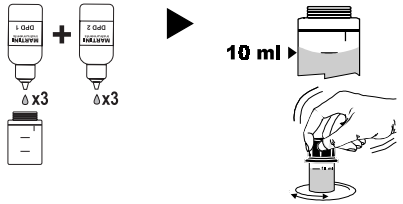
6• After a few seconds the display will show "-0.0-". The meter is now zeroed and ready to measure.



For Free Chlorine measurement

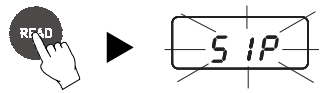
7• Add 3 drops of DPD 1 reagent and 3 drops of DPD 2 reagent to an empty cuvet.

8• Immediately add 10 mL of unreacted sample. Replace the cap and shake gently.



9• Immediately reinsert the cuvet into the holder and ensure that the notch on the cap is positioned securely on the groove

10• Press READ and "SIP" will blink during measurement.



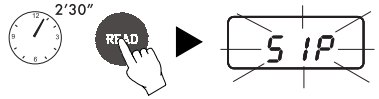
11• The instrument directly displays concentration in mg/L of free chlorine.

For Total Chlorine measurement

12• Remove the the cuvet and add to the reacted sample 3 drops of DPD 3 reagent. Replace the cap and swirl gently.

13• Reinsert the cuvet into the holder and position securely into the groove.

14• Wait for 2 minutes 30 seconds then press READ and “SIP” will blink during measurement.



15• The instrument directly displays concentration in mg/L of total chlorine.

For pH measurement

16• Fill a cuvet with 10 mL of unreacted sample up to the mark.

17• Add 5 drops of pH-0 reagent. Replace the cap and shake gently.

18• Insert the cuvet into the holder and ensure that the notch of the cap is positioned securely into the groove.

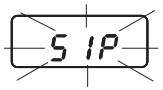
19• Press READ and “SIP” will blink during measurement.

20• The instrument directly display the pH value.

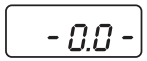
GUIDE TO DISPLAY CODES:

This prompt appears for 1 second each time the instrument is turned on.

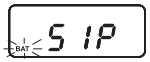
Sampling In Progress. Flashing “SIP” prompt appears each time the meter is performing a measurement.



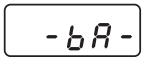
“-0.0-”, the meter is in a zeroed state and measurement can be performed.



The blinking "BAT" indicates that the battery voltage is getting low and the battery needs to be replaced.



“-bA-”, the battery is dead and must be replaced. Once this indication is displayed, the meter will lock up. Change the battery and restart the meter.



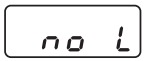
“Conf”, the meter has lost its configuration. Contact your dealer or the nearest Martini Customer Service Center.

ERROR MESSAGES

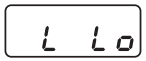
On zero reading

- Blinking “-0.0-” indicates that the zeroing procedure failed due to a low signal-to-noise ratio. In this case press ZERO again.

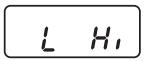
- “no L”, the instrument cannot adjust the light level. Please check that the sample does not contain any debris.



- “L Lo”, there is not enough light to perform a measurement. Please check the preparation of the zero cuvet.

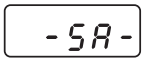


- “L Hi”, there is too much light to perform a measurement. Please check the preparation of the zero cuvet.



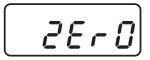
On sample reading

- “-SA-”, there is too much light for the sample measurement. Please check if the right sample cuvet is inserted.



- “Inv”, the sample and the zero cuvet are inverted.

- “ZErO”, a zero reading was not taken. Follow the instruction in the measurement procedure for zeroing the meter.



- Under range. A blinking “0.00” indicates that the sample absorbs less light than the zero reference. Check the procedure and make sure you use the same cuvet for reference (zero) and measurement.

- A flashing value of the maximum concentration indicates an over range condition. The concentration of the sample is beyond the programmed range: dilute the sample and re-run the test.

BATTERY REPLACEMENT

Battery replacement must only take place in a non-hazardous environment.

Simply rotate the battery cover on the back of the meter.

Detach the battery from the terminals and attach a fresh 9V battery while paying attention to the correct polarity. Insert the battery and replace the cover.

ACCESSORIES:

MI504-100	Free & Total Chlorine reagent set (100 tests)
MI509-100	pH reagent (100 tests)
MI511-100	Free & Total Chlorine and pH reagent set (100 tests)
MI0001	Glass cuvets (2 pcs)
MI0002	Caps for cuvets (2 pcs)
MI0003	Stoppers for cuvets (2 pcs)
MI0004	Tissue for wipping cuvets (4 pcs)
MI0005	9V battery (1 pc)

WARRANTY

This instrument is warranted against defects in materials and manufacturing for a period of two years from the date of purchase.
If during this period the repair or replacement of parts is required, where the damage is not due to negligence or erroneous operation by the user, please return the meter to either distributor or our office in the original packing and the repair will be free of charge.
Damages due to accidents, misuse, tampering or lack of prescribed maintenance are not covered.

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