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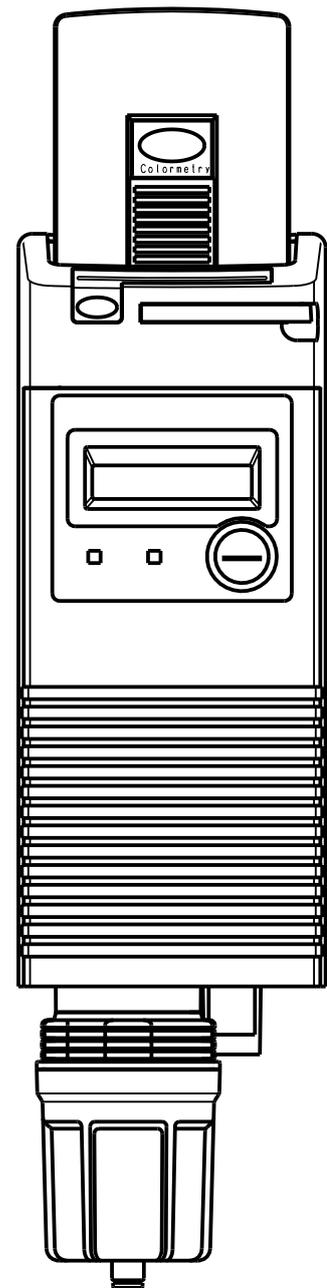
GENERAL INFORMATION USER'S MANUAL

Colormetry

CMU-324HE

Hardness

For Europe



This document was formulated in Japan.
Comply with the regulations and standards
of the country of use regarding installation
and usage.
The specifications of products and
components may vary with country of use
and the site situation.

INFORMATION IN THIS MANUAL MAY
BE CHANGED WITHOUT NOTICE.

Manual Code No.	S855-080-5813
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Important Safety Information

Before using the Colormetry CMU-324HE, ensure that this User's Manual is read and fully understood; furthermore, the instructions given herein should be strictly observed during operation.

Failure to use the Colormetry CMU-324HE in the appropriate manner can, therefore, result in death, injury, the outbreak of fire, and other serious accidents.

In order to ensure that tasks undertaken during operation and maintenance of the Colormetry CMU-324HE can be completed safely, it is critical that all dangerous and hazardous parts of this equipment be confirmed in advance. Here at MIURA, it is practically impossible to anticipate all potentially dangerous situations, and therefore, this User's Manual deals only with known hazards. A higher level of safety can be achieved by careful observation of the warnings and instructions set forth herein.

Safety-related warnings are classified according to the following three levels, and notification of these warnings is provided within this User's Manual and using warning labels on the equipment itself.



Indicates an imminently dangerous situation which leads to serious injury or death to the user, if the product is mishandled.



Indicates a situation which might cause serious injury or death to the user, if the product is mishandled.



Indicates a situation which might cause minor injury to the user or the occurrence of physical damage only, if the product is mishandled.

If any part used in the product fails, contact your dealer or MIURA sales office to have it replaced with a genuine part. Using parts with other model numbers may reduce the safety.

It should be noted that unauthorized alteration of the Colormetry CMU-324HE and repair procedures other than those described herein can pose a serious safety risk. Never customize or repair the equipment without permission from MIURA.

Introduction

This document describes the methods of handling the Colormetry CMU-324HE (hereinafter called “the equipment”) to ensure its proper use.

Not only those who use the equipment for the first time but also those who know the handling methods should read this document carefully and understand the proper handling methods before use of the equipment.

Furthermore, we also recommend that this User’s Manual be safely kept in close proximity to the equipment so that it can be referred to at any time to confirm the correct usage.

Follow the INSTALLATION AND START UP USER’S MANUAL (separate volume) for installing the equipment.

[Explanation of Notation]

The meanings of the symbols used in this manual are as shown below.

	Indicates a prohibited action (what you must not do).
	Indicates a possibility of injury when a specific location of the product is touched.
	Indicates a possibility of electric shock when the product is handled with wet hands.
	Indicates an action to be taken according to an instruction (what to be executed).
	Indicates an action connecting a grounding wire.
	Indicates a caution
	Indicates a possibility of injury due to high temperatures under specific conditions.
	Used to highlight important information to prevent equipment malfunction as well as tips for efficient work and other useful information.
	Indicates the page of related information.

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SECTION 1 SAFETY

1 Safety Regulations

Handling of the equipment is comprised of operations associated with running of the equipment and operations regarding maintenance.

Only those who have received a handling explanation with this User's Manual should operate the equipment.

Applicable to All Water Treatment Equipment (Related Laws and Regulations)

Document No.: 98-002-03

<Precautions for installation and use> — Related laws and regulations

- 1) The table below shows part of the laws and regulations on equipment installation and use. Refer to the separate document for more information on other relevant laws and regulations.
(There are also prefectural and municipal ordinances; therefore, contact the supervisory authority or competent authority for more information.)
- 2) The information listed in the table was created based on the laws and regulations in effect when the information was published.
- 3) The documents to be submitted and their destination vary depending on your equipment and facilities.
If you have any questions, contact your nearest dealer, MIURA sales office, or the competent supervisory authority.
- 4) The laws and regulations listed below may not apply to all water treatment equipment. Refer only to those laws and regulations that apply to your equipment and facilities.

Related laws and regulations	Form(s) to be submitted	Destination	Submission timing	Remarks
Water Quality Pollution Control Act, River Act, Sewerage Service Act, etc.	Verification required from local towns and cities in which the water treatment equipment or other equipment is installed. (The laws and regulations in some areas may be defined even more specifically in accordance with regional regulations.)			Drain water may be produced depending on the type of water treatment equipment and equipment operation. Drain water must be treated in other ways to prevent it from damaging waterways and the like. In cases where the total amount of drain water exceeds the legal amount on a per-plant basis or where the equipment is used at specified facilities, an application is necessary. However, the conditions may vary from region to region. Accordingly, you should contact your local authorities for more information.
Regional Pollution Prevention Ordinance	Notification as required by the applicable ordinance	As set forth by the relevant regional authorities	As set forth by the relevant regional authorities	Applicability is defined independently by regional pollution prevention ordinances based; accordingly, you should contact your local authorities for more information. (Certain regional ordinances concerning air pollution, noise, vibration, drain water, and the like may supersede the corresponding national regulations.)
Water Supply Act	None	—	—	(Prohibition of direct waterworks contact) Water treatment equipment (excluding certified equipment) cannot be connected directly to waterworks. Instead, it is necessary to either set up a feed water tank or to isolate the systems using, for example, a float valve. Details may vary from region to region; accordingly, you should contact your local authorities for more information.
	Design specifications for dedicated waterworks, Notification of the start of feeding water	As set forth by the relevant regional authorities	—	Business operators are to submit notification to local governments for drinking water wells for industrial use in facilities where the volume of water intake exceeds the allowed quantity as prescribed by law which require the use of dedicated waterworks systems regardless of the form of usage. Contact your local authorities for details.
Act on Maintenance of Sanitation in Buildings	None	—	—	Buildings are to be preserved and maintained (through cleaning, water quality analysis, and other activities) in accordance with Hygiene Control Standards.
Food Sanitation Act	No notification made for equipment and related matters	—	—	Measures are to be implemented to maintain hygiene and safety and prevent sanitation hazards in accordance with applicable laws.
Industrial Safety and Health Act	None	—	—	When using substances specified in applicable laws (such as specified chemical substances), a qualified operator must be selected, all such substances are to be handled and managed in accordance with applicable laws, and the operator's healthcare is necessary.
Poisonous and Deleterious Substances Control Act	None	—	—	All such substances are to be stored and managed in accordance with applicable laws. Chemical substances are to be handled properly in accordance with the guidance and information listed on the SDS for the relevant material.
Fire Service Act	Notification as set forth by local fire departments	The nearest fire department	Prior to the start of work	Local fire chiefs or fire department chiefs must be notified in advance of any plans for any party to use or store certain substances (chemical substances and other materials) of a designated quantity as specified by applicable laws and regulations.

2 Safety-related Knowledge and Expertise

Usage of the equipment requires knowledge and experience of the operation and maintenance of mechanical equipment.

In addition, only the following persons should be permitted to perform work on the equipment.

- Operators who have read and fully understood this User's Manual.

3 Protective Equipment

Wear protective items such as a helmet, safety glasses, a safety mask, safety footwear, and leather gloves as necessary for the task in hand.

4 Prohibition of Unapproved Modification

Customization or modification not recommended by MIURA may present safety problems and is therefore prohibited. If you wish to modify your water treatment equipment, contact your dealer or MIURA sales office in advance. It should be noted that MIURA will accept no responsibility for the outcome of unapproved customization.



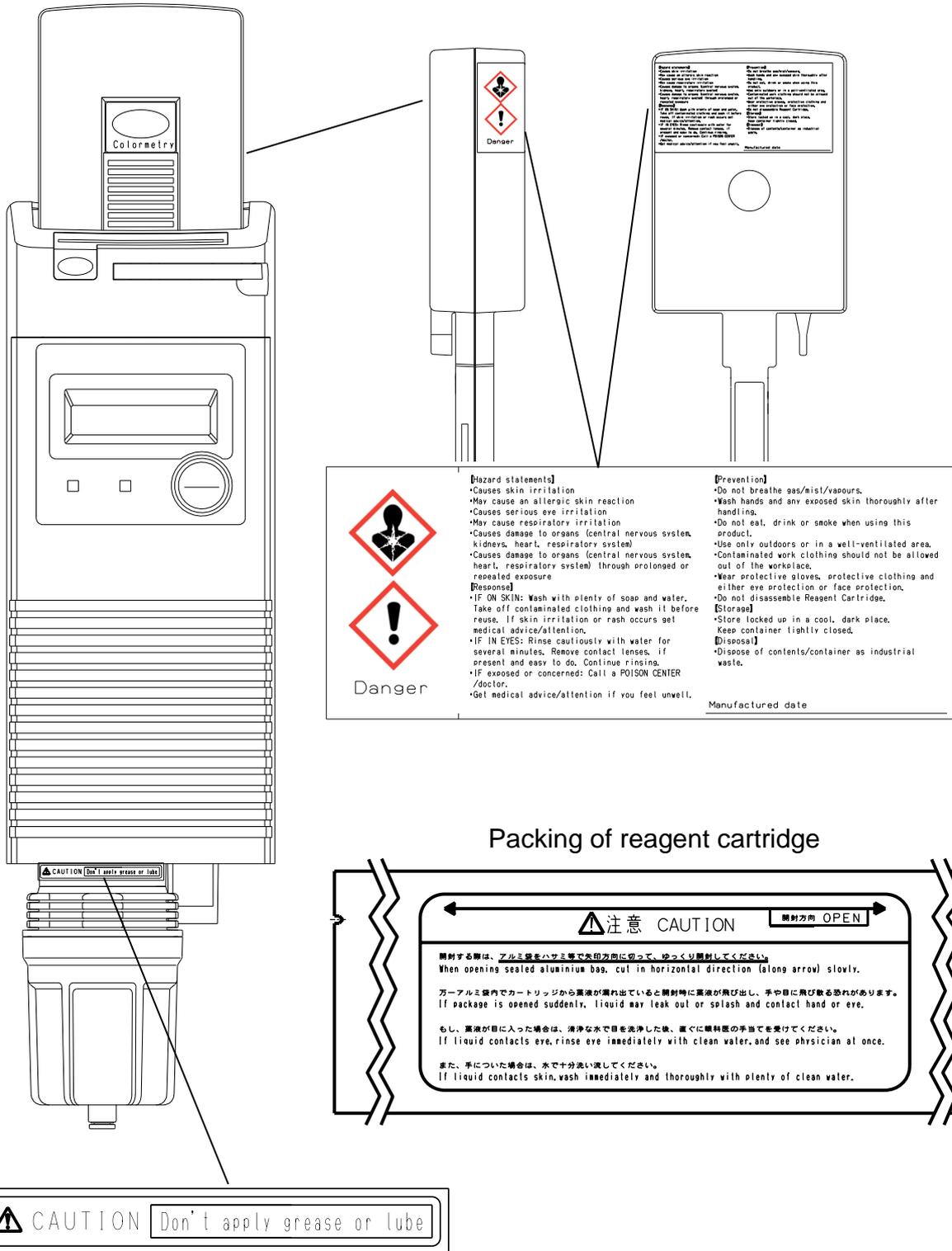
5 Warning Labels on the Equipment

Warning labels are pasted at all locations that require attention to be paid during operation.

If any warning label is peeled off or torn, replace it with a new one.

For further details on warning labels contact your dealer or MIURA sales office.

Reagent cartridge left side / back side



6 Safety Precautions

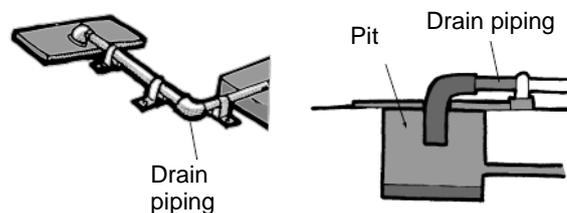
6.1 Installation

During installation, observe the following safety information.

WARNING



Ensure that drain piping is fixed securely in place to prevent it from moving in reaction to drain discharge and that the end of the piping opens in a safe location such as a pit. Failure to observe this precaution may lead to electric shock or other problems due to splashing of water. Touching the drain pipe may result in burns or other injury. High concentration water may be discharged from the water treatment equipment temporarily in some cases. Additional water treatment may be necessary to prevent lakes and other bodies of water from being adversely affected depending on the volume of drain and the water quality.

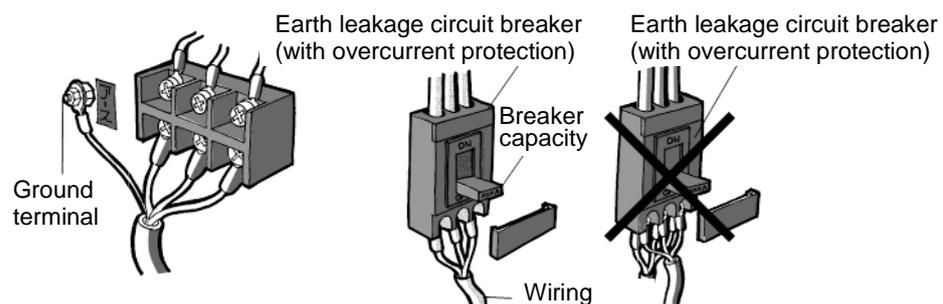


WARNING



When connecting a power supply to the product, use wire of the specified rating and ensure that the equipment are correctly grounded (Japanese D-type grounding work or better).

Furthermore, a dedicated power supply should be used, and an earth leakage circuit breaker (with overcurrent protection) should be installed. If this precaution is not observed, serious accidents such as electric shock and the outbreak of fire may result. In case of emergency, the power supply has to cut immediately. Install an earth leakage circuit breaker at the easy accessible location.

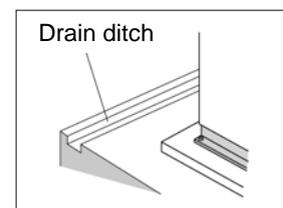


NOTE

Water Leakage Countermeasures

Factors such as loose connectors and aging of pipe materials can lead to water leakage. It is important that drain ditches be setup for the water treatment equipment and all peripheral equipment.

(In order to prevent water from leaking outside the room or downstairs, set up a drain ditch that completely encloses the whole equipment, ensure that the floor itself is waterproof, make the floor slope downward to the drain port, and take any other necessary steps.)



6.2 Safety Precautions

During operation, observe the following safety information.

NOTE

Please wipe with dry soft cloth when cleaning.

Rubbing with hard cloth may make scratches.

WARNING



Do not insert fingers into the reagent cartridge receptacle. There is possibility of injury by chemical injection roller inside the equipment.

CAUTION



Do not insert any objects into the reagent cartridge receptacle other items. It will cause an evaluation and system errors. Even if the equipment is not to use for a while and disconnect from the power supply, do not remove the reagent cartridge to prevent a contamination.

6.3 Pre-operation Inspection (Excerpt from page 21 onwards)

During pre-operation Inspection, observe the following safety information.

WARNING



Do not operate the equipment if water is leaking.

Turning switches ON and OFF while water is leaking may lead to fire or electric shocks.

Make sure the main power circuit breaker is turned OFF and contact your dealer or MIURA sales office.

CAUTION



Do not place anything which might cause electric leakage underneath the equipment.

The equipment is designed to drain water from the bottom of the equipment if there is inner water leakage. Water might splash to the item under the equipment.

6.4 Inspection and Maintenance (Excerpt from page 37 onwards)

During inspection and maintenance, observe the following safety information.

WARNING



Never disassemble the reagent cartridge.

Reagent may splatter onto the skin or the eyes.

If the reagent gets on the skin or in the eyes, rinse immediately with water.

CAUTION



Do not place anything which might cause electric leakage underneath the equipment.

The equipment is designed to drain water from the bottom of the equipment if there is inner water leakage. Water might splash to the item under the equipment.

CAUTION



Do not apply grease or lube when install the filter casing assembly. It might damage the material of the equipment and cause water leakage.

WARNING



Do not use the equipment if there is smoke, abnormal odor or noise, excessive overheating, or other abnormalities. If an abnormality occurs, do not operate the equipment. Also, make sure an earth leakage circuit breaker is turned OFF and a main feed-water valve is closed and contact your dealer or MIURA sales office.

Failure to observe this precaution may lead to electric shock, fire, or a fault.

CAUTION



Replace a tube if a defect such as deformation (a bend or fold), discoloration, hardening, or cracking is detected on the tube surface. If a deteriorated tube is continuously used, it can rip and cause water leakage.

Please use specified tubes when exchanging tubes. Using tubes other than specified tubes may cause leakage.



CAUTION



If there is a defect or cracking on the filter casing assembly, turn OFF an earth leakage circuit breaker and close a main feed-water valve. Then, replace the filter casing assembly. If water leakage is not stopped even though tightening the filter casing assembly and tube joint, replace the filter casing assembly.

6.5 Storage (Excerpt from page 46 onwards)

During storage, observe the following safety information.



WARNING



Do not perform any unapproved installation work or connect any peripheral equipment.
Failure to observe this precaution may lead to personal injuries.

SECTION 2 OVERVIEW

1 Outline

1.1 Usage

Basically, the Colormetry CMU-324HE has been developed as part of a processing system for boiler water.

The Colormetry automatically and regularly implements the process of sampling the water, injecting the reagent, stirring and evaluating the result, thereby obviating the conventional manual procedure.

The equipment has been designed with emphasis on the reliability of the monitoring results. The manually selectable conditions—for instance, to verify monitoring upon the detection of hardness leakage—prevent temporary fluctuations from triggering alarms.

1.2 Purpose

The Colormetry CMU-324HE is a device for monitoring water quality. It is not a device for measuring. The result data cannot be used for inspection or analysis of the water treatment system.

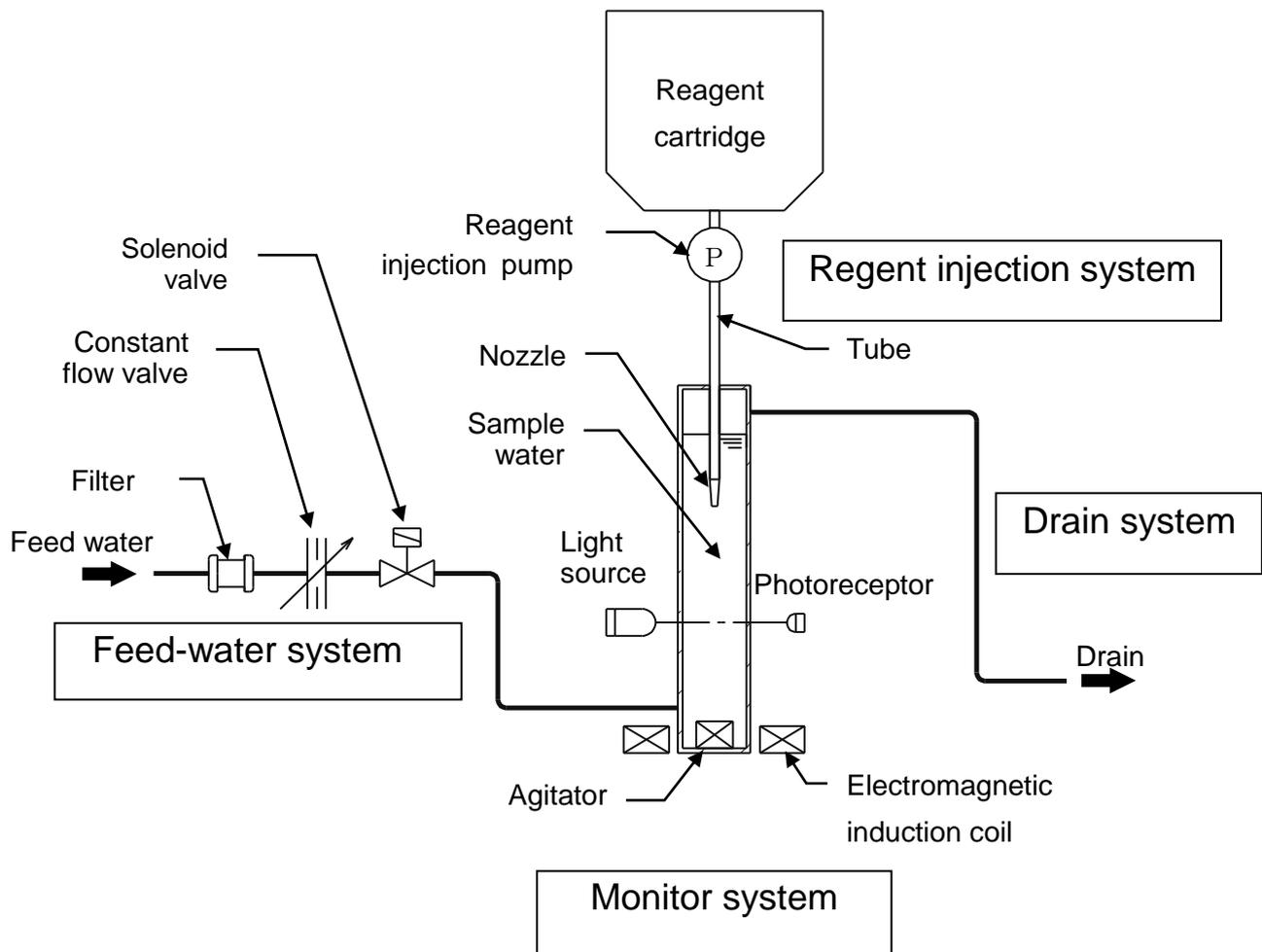
Usage example:

- Monitoring hardness leakage of the water softener

1.3 System Layout

The Colormetry consists of the reagent cartridge (the indicator), reagent indicator mechanism, monitoring system and feed-water and drain systems.

Colormetry layout

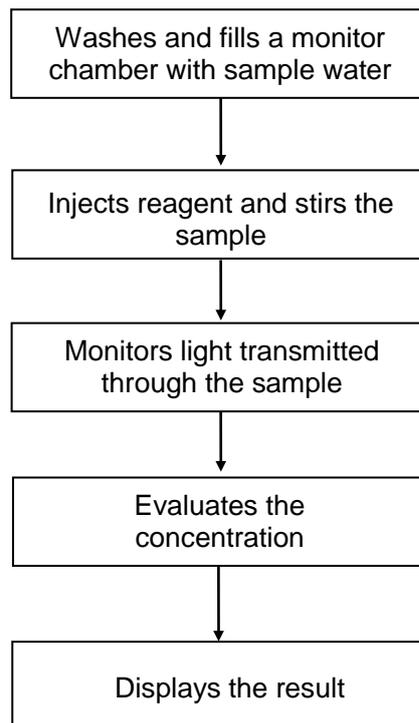


1.4 Principle

The Colormetry is a device to monitor ionic concentrations in water by applying colorimetric analysis. In a colorimetric analysis process the ionic and other concentration in water is monitored by allowing a reagent to react against the target ions and others, and monitoring the transmissivity of the resultant coloration for light of a specific wavelength. The Colormetry replaces this process by an electrical monitoring system and automates the entire process.

Other features include the remote alarm output, self check function, and display, as well as the monitor standby while the water softener is regeneration or the sample water stopped (remote signal input).

Monitor process is indicated as follows.



[1] Washing and filling the monitor chamber with sample water

The solenoid valve opens, filling the monitor chamber with sample water. The old sample water remaining in the chamber is pushed out, and the chamber is washed at the same time.

[2] Injecting reagent and stirring sample water

The solenoid valve closes, and the injection pump injects the reagents into the sample water. The electromagnetic induction coil, activated at the same time, mixes the water and reagent. The reagent causes coloration of the sample water in accordance with the hardness concentration of the water.

[3] Monitoring the sample water

The light source is activated to project light into the sample water. The photoreceptor electronically monitors the light transmitted through the sample water. The intensity of the transmitted light varies, depending on the color of the sample water. These variations are caused by light absorption in the water, which varies with the color of the water.

[4] Evaluating the concentration and displaying the result

The concentration is evaluated from the monitoring value, and the result is indicated on the LCD.

1.5 Applicable Water Condition

The Colormetry CMU-324HE monitors the hardness. Use CMU-H2 reagent cartridge.

The reagent may be affected by substances other than hardness.

The equipment cannot measure water of the condensate return tank.

Keep to the following items in an allowable range. If the water condition is not followed, the equipment may fail to monitor correctly.

Items	Allowable range
Fe (Iron)	1.0mg/L or less (*1)
Free chlorine	2.0mg/L or less
M-Alkalinity+ Silica(*3)	500mg/L or less
pH	5.0 ~ 8.6
Zn (Zinc)	(*2)
Cu (Copper)	(*2)

*1: It is the value measured by adding hydrochloric acid.

*2: The metal ion such as zinc and copper are determined as hardness.

Therefore, the system judges hardness higher.

Pay close attention in case the galvanizing pipe or copper pipes are used.

The metal ion (zinc and copper) is evaluated as 1.5 times the calcium and magnesium hardness.

(Ex.) hardness: 0.1mg/L

Zinc: 1.0mg/L

Evaluate value: $0.1 + 1.0 \times 1.5 = 1.6 \text{mg/L}$

*3: Measurement results of this unit is affected by the M-Alkali and dissolved carbon dioxide gas and silica in a complex manner. Therefore, you must calculate the result of the following equation is within the acceptable range.

$\text{Silica} + \text{M-Alkalinity} + \text{M-Alkalinity} \times 11,700,000 / 10^{\text{pH}}$

1.6 Highlights of Features

The Colormetry has the following features:

[1] Monitors hardness leakage automatically

The monitoring process is fully automated, saving a significant amount of work by eliminating the need for complicated manual procedures.

[2] Requires no periodic calibration

The equipment needs no cumbersome periodic calibrations.

[3] Includes built-in timer

Monitoring period may be set as desired. (e.g. daily between 9 a.m. and 5 p.m.)

Interval for each monitoring may set as desired. (The interval is selectable in 30-minute increments between 30 and 240 minutes.)

[4] Alarm set point for the hardness leakage

The evaluation ranges are 0mg/L, 1mg/L, 2mg/L, 3mg/L, 5mg/L and up.

[5] Evaluates hardness leakage at higher accuracy

When a hardness leakage is detected, monitoring is repeated a number of times (concentration anomaly retry; selectable between 1 and 3 times) to prevent a temporary fluctuation from triggering an alarm. In addition, such an abnormality must be repeated in a series of monitoring at a preset interval for a number of times (response alarm cycle; also selectable between 1 and 8 times). When all of these monitoring results indicate a hardness leakage, it is evaluated that hardness leakage exists and the alarm is issued.

[6] Indicates data on the display screen

The display indicates the evaluated result, and the major cause of system error occurs in the equipment.

[7] Offers an alarm function

When it is evaluated that there is a hardness leakage, the buzzer sounds. By the remote alarm output, the alarm signal can be transmitted to a remote location.

Offers a self check function. If a system error occurs in the equipment, a typical cause will be displayed in the same manner as the hardness leakage

[8] Stores records of hardness leakage

The equipment stores the records of occurrence date and time, evaluated result and recovery date and time for each of the 5 latest incidents of hardness leakage. The records may be utilized to analyze the causes of hardness leakage.

[9] Requires minimal maintenance

The reagent cartridge may be replaced using a one-touch action. The reagent cartridge needs no replacement for approximately 4 months in typical applications. (Note that more frequent replacement may be necessary, depending on the application.)

[10] Compact in design, easy to install

The main equipment is installed easily on a wall.

Installation is a simple process.

[11] About advanced features

- Remote signal input function

The external signal controls whether to perform monitoring or not. This enables to remotely stop monitoring while the system, which the water softener is regenerating.

- Remote alarm output

The remote alarm output, the alarm signal can be transmitted to a remote location as a contact output in case that hardness leakage or system error occurs in the equipment.

- Reagent cartridge exchange output

This output may be used to transmit to a remote location when a reagent cartridge needs to be replaced.

[12] Data capture tool

Up to 10,000^(*1) monitor records (monitored date and results) can be stored in the Colormetry. Also, by using a dedicated data capture tool installed on the PC ^(*2), the monitor record data can be transferred to the PC. However, the Colormetry and PC must be connected by an RS-232C cable ^(*3).

*1: Data for almost 1 year can be stored when monitoring at an interval of 60 minutes. However, if manual monitoring is repeated, or if the monitor interval is set to less than 60 minutes, the data will be stored for less than 1 year. When the number of records exceeds 10,000, the oldest monitor record data is deleted.

The data is in CSV format. The year-round trend can be managed through graph creation software such as Microsoft Excel.

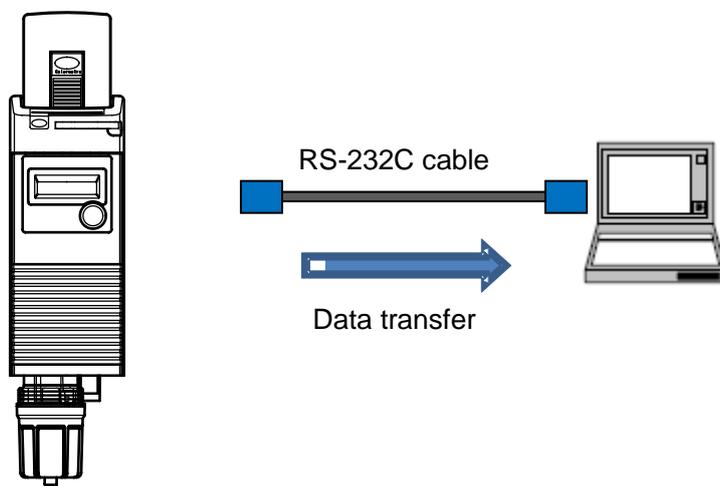
*2: Compatible PC OS is Windows® XP 32bit and Windows® 7 32bit.

*3: Use a female 9-pin D-Sub serial straight RS-232C cable (sold separately).

The cable length should be 1 m or less.

NOTE

If power is not supplied to the Colormetry for long periods of time, the internal memory will be lost, and the record data will be initialized. If you do not intend to use the Colormetry for a long time, capture the monitor data before cutting off the power. The standard backup period is a maximum of 7 days in a 25°C environment.

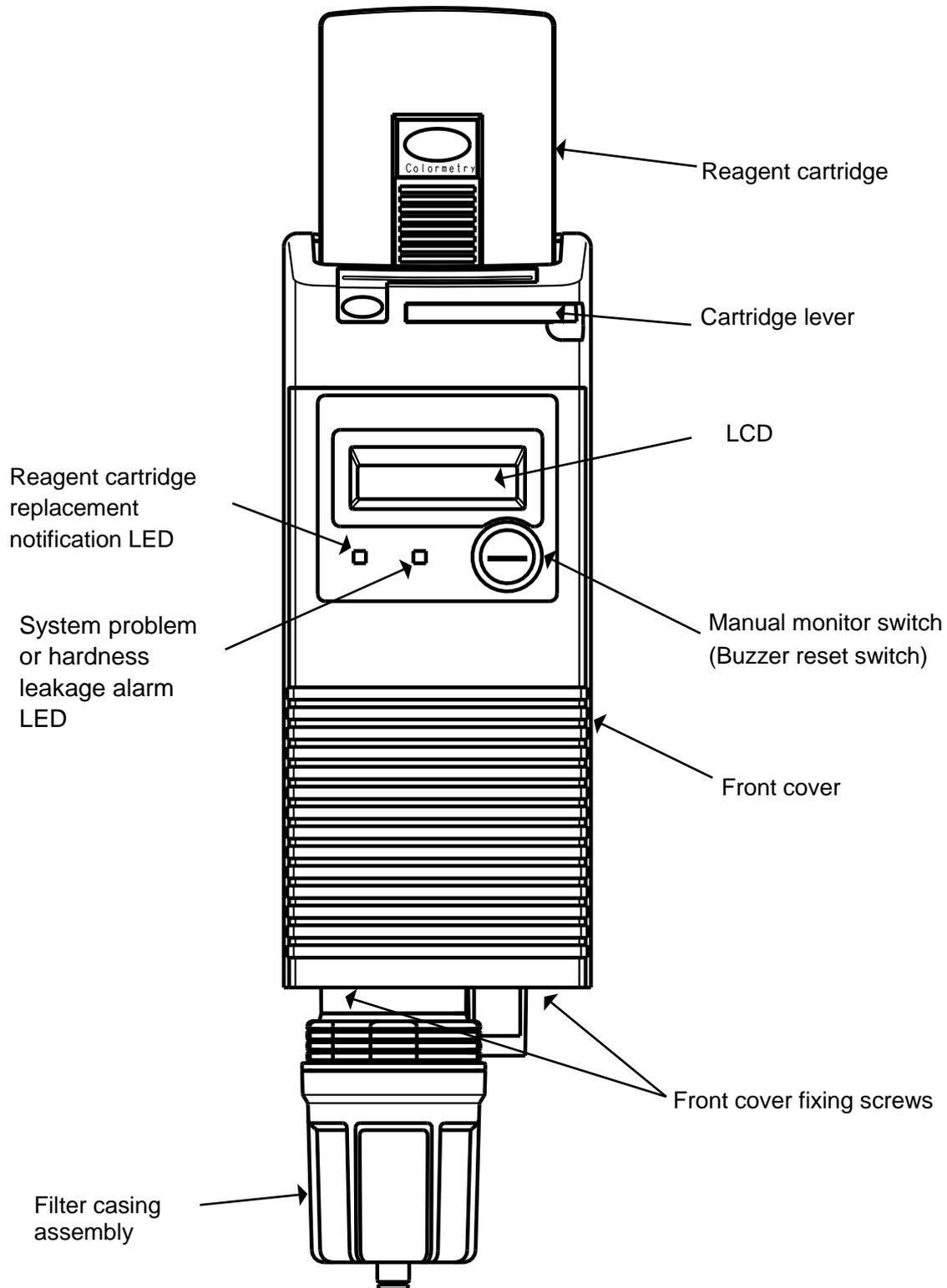


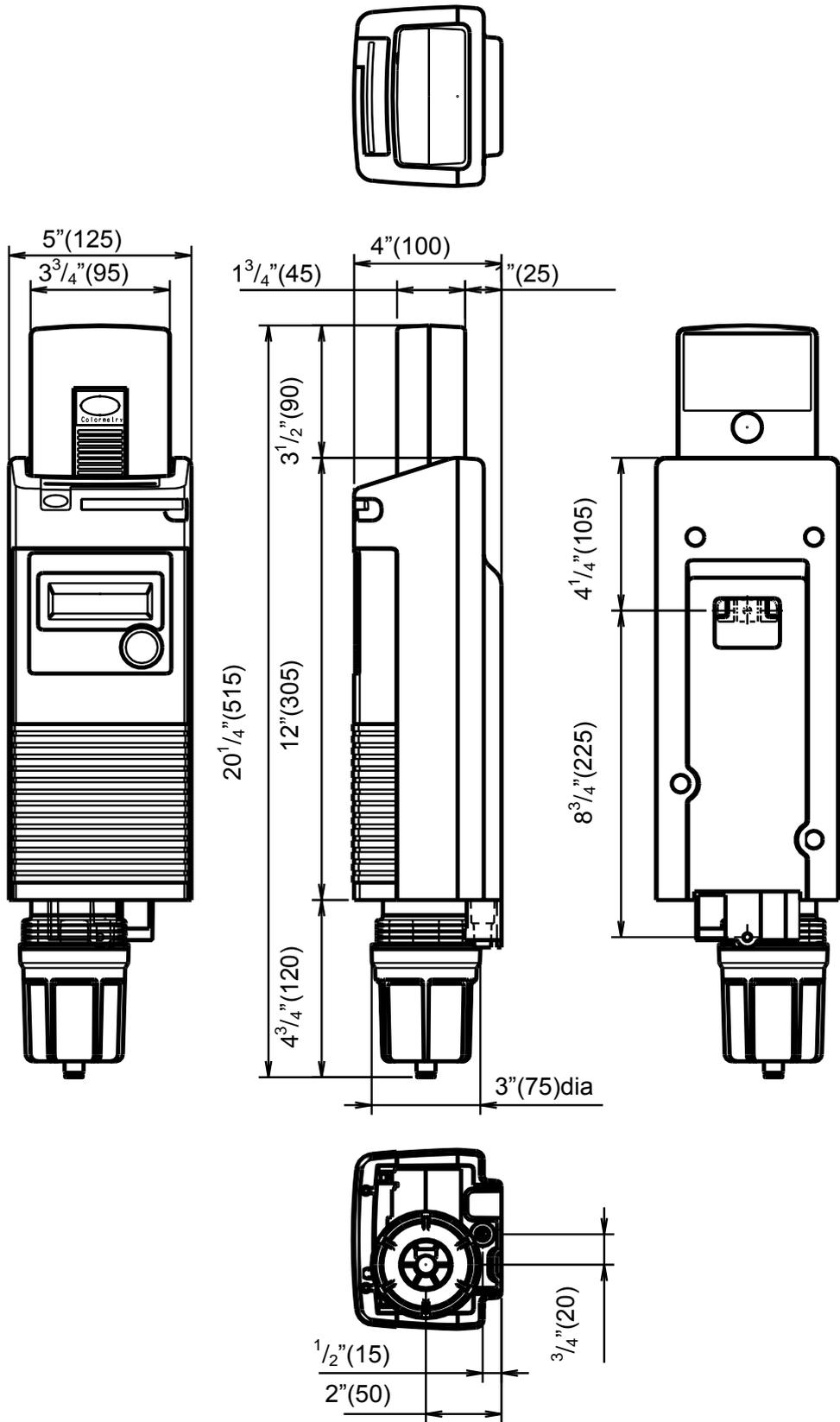
Data capture connection

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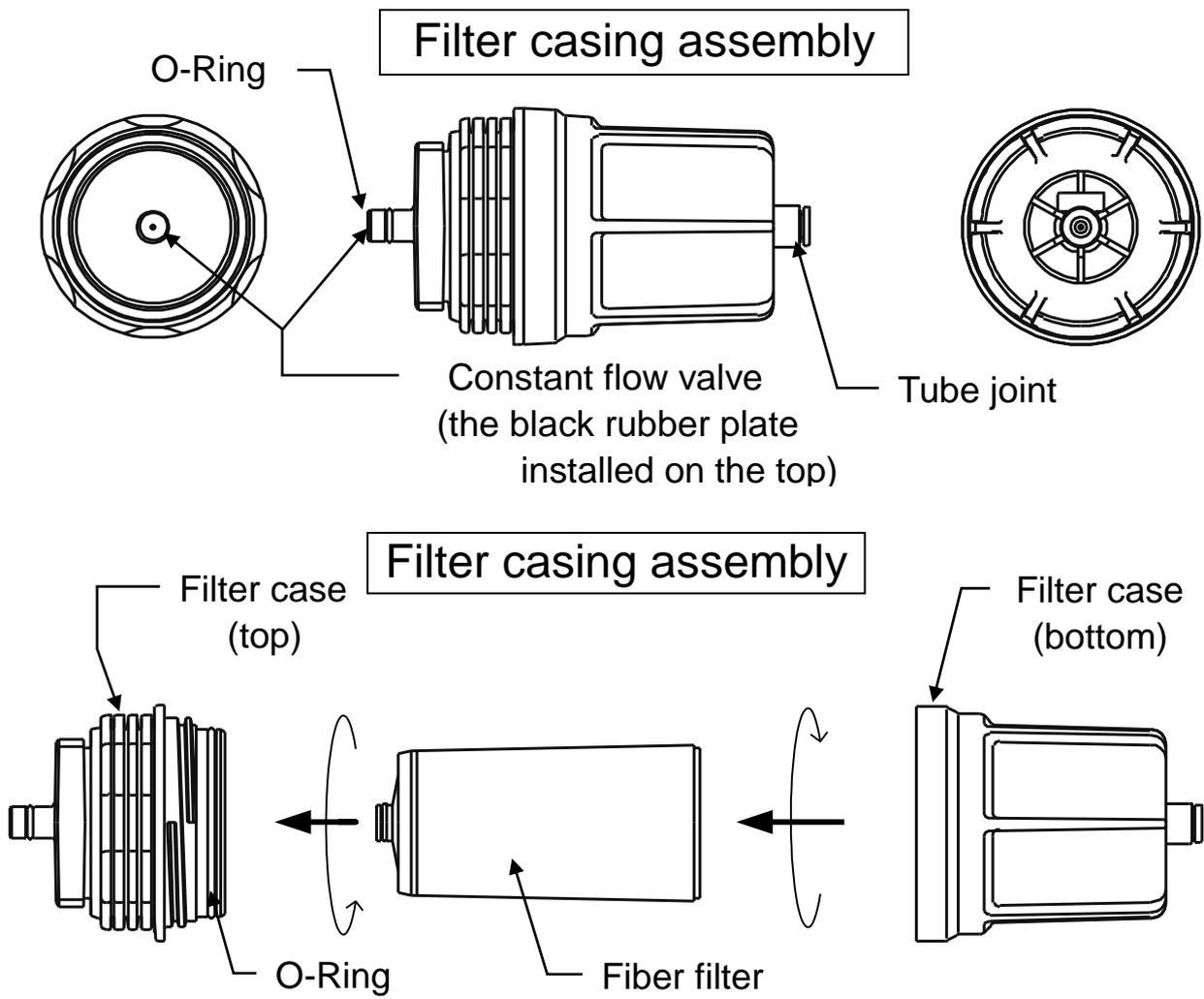
2 Name of Parts

2.1 Overall View





2.3 Filter Casing Assembly



3 Specifications

3.1 General Specifications

Power supply	DC 24V (10%) (*1)
Power consumption	15W (on operation)
Ambient operating temperature	41°F ~ 122°F (5°C ~ 50°C)
Raw water temperature	41°F ~ 104°F (5°C ~ 40°C)
Humidity	20%RH ~ 90%RH (without ice or dew condensation)
Raw water pressure	7.1~ 71psi (0.05MPa ~ 0.49MPa)
Altitude	Up to 2000m
Overvoltage category	I (not directory connected to mains)
Pollution Degree	2
Installation method	Indoor wall mount (*2)
EU Harmonized Standards	EN61326-1:2013

This product is out of the scope of Low Voltage Directive.

**Usage Environment

- Industrial area, Laboratory

(Note) This product may cause interference if used in residential areas. Such use must be avoided unless the user takes special measures to reduce electromagnetic emissions to prevent interference to the reception of radio and television broadcasts.

- Do not install the product near a device that generates a large amount of electromagnetic noise.
- Separate the power supply of this product from the power supply of devices that generate electromagnetic noise.

There is a possibility that equipment does not perform normal operation.

3.2 Physical Data

External dimensions	5"[W] × 4"[L] × 20 ¹ / ₄ "[H] (125[W] × 100[L] × 515[H] mm)
Mass	4.2lb (1.9kg)

3.3 Monitoring Capabilities

Evaluation method	Via the Colorimetric method
Evaluation ranges	Hardness: 0 ~ 5mg/L (*3)
Alarm ranges	1mg/L and up / 2mg/L and up / 3mg/L and up 5mg/L and up (Choose one)
Reagent cartridge replacement cycle	Every 4 months (*4)
Remote alarm output (*5)	Open collector output Maximum rating: DC 24V 70mA
Water passing output	
Cartridge exchange output (*5)	
Remote signal input	No voltage contact input (Contact A or Contact B)
Drainage	Approx. 1000mL / monitor (*6)

**10,000 measurement results can be stored as record.

3.4 Feed-water and Drain-water Connection

Feed-water connection diameter	For connecting 6mm external dia. tube (*7)
Drain-water connection diameter	For connecting 8mm external dia. tube (*7)

- *1: The DC24V input should be supplied by a power supply (AC adaptor) as a LPS (Limited Power Source) under the EN60950-1.
- *2: The mounting bracket is attached to the equipment.
- *3: Indicated value: 0,1,2,3,5mg/L or more (5 types)
- *4: The warranty period of a reagent cartridge is 1 year for unopened product or 4 months after opening the pack. The reagent will last approximately 4 months on the basis of an hourly monitor. If monitors are taken every 30 minutes or repeated frequently, then the reagent may not last for 4 months.
- *5: The LEDs on the front cover turn on when an external alarm or when the reagent cartridge needs replacement. Once the system error and hardness leakage are resolved, and the reagent cartridge is replaced, each LED lights off.
- *6: The drainage volume with a constant flow valve is listed. The drainage volume may vary depending on the water temperature or degradation level of a constant flow valve.
- *7: The feed-water and drain-water tubes are attached to the equipment.
 Replace a tube if a defect such as deformation (a bend or fold), discoloration, hardening, or cracking is detected on the tube surface. If a deteriorated tube is continuously used, it can rip and cause water leakage. Make a daily check on whether the tubes are in normal condition. Please use specified tubes when exchanging tubes. Using tubes other than specified tubes may cause leakage.
 Please contact your dealer or MIURA sales office.

3.5 Accessories

- 6mm dia. feed-water tube
- 8mm dia. drain-water tube
- Fiber filter (cartridge type)
- Filter casing assembly
- Ball valve and other plumbing parts
- Mounting bracket and other miscellaneous parts
- User's Manual

3.6 Consumable parts (Sold separately)

- Reagent cartridge (CMU-H2)
- Fiber filter (cartridge type)

SECTION 3 PRE-OPERATION INSPECTION

1 Inspections and Preparations before Start up

1.1 Inspection and Preparation of the Surrounding Area Peripheral Equipment

Check the following points before starting operation of the Colormetry.

WARNING



- Do not operate the equipment if water is leaking.
- Turning switches ON and OFF while water is leaking may lead to fire or electric shocks.
- Make sure the main power circuit breaker is turned OFF and contact your dealer or MIURA sales office.

Make sure no water is leaking from the equipment and from around the piping.

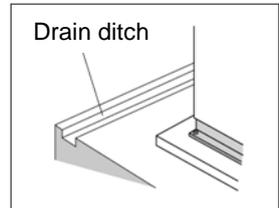
- Do not start the operation if a leakage is found. Instead, ensure that the main power breaker is set to the OFF position, and then contact your dealer or MIURA sales office.

NOTE

Water Leakage Countermeasures

Factors such as loose connectors and aging of pipe materials can lead to water leakage. It is important that drain ditches be setup for the water treatment equipment and all peripheral equipment.

(In order to prevent water from leaking outside the room or downstairs, set up a drain ditch that completely encloses the whole equipment, ensure that the floor itself is waterproof, make the floor slope downward to the drain port, and take any other necessary steps.)



2 Preparations before Start up

CAUTION



Do not place anything which might cause electric leakage underneath the equipment.

The equipment is designed to drain water from the bottom of the equipment if there is inner water leakage. Water might splash to the item under the equipment.

*Check the following items before start up.

- Raw water pressure should be 7.1~ 71psi (0.05MPa ~ 0.49MPa).
- The sample water collecting point (branching from main piping) to the filter casing assembly should be within 1m.
If the Colormetry is installed much higher place, it might cause an evaluation error because of the lack of sample water.
- Open the ball valve at the sample water collecting point and let water run into the feed-water tube (See Fig.3-1).

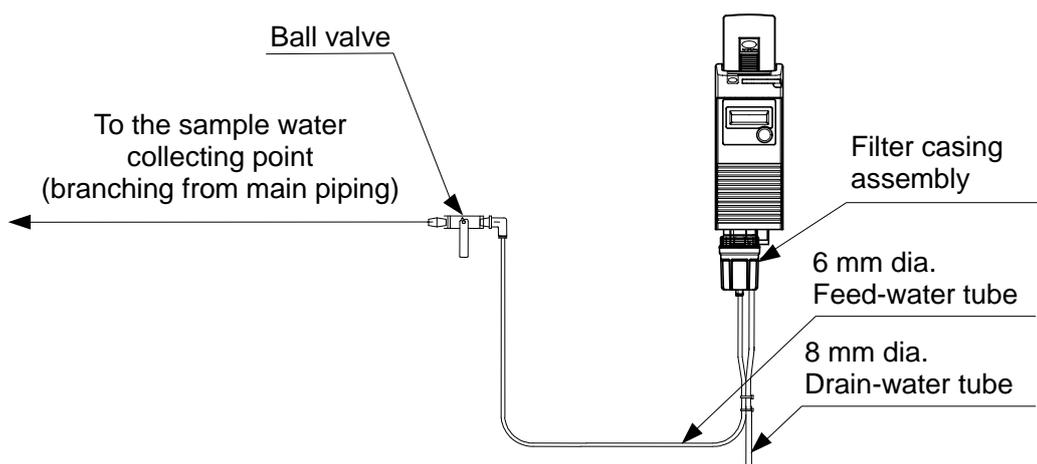


Figure 3-1 Feed-water system

SECTION 4 OPERATION

1 Operation

1.1 Self Check Mode

When supply the power to the equipment, the self check starts automatically.

- If the equipment is working correctly, the self check completes in about 2 minutes.
- At its completion of the self check, the buzzer sounds 4 times and monitoring starts.

● Remote signal

When the remote signal is utilized, the equipment keeps in standby until the remote signal permits monitoring.

● System error

If the equipment is not normal condition, the self check is repeated.

During a repeated self check, "Self Check Retry" is displayed.

If the equipment fails for the self check all 5 times, the buzzer sounds and the mode changes to the system error standby mode and an error message displays in the LCD.



P44 Section 6 1 Self Check Function

NOTE

"Wash F :F265" or Wash Flow F:F086" is displayed and buzzer sounds during start up or first operation after replacing the fiber filter in spite that the ball valve is open and pressure is applied.

This is an initial phenomenon caused by bubbles in the filter casing assembly. It is not a system error.

If the same alarm occurs, repeat this process several times.



P24 Section 4 1.3 Manual Monitoring

1.2 Automatic Monitoring

When the present time of the monitor interval has passed, monitoring starts.

The monitoring start timing is also controlled by the remote signal.

*While monitoring, the monitoring stop time passed, the Colormetry back to standby as soon as the monitor process completed.

1. Monitoring will take 2 to 5 minutes. The washing period will change from 40 to 200 sec. according to the sample water volume.
2. If the system error occurs, the equipment will enter the system error standby mode.

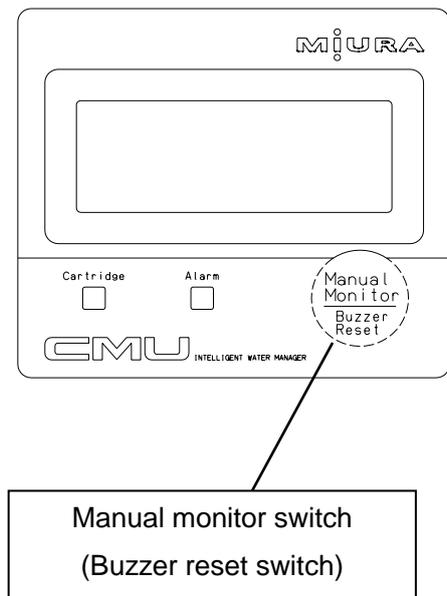


P44 Section 6 1 Self Check Function

1.3 Manual Monitoring

Press the manual monitor switch to monitor regardless of the monitor interval, remote signal, monitor start or stop time settings.

If the Colormetry is under the high temperature control mode and the sample water is hot, monitoring does not start.



NOTE

The monitoring does not start, if the reagent cartridge is not installed.

Example: Input regeneration signal from water softer.

When there a water softener contact has the contact which turns ON (closes) during regeneration, and connecting this contact to the Colormetry, this remote signal disables scheduled monitoring. When the softener contact turns OFF (open) at the completion of regeneration, scheduled monitoring is again enabled.

[2] Monitoring is enabled by remote signal being turned ON [S Rte Sgl ON]

The ON state of the remote signal (the external contact closes) permits scheduled monitoring after the monitor interval [S Intvl].

Example [2]-1: Input feeding water signal of water softener or other filtration equipment.

When there is a water softener or water treatment equipment has the contact which turns ON (close) while feeding water, and connecting this contact to the Colormetry, this remote signal enables scheduled monitoring only while feeding water. When water stops, and the contact of a water softener or other filtration equipment turns OFF (open), scheduled monitoring is not performed.

Example [2]-2: Input control signal of motor valve or solenoid valve

When a signal from a motor valve or solenoid valve that controls feeding water, is used as a remote signal to the Colormetry, it enables monitoring only while the valve is open and while feeding water.

Example [2]-3: Input supply tank water-level control signal

When a “requesting feed water” signal from the equipment that controls a water level of a supply tank is used as a remote signal to the Colormetry, monitoring is performed only for a while the request is made, and while feeding water.

NOTE

It is recommended to input a remote signal if it is possible, to prevent an evaluation error or a system error. The feeding water signal, if available, should be utilized as the first priority. If the regeneration signal is the only remote operation signal available from the water softer, an evaluation error or temperature error may occur from monitoring the stagnant water while the water is stopped, or a system error may occur due to the lack of flow. A remote signal input arrangement, as shown in examples [2]-1, [2]-2 and [2]-3 is highly recommended.

NOTE

If no remote signal is input, be sure to set to the OFF state [S Rte Sgl OFF] (the factory setting).

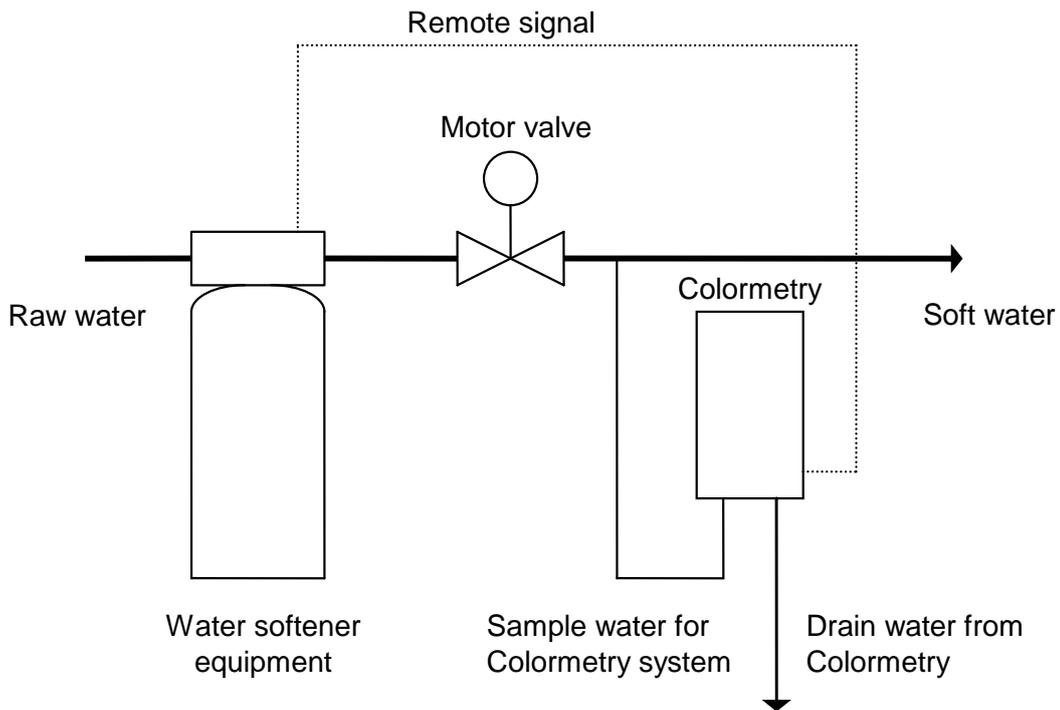
2.1.3 Delay time of remote signals

The purpose of remote signal delay time [S DelayTime]:

The setting determines the number of seconds the monitoring (filling with the sample water) is to be delayed after receiving the remote signal. It is not commonly used function, however it is effective to prevent an evaluation error in the example case shown below.

Example of delay:

It is recommended that the sample water for the Colormetry should be taken off as close to the main piping. However, in a case as illustrated below, where the sample water is taken off from the secondary line of a motor valve or the valve required a certain amount of time to open fully, the valve might not open at the time the Colormetry received the remote signal from the water softer. A wash flow error [Wash Flow F] may occur due to insufficient sample water pressure.



To prevent such a problem, select the remote signal delay time [S DelayTime] setting and set the required time needed the valve to open fully and ensure the required raw water pressure at the Colormetry inlet.

2.2 Colormetry Monitor Timing

2.2.1 Automatic monitoring

The interval between monitoring is set in the monitor interval [S Intvl] setting at the setting mode [Set Mode] (The interval is selectable in 30minutes increments between the 30 to 240 minutes range).

The initial time point of monitor interval [S Intvl] is the first monitoring which carried out soon after the Colormetry is supplied the power or is reset. The next monitoring will start after the preset time of the monitor interval [S Intvl] from this initial time point.

If the monitor interval [S Intvl] setting is changed, the initial time point is also changed to the monitoring soon before the change is made. And the monitoring will start after the new setting time from the last monitoring.

[1] Without remote signal input

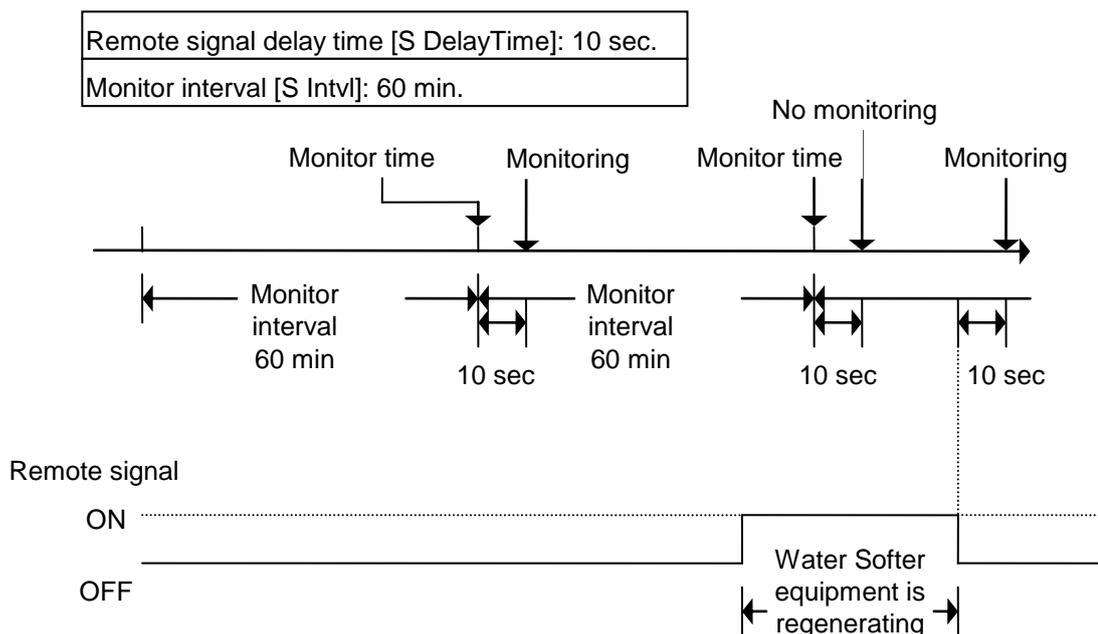
Monitoring is performed periodically at the monitor interval [S Intvl].

[2] With remote signal input

a. **If the remote signal setting is for “monitoring is enabled by remote signal being turned OFF” [S Rte Sgl OFF]:**

(Example of remote signal: Regeneration signal from water softener equipment)

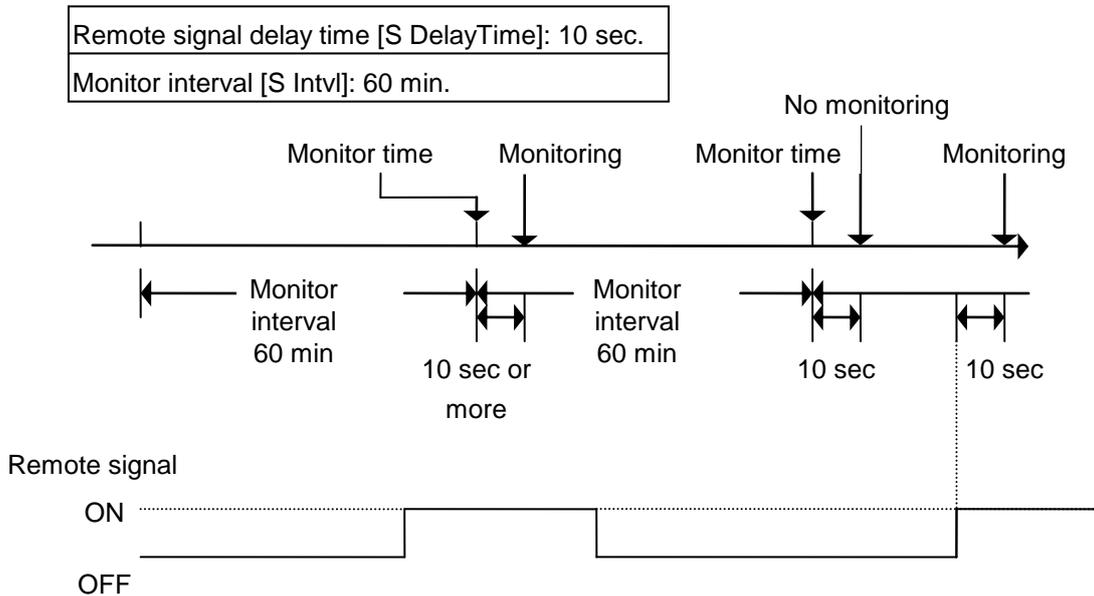
- When the preset time of the monitor interval[S Intvl] has passed, if the remote signal is OFF, the remote signal delay time [S Rte Sgl dl] will start. If the remote signal is continuously OFF while preset remote signal delay time, monitoring will start soon after the remote signal delay time is finished.
- When the preset time of the monitor interval [S Intvl] has passed, if the remote signal is ON, the Colormetry keeps in standby until the remote signal is change back to OFF. When the remote signal is back to OFF, the preset remote signal delay time [S Rte Sgl dl] will start. If the remote signal is continuously OFF while preset remote signal delay time, monitoring will start soon after the remote signal delay time is finished.



b. If the remote signal setting is for “monitoring is enabled by remote signal being turned ON ” [S Rte Sgl ON]:

(Example of remote signal: Feeding water signal from water softener equipment)

- When the preset time of the monitor interval [S Intvl] has passed, if the remote signal is ON, the remote signal delay time S Rte Sgl dl[] will start. If the remote signal is continuously ON while preset remote signal delay time, monitoring will start soon after the remote signal delay time is finished.
- When the preset time of the monitor interval [S Intvl] has passed, if the remote signal is OFF, the Colormetry keeps in standby until the remote signal is change back to ON. When the remote signal is back to ON, the preset remote signal delay time [S Rte Sgl dl] will start. If the remote signal is continuously ON while preset remote signal delay time, monitoring will start soon after the remote signal delay time is finished



Precautions on operation with remote signal input

If the remote signal turns to disabling monitoring in middle of monitoring process, the monitoring process will still be carried out to completion. However, the verification of monitoring result is different by which state of monitoring when the remote signal is received by the Colormetry

In case the remote signal turns to disable monitoring after water discharging from the drain-water tube is complete and drainage is stopped by the solenoid valve in the Colormetry is closed, the monitoring result will remain valid.

In case the remote signal turns before water discharge from the drain-water tube completed and the solenoid valve is still open, the monitoring result will be processed as follow:

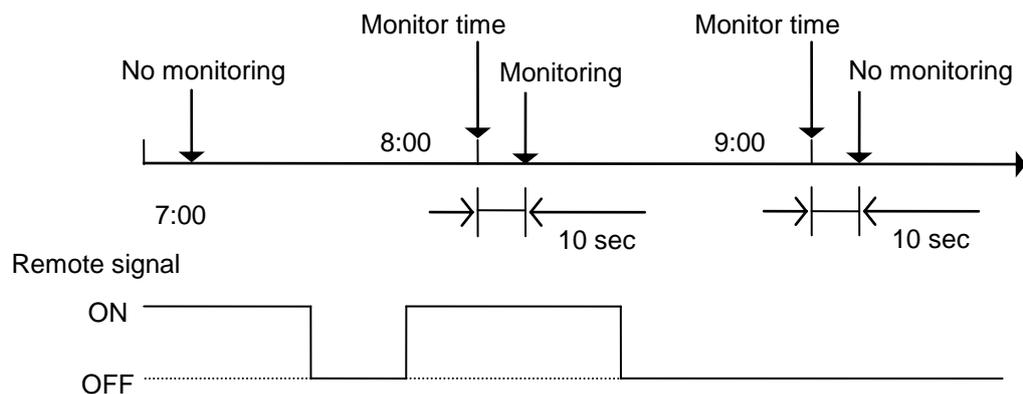
- If the concentration is evaluated as being lower than the alarm set point:
The result will remain valid and will be displayed as usual.
- If the concentration is evaluated as being the alarm set point and up:
The evaluation will be invalidated and the previous result will be displayed.

Monitoring is disabled under the following conditions:

- When the remote signal is turned OFF while the remote signal setting is [S Rte Sgl ON].
- When the remote signal is turned ON while the remote signal setting is [S Rte Sgl OFF].

- [3] With monitor start time [S Start] and stop time [S Stop] are set up
- When the preset time of the monitor interval [S Intvl] has passed, but not monitor start time [S Start] yet, the Colormetry keeps in standby until the monitor start time. When the monitor start time came, the preset remote signal delay time will start and monitoring will start soon after the remote signal delay time is finished.
 - Without a remote signal input, monitoring will be performed at Monitor interval [S Intvl] only during the period between Monitor start time [S Start] and stop time [S Stop].
 - With a remote signal input, monitoring will be performed in the same manner as in paragraph [2] with remote signal input, only during the period between the monitor start time [S Start] and stop time [S Stop].

Monitor Start time [S Start]	8:00
Monitor Stop time [S Stop]	18:00
Monitor interval [S Intvl]	60 min.
Remote signal delay time [S DelayTime]	10 sec



- If it becomes Monitor stop time [S Stop] during the monitoring process, the system will enter Monitor standby mode upon the completion of that monitoring.

NOTE

If the remote signal setting is for “monitoring is enabled by remote signal being turned ON” [S Rte Sgl ON], periodically check the remote signal.

If no remote signal is available due to a malfunction, the monitoring process will never start.

2.2.2 Manual monitoring

Press the manual monitor switch to monitor regardless of the monitor interval, remote signal, monitor start or stop time settings.

(The monitoring will not start, if the reagent cartridge is not installed. The Colormetry may start the self check on a system error.)

2.3 Concentration Evaluation

The Colormetry evaluates ionic concentrations in 5 levels: 0mg/L, 1mg/L, 2mg/L, 3mg/L, and 5mg/l.

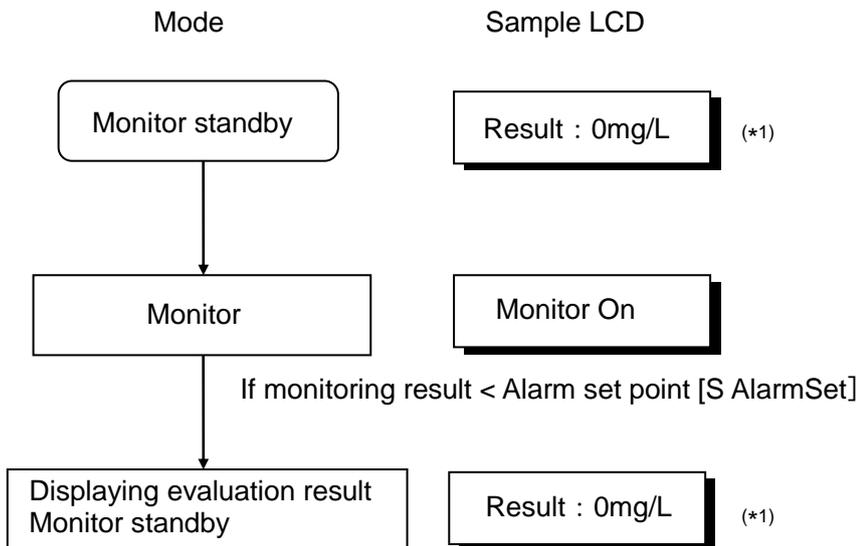
Alarm set point may be set to trigger at 1mg/L and up, 2mg/L and up, 3mg/L and up and 5mg/L and up.

NOTE

For boiler use, select 1mg/L or 2mg/L as the alarm set point or follow the equipment in the boiler.

2.3.1 Manual monitor

If a monitoring result is below the Alarm set point [S AlarmSet], as set in Setting mode [Set Mode], it will be evaluated as normal. The result of such evaluation will be displayed and monitoring is complete.



*1: The sample display, shown in the table, represents an evaluation within the 0mg/L range. If the alarm set point is set at 2mg/L and the evaluated result is 1mg/L range, the display on LCD will be [Result: 1mg/L].

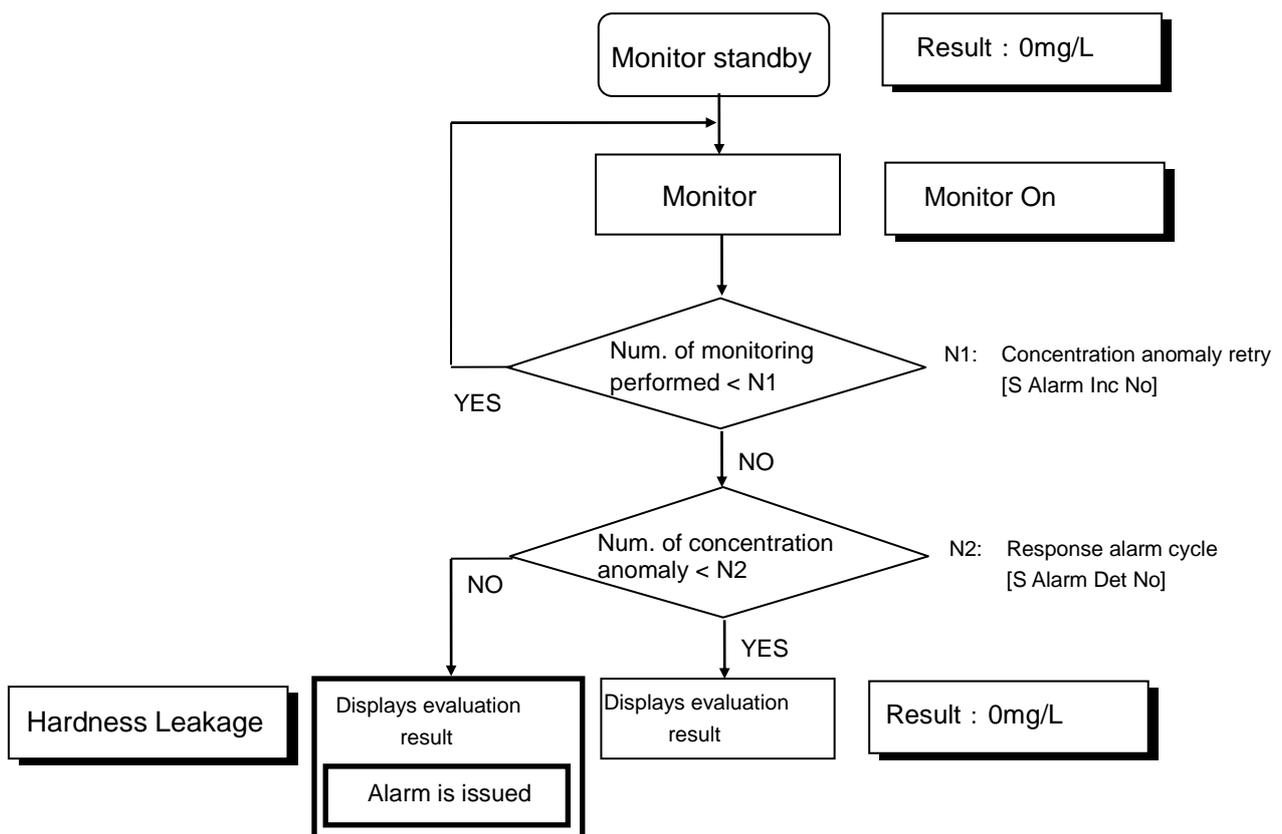
2.3.2 Concentration anomaly

[1] If an evaluation result is the alarm set point [S AlarmSet] and up, monitoring is repeated the number of times as set (between 1 to 3) in the concentration anomaly retry [S Alarm Inc No] setting. If all retry results have been the alarm set point [S AlarmSet] and up, only then, the monitor result will be determined as concentration anomaly.

If, on the other hand, a retry results become to lower than the alarm set point [S AlarmSet] setting, the condition will be determined to be normal and monitoring will be finished.

[2] However, an anomaly evaluation made in step [1] alone would not trigger a high concentration anomaly alarm (that is, to sound buzzer and close the remote alarm output contact).

In addition, such an anomaly evaluation must be repeated in a series of monitoring at a preset interval [S Intvl] for a number of times. The response alarm cycle [S Alarm Det No] is set the number of times(selectable between 1 to 8 times). When all of these monitoring results indicate a concentration anomaly, it is finally evaluated that a concentration anomaly exists and the alarm is issued.



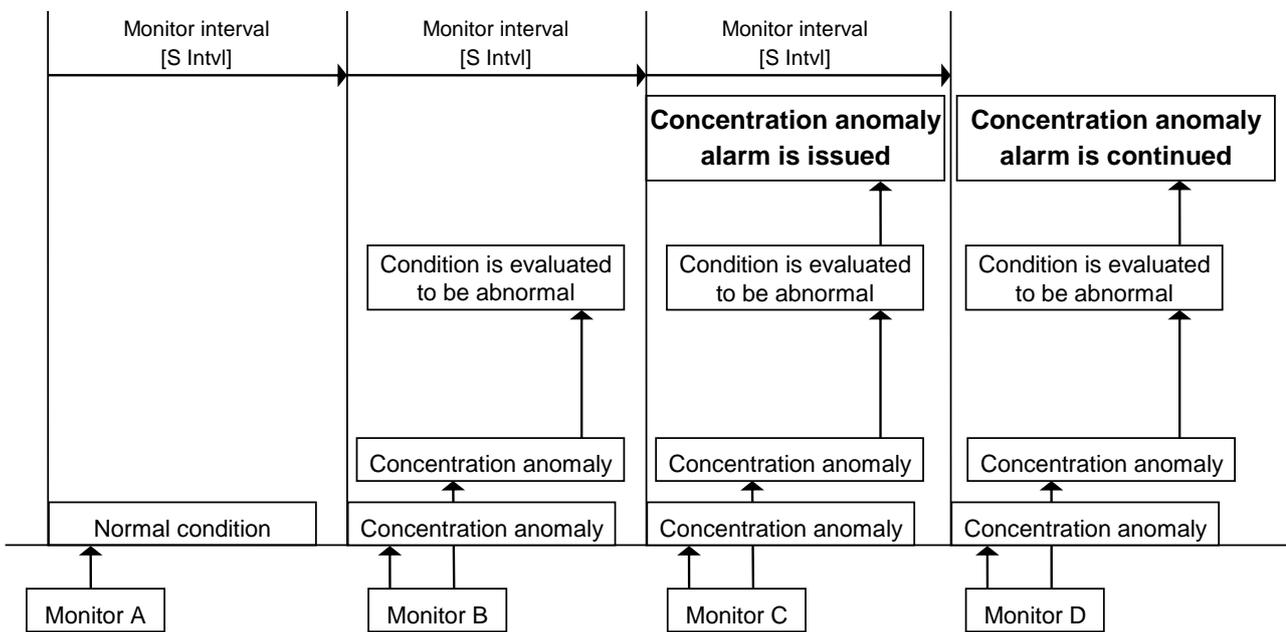
SECTION 4 OPERATION

- [3] If a concentration anomaly occurs repeatedly in a series of automatic monitoring at the monitor interval [S Intvl], or in manual monitoring, the concentration anomaly alarm will stay on continuously.
- [4] The concentration anomaly alarm is automatically terminated (the buzzer stops and the remote alarm output contact opens) upon that the condition is determined normal in automatic monitoring at the monitor interval [S Intvl], or in manual monitoring.

Example of Monitor 1:

Abnormal condition retry [S Alarm Inc No] setting: 2

Response alarm cycle [S Alarm Det No] setting:2



Monitor A: The result is below the alarm set point. The condition is normal.

Monitor B: The result is higher than the alarm set point. Since the concentration anomaly retry setting is for two times, another monitoring is performed, which again is higher. The condition in monitor B is evaluated as a concentration anomaly.

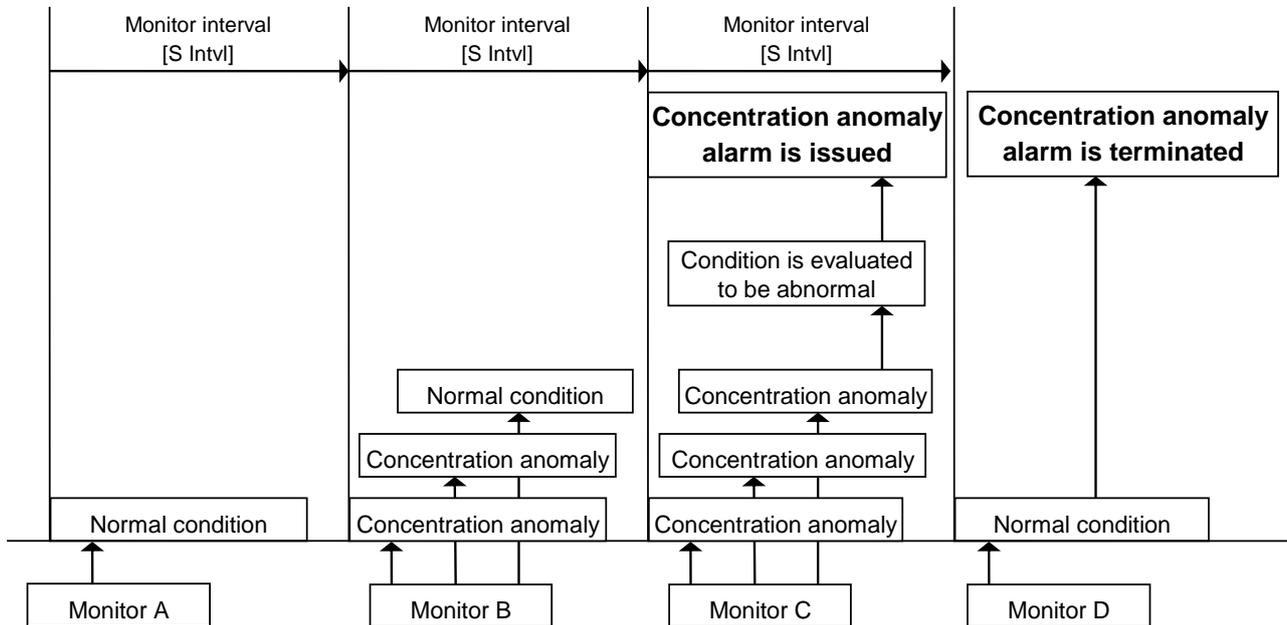
Monitor C: As monitor B, the both results are higher than the alarm set point. The condition in monitor C, is also evaluated as a concentration anomaly. A concentration anomaly has been verified twice, in monitor B and C, so that the concentration anomaly alarm is now issued.

Monitor D: As monitor C, the results are higher than the alarm set point. The condition in monitor D is evaluated as a concentration anomaly, following an already issued concentration anomaly alarm. The alarm will continue.

Example of Monitor 2:

Abnormal condition retry [S Alarm Inc No] setting: 3

Response alarm cycle [S Alarm Det No] setting: 1



Monitor A: The result is below the alarm set point. The condition is normal.

Monitor B: The result is higher than the alarm set point. Since the concentration anomaly retry setting is for three times, another monitoring is performed, which again is higher. The third retry result, however, is below the alarm set point. The condition in Monitor B is normal.

Monitor C: The first three results are higher than the alarm set point. The condition in monitor C is also evaluated as a concentration anomaly. A concentration anomaly verified once, since the response alarm cycle is set as once, a concentration anomaly alarm is now issued.

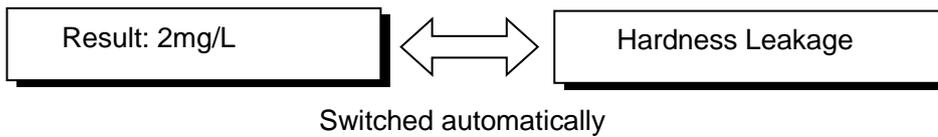
Monitor D: The result is below the alarm set point. The condition in monitor D is normal. The concentration anomaly alarm is now automatically terminated.

NOTE

If a result is evaluated as a concentration anomaly and carrying out the series of monitoring as the concentration anomaly retry, if one of the monitoring result is invalidated so that the series of monitoring fails to satisfy the concentration anomaly retry [S Alarm Inc No] requirement, the evaluation of the session will still be evaluated as a concentration anomaly.

SECTION 4 OPERATION

2.3.2.1 Display on evaluation result (*1)

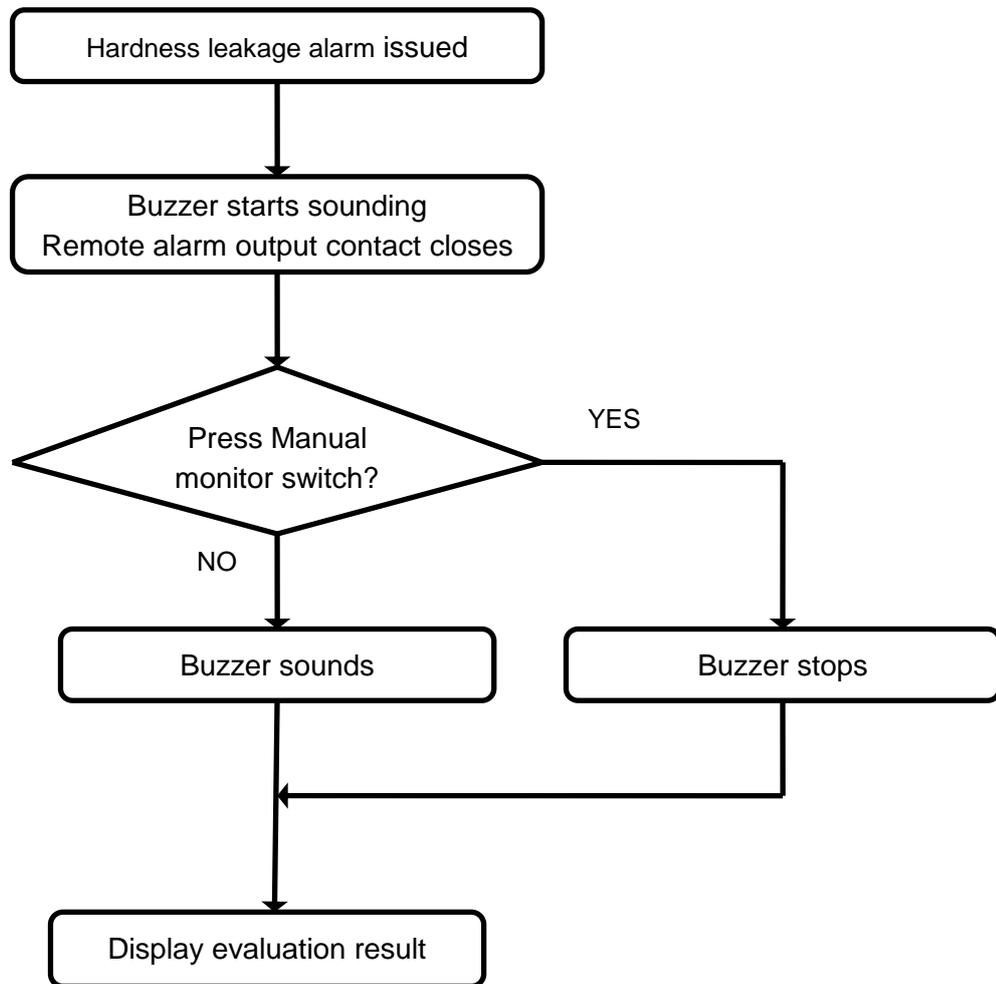


*1: The sample display represents an evaluation exceeding 2mg/L

2.3.2.2 Output on concentration anomaly

- a. When a concentration anomaly alarm is issued, the buzzer sounds. In case that the remote alarm output [S Rte Alarm] is NC, the remote alarm output contact opens. In case that the remote alarm output [S Rte Alarm] is NO, the remote alarm output contact closes.
- b. When a concentration anomaly alarm is issued, pressing the manual monitor (buzzer reset) switch on the front cover of the equipment will stop the buzzer.
The remote alarm output contact, however, will remain closed until the condition is evaluated as normal in an automatic monitoring at the monitor interval [S Intvl], or manual monitoring.
- c. Once the buzzer is stopped by pressing the manual monitor (buzzer reset) switch, it will remain disabled if carry out the manual monitoring immediately and the result was evaluated as a concentration anomaly.
If, however, a condition is once evaluated as normal in automatic monitoring at the monitor interval [S Intvl] or manual monitoring, then the buzzer will activate for another result of a concentration anomaly next time.

2.3.2.3 Workings of hardness leakage alarm and action to take



[1] The buzzer sounds for a concentration anomaly.

[2] The buzzer stops by pressing the manual monitor (buzzer reset) switch.

(The Colormetry will not automatically start manual monitoring. To start manual monitoring, press the manual monitor (buzzer reset) switch again.)

(The LCD will remain the same.)

NOTE

The remote alarm output contact will not be cancelled until the condition is evaluated as normal.

SECTION 5 INSPECTION AND MAINTENANCE

1 Reagent Cartridge

1.1 Reagent Cartridge Replacement Timing

While the self check, if “New Cartridge” is displayed, the remained volume of reagent is low and the evaluation error might occurs. For the new reagent cartridge, please contact your dealer or MIURA sales office.

1.2 Cautions for Handling



Never disassemble the reagent cartridge.
Reagent may splatter onto the skin or the eyes.
If the reagent gets on the skin or in the eyes, rinse immediately with water.

- The cartridge life is about 1 year from the date of manufacture, and is used up within approximately 4 months of installation. Check the manufacturing date on the package and replace the reagent cartridge over the life span.
- Do not store the reagent cartridge long time. Store the reagent cartridge in a cool, dark place.
- Do not open the bag until it actually use. If it is open, the reagent degrading might be accelerated.
- When installing a reagent cartridge, insert it slowly, keeping the end of the tube from hitting the body of the equipment. It might affect to the chemical feeding volume and cases evaluation error or damage completely.
- Do not use the reagent cartridge for the use other than the Colormetry.
- Do not disassemble the reagent cartridge and dispose it as chemical waste in accordance with local regulations.
- For the detail information of reagent, refer to the safety data sheet.

1.3 Reagent Cartridge Replacement Method

NOTE

- Replace the reagent cartridge while the power is supplied to the equipment. Close the sample water collecting ball valve and replace while monitoring standby period.
- When install the reagent cartridge, attach the D-Ring first. To install D-Ring to the reagent cartridge, dip the D-Ring into water.
- If the reagent cartridge is removed from the equipment other than replacement and put it back, do not push the manual monitor (buzzer stop) switch for about 60 sec. after install the old reagent cartridge. If you press the manual monitor (buzzer stop) switch soon after installation, the reagent cartridge replacement timer counter will be reset.

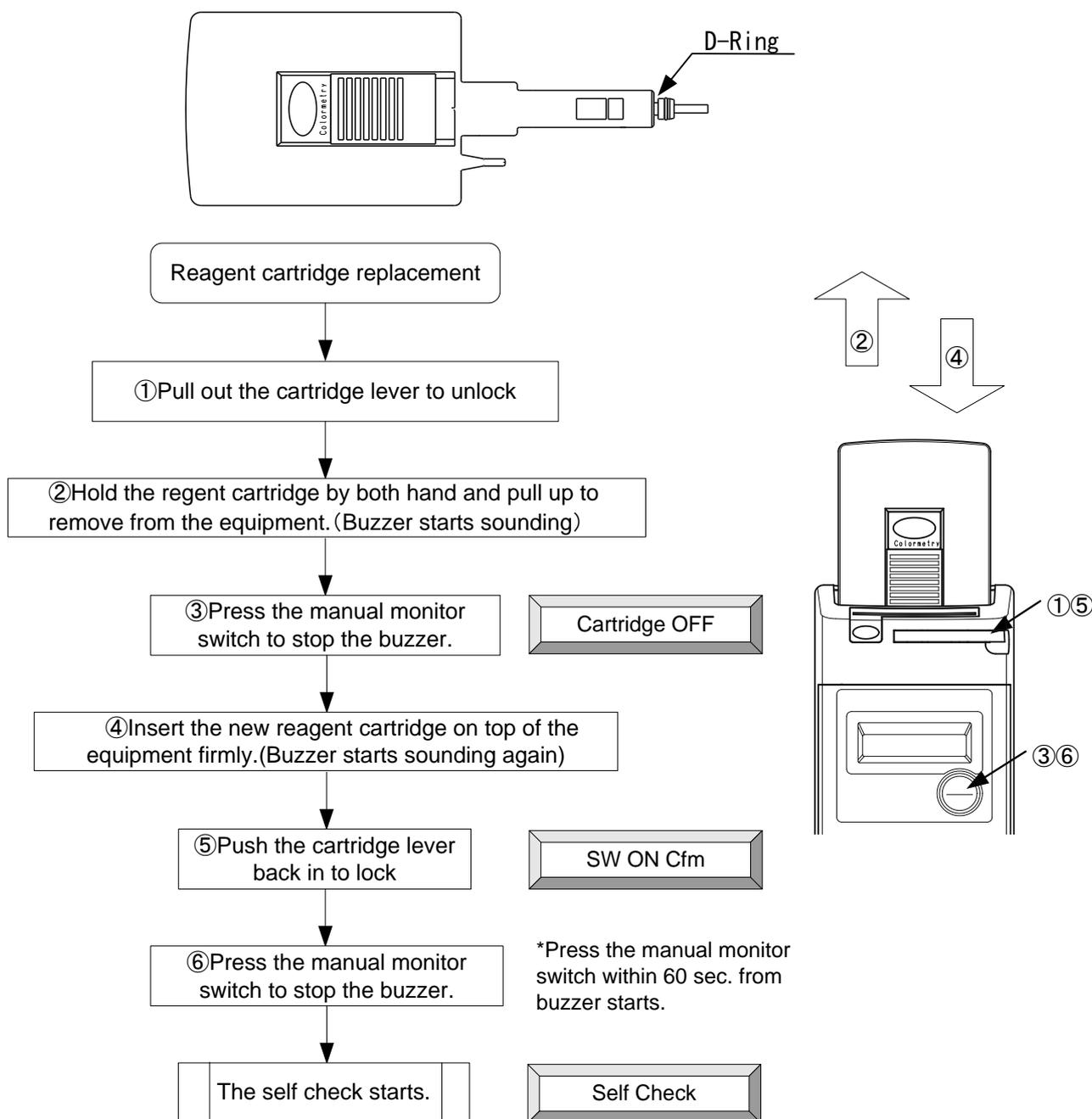


Figure 5-1 Reagent cartridge replacement

2 Fiber Filter and Constant Flow Valve Replacement

2.1 Fiber Filter Replacement Timing



CAUTION



Do not place anything which might cause electric leakage underneath the equipment.

The equipment is designed to drain water from the bottom of the equipment if there is inner water leakage. Water might splash to the item under the equipment.

If “Wash F : F265”, “Injection F : F281” and “Wash Flow: F0866” displayed even though the raw water pressure is the normal range and there are no other cause, the fiber filter might clogged.

The filter life is about an year, but it might be shorten depend on the water quality.

If there are no alarm displayed, replace the fiber filter every year.

2.2 Fiber Filter Replacement

2.2.1 Remove filter casing assembly

- 1) Close the sample water collecting ball valve.
- 2) Press the manual monitor (buzzer stop) switch to carry out manual monitoring to reduce the internal pressure.
- 3) 15 sec. after pressing the manual monitor (buzzer stop) switch; cut the power supply off from the equipment.

NOTE

When you take off the feed-water tube, push the release bush on the tube joint and pull the tube out (refer to Fig. 5-3). If you pull the tube without pushing the bush, end of the tube clogged in the tube joint and small pieces of the tube might be remained. When you push the new tube in, it might not able to push it through.

- 4) Pull off the feed-water tube from the filter casing assembly.
- 5) Take out the filter casing assembly from the Colormetry.
- 6) When you take out the filter casing assembly, the constant flow valve is on top of the filter casing assembly. If it is not there, it might remain in the Colormetry. If so take it out gently.

2.2.2 Fiber filter replacement

- 1) The filter casing assembly comes apart into two sections. To take them apart, rotate the top and bottom sections in a counterclockwise direction.
- 2) Remove the fiber filter cartridge from the box (or bag). Insert the tip end of the fiber filter into the center of the filter case (top). Then, firmly tighten the filter case (top) and filter case (bottom) back together.

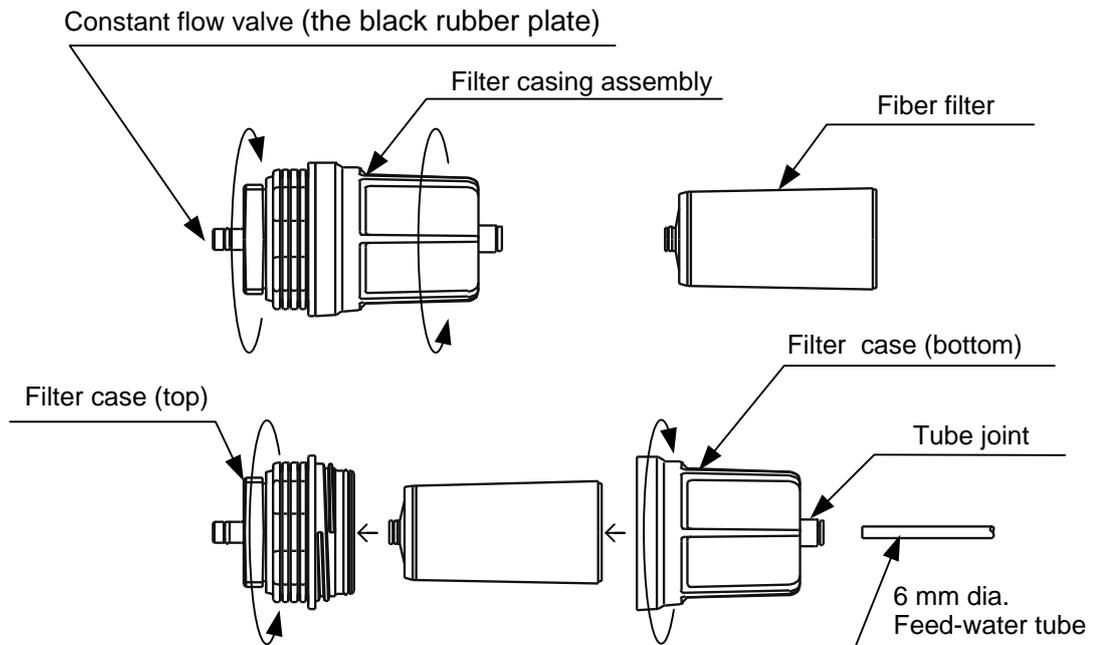


Figure 5-2 Fiber filter replacement

2.2.3 Filter case assembly installation

CAUTION

Do not apply grease or lube when install the filter casing assembly. It might damage the material of the equipment and cause water leakage.

NOTE

When you install the filter casing assembly, simply screw it in by hand. Do not use any kind of fitting tool. If you use tools to screw in with excess power, the filter casing assembly and the bottom plate of the Colormetry might be broken.

- 1) Attach the constant flow valve on top of the filter casing assembly, then screw in the filter casing assembly into the Colormetry.

NOTE

If using the removed tube once again, cut the end of the tube clean and even by the tube cutter. Exercise with care to avoid injury when using the tube cutter.

- 2) Push in the feed-water tube to the filter case assembly
- 3) Open the sample water collecting ball valve and make sure there is no leakage.
- 4) Supply the power to the Colormetry.

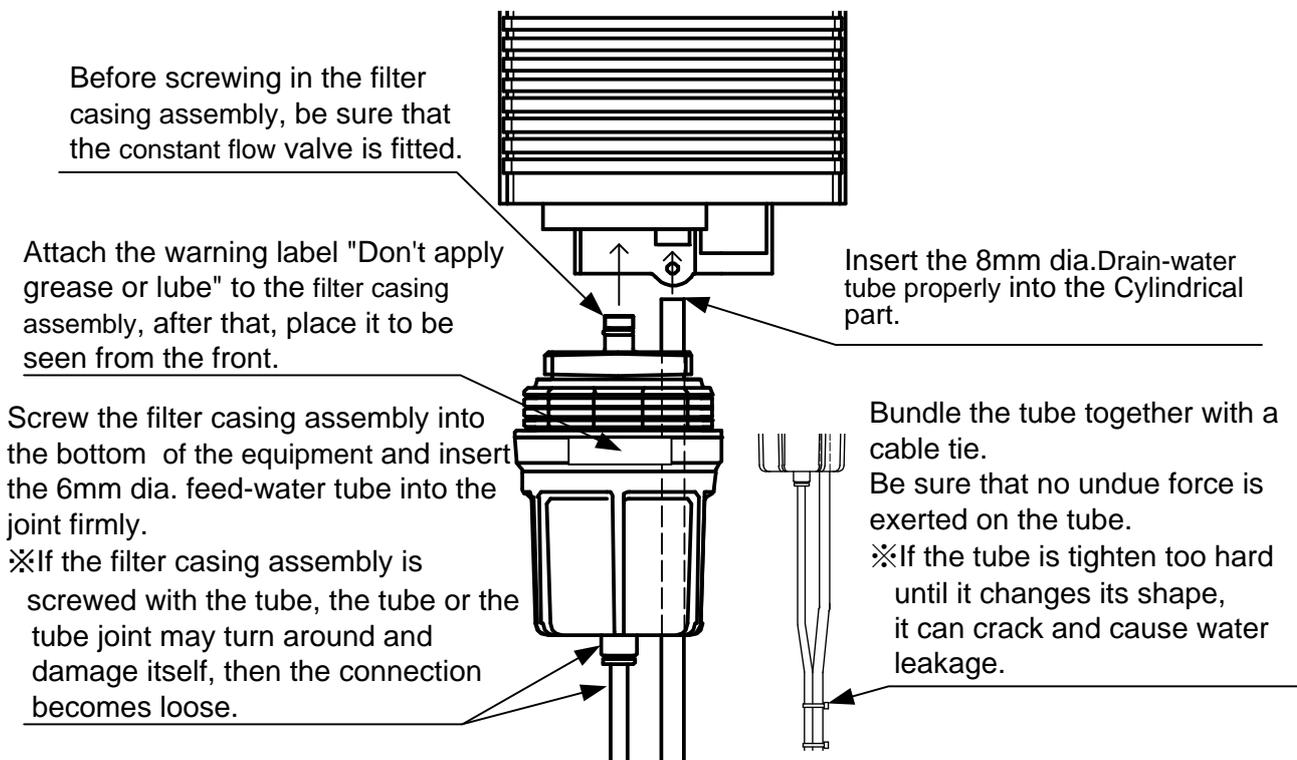


Figure 5-3 Filter case assembly installation

3 Daily Inspection

3.1 Inspection Item



Do not use the equipment if there is smoke, abnormal odor or noise, excessive overheating, or other abnormalities. If an abnormality occurs, do not operate the equipment. Also, make sure an earth leakage circuit breaker is turned OFF and a main feed-water valve is closed and contact your dealer or MIURA sales office.

Failure to observe this precaution may lead to electric shock, fire, or a fault.

NOTE

Please wipe with dry soft cloth when cleaning.

Rubbing with hard cloth may make scratches.

3.1.1 Monitor operation

Make sure it is monitoring automatically. If the remote signal input is used, but the remote signal has some problem, the automatic monitoring does not start.



P24 Section 4 1.2 Automatic Monitoring

3.1.2 Feed-water and drain-water tube



Replace a tube if a defect such as deformation (a bend or fold), discoloration, hardening, or cracking is detected on the tube surface. If a deteriorated tube is continuously used, it can rip and cause water leakage.

Please use specified tubes when exchanging tubes. Using tubes other than specified tubes may cause leakage.

Exercise with care to keeping the tubes free from bents or holds.

If the feed-water tube is bent, it might cause insufficient feed water volume.

If the drain-water tube is clogged, the internal pressure builds up in the equipment and causes water leakage. Use specified tubes when exchanging tubes. Using tubes other than specified tubes may cause leakage.

3.1.3 Filter case assembly



If there is a defect or cracking on the filter casing assembly, turn OFF an earth leakage circuit breaker and close a main feed-water valve. Then, replace the filter casing assembly.

If water leakage is not stopped even though tightening the filter casing assembly and tube joint, replace the filter casing assembly.

3.2 Others

- When the hardness leakage occurred (CMU-324HE)

The hardness leaking is very low concentration such as 1.0 mg/L or 2.0 mg/L, it cannot be determined by the hardness indicator. To determine, carry out the water quality analysis. Collect the sample water from raw water into the Colormetry or utilize drain water which does not color by reagent used in the Colormetry.

SECTION 6 BREAKDOWN AND COUNTERMEASURES

1 Self Check Function

1.1 Display

If the Colormetry fail for the self check, the major cause is displayed in the LCD.

If you cannot handle, please contact your dealer or MIURA sales office as soon as possible.

1.2 Alarm

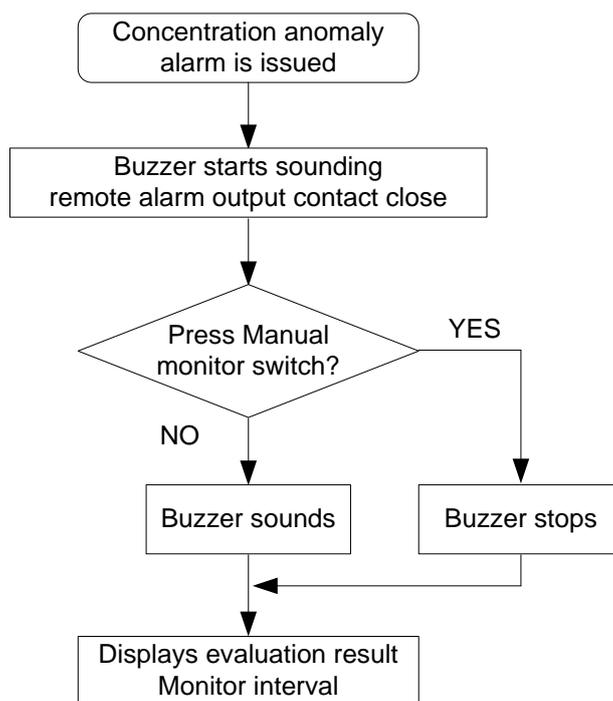


Figure 6-1 Flowchart when alarm occurs

NOTE

It is possible to cut the buzzer from the beginning.
Check the Installation and Start Up User's Manual.

1.3 Alarm Reset

- The buzzer stops by pressing the manual monitor (buzzer reset) switch.
The Colormetry will not automatically starts manual monitoring and error message displays at LCD for 3 second. If you press the manual monitor (buzzer reset) switch once again, another self check starts.
- The automatic monitoring will carry out even though the alarm condition.
If the error caused an alarm is resolved, the alarm is reset automatically.
If alarm is caused because the reagent cartridge is not installed, monitoring will not start until the equipment confirms the reagent cartridge is installed.

2 Self Check Items

NOTE

If the problem did not solve by the procedure on below table, contact your dealer or MIURA sales office.

Table 6-1 Display and Solution of a Self check items

Display	Cause	Solution
Cartridge_OFF_F	Reagent cartridge is not installed or not installed well	Firmly installed the reagent cartridge and lock the cartridge lever
Wash Flow F:F086	Sample water volume is reduced. Raw water pressure is low.	Raw water pressure should be on or above 0.05MPa
	Feed-water and/or drain-water tube is clogged.	Fix the tube from holds or bends
	Filter is clogged	Replace the fiber filter
Wash F :F265	Insufficient wash Ball valve at the water collecting point is closed	Open the ball valve
	Feed-water and/or drain-water tube is clogged	Fix the tube from holds and bends
	Filter is clogged	Replace the fiber filter
High Temperature	Sample water is too hot Should not feed water its temperature above 50 dig. C to the Colormetry	Check the sample water temperature
New Cartridge	Rplacment timing of the regent cartridge	Replace the reagent cartridge
Injection F F281	Insufficient reagent injection	Replace the reagent cartridge
Thmsta F :C131	Thermista is broken or disconnected	Contact your dealer or MIURA sales office
Pump F :C444	Chemical feed pump motor or sensor is malfunction	Contact your dealer or MIURA sales office
Photo Rpt F:C365	Light source or photoreceptor is malfunction	Contact your dealer or MIURA sales office
SelfCheck F:A000 Data F :C500	Control board is malfunction	Contact your dealer or MIURA sales office
Comm F :F090	Communication system does not match. Power failure in the communication board	Recover from power failure
	Short circuit or malfunction on the communication board.	Contact your dealer or MIURA sales office

SECTION 7 STORAGE

1 Extended Inactivity

If the equipment is to be inactive for an extended period of time, Contact your dealer or MIURA sales office.

NOTE

If the equipment will not be used for an extended period of time (more than a week), it should be stored properly. If the equipment is not used, it is often overlooked and is not kept properly.

If not properly maintained while idle, the equipment may not operate correctly when subsequently started up.

2 Transfer or Resale

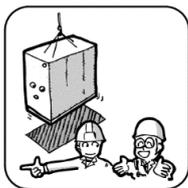


WARNING



Do not perform any unapproved installation work or connect any peripheral equipment.
Failure to observe this precaution may lead to personal injuries.

If you intend to relocate or sell your MIURA water treatment equipment, contact your dealer or MIURA sales office in order that installation work can be carried out correctly and that the peripheral equipment may be set up. In addition, ensure that User's Manual and the like are kept in order that they may also be provided to the new owner in the event of resale.



3 Export

This product was manufactured for use in the country where MIURA judges that the export of the product is allowable.

Therefore, the full performance may be inhibited due to differences in operating environment if the product is used outside the current country of use.

Regarding export, you are to comply with the laws and regulations.

You will also come under control in many cases, with regard to export, on-site import, and on-site use according to the laws and regulations of the destination for the export.

When exporting the product, contact your dealer or MIURA sales office.

SECTION 8 DISPOSAL

1 Disposal

When disposing of the product, comply with the laws and regulations.

SECTION 9 WARRANTY

1 Note Regarding Warranty

Regarding the contents of the warranty, contact your dealer or MIURA sales office.

2 Questions Regarding the Product and User's Manual

For any questions about your purchased product or the content of this User's Manual, contact your dealer or MIURA sales office.

3 If the User's Manual is Lost

The User's Manual contains the information for the safe usage.

In the event of loss of the User's Manual, contact your dealer or MIURA sales office.

This image shows a blank sheet of white paper with a black border. The page is filled with horizontal dashed lines, spaced evenly down the page, providing a guide for handwriting or typing. There are 25 dashed lines in total, starting from the top and ending near the bottom of the page. The lines are consistent in length and spacing, creating a uniform writing area.

AUTHORIZED REPRESENTATIVE in EU

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