Specification and equipment configuration

Specification	Product name	Automatic water quality monitor		
	Model	Bioassay / Model : NBA-03		Bioassay mini / Model : NBA-1U
	Appearance			
	Structure type	Indoor stand-alone type		Outdoor wall-mounted type (drip-proof construction)
	Dimension	700 (Width) ×1800 (Height) × 700 (Depth) mm		700 (Width) × 830 (Height) × 300 (Depth) mm
	Weight	About 140 kg		60 kg
	Fish to be monitored	Small fish (20 fish)		Small fish (10 ～15 fish)
	Amount of sample water	0.8 ～1.5 liter/minute		0.3 ～0.5 liter/minute
	External output	Image output : 3 points (NTSC 1 Vp-p)		Image output : 1 point (NTSC 1 Vp-p)
		Alarm output : 9 points (No-voltage a-contact)		Alarm output : 1 point (No-voltage a-contact)
		Communication output : 1 point (Ethernet)		Not available
	Automatic water sampling	When an alarm is issued, the solenoid valve is opened and water is automatically sampled into the water sampling container.		Not available
	Warmer	300 W ceramic heater ×4 (installed in the tank)		300 W ceramic heater ×2 (installed in the tank)
	Power supply voltage	AC 100 V 50 / 60 Hz		
	Power consumption	500 W or less		
	Ambient temperature	0 ～ 40 ℃		
	Image acquisition method	Overhead monitoring camera		
	Measuring method	Block image method		
	Detection method	The screen is divided into 56 blocks and each block has 64 dots.		
	Image analysis	Image analysis is done by the image processing equipment (PC is not used).		
Equipment configuration	Electronic unit	Electric leakage breaker	Mounted	Mounted
		Monitor display	Mounted	Not mounted
		Door sensor	Mounted	Not mounted
		Image processing equipment	Mounted	Mounted
		Peripheral control equipment	Mounted	Operation panel
		Display panel	Mounted	Not mounted
		CCD color camera	Mounted	Mounted
	Water circulation unit	Fluorescent light	Mounted	Mounted
		Automatic feeder	Mounted	Mounted
		Ventilation fan	Mounted	Mounted
		Water level sensor	Mounted	Not mounted
		Temperature sensor	Mounted	Not mounted
		Water leakage sensor	Mounted	Not mounted
		Aeration	Mounted	Mounted
		Submersible pump	Mounted	Mounted
		Monitoring tank	Mounted	Mounted
		Small fish	Mounted	Mounted
		Capturing net	Mounted	Mounted
		Solenoid valve	Mounted	Not mounted
		Water sampling container	Mounted	Not mounted

Manufactured by **Kankyo Electronics Co., Ltd.**

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Kankyo

BIOASSAY

Automatic Water Quality Monitor

Automatic Water Quality Monitor
Model : NBA-1U

A bioassay method is performed as one of the tests for drinking water assuming that acute toxic substances are mixed into tap water. This method detects contamination by toxic matters by the observation of life and death of fish. Bioassay equipment can quickly detect toxicants such as complex or unknown toxic substances that cannot be detected by a sampling test. This is also ideal for counterterrorism equipment.

BIOASSAY

A Pioneer of Bioassay

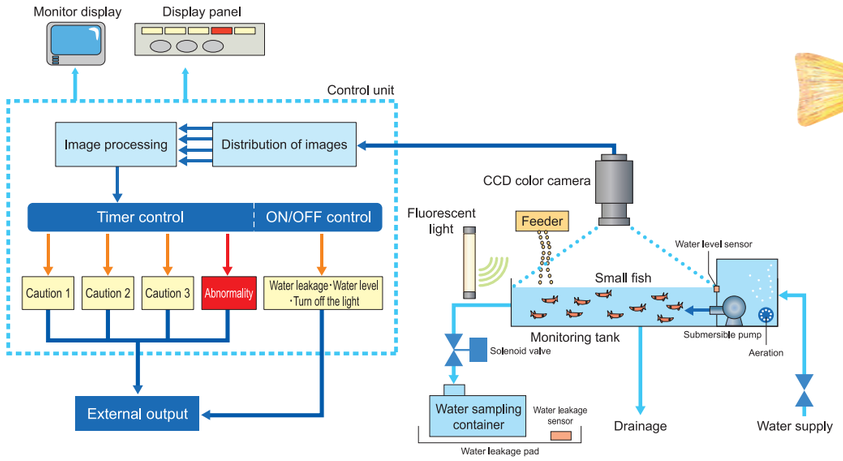
Automatic Water Quality Monitor
Model : NBA-03

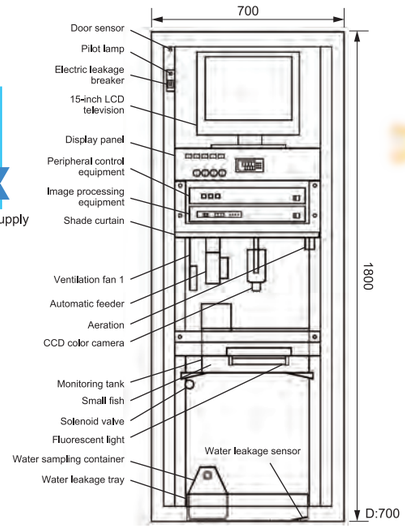
Kankyo Electronics Co., Ltd.

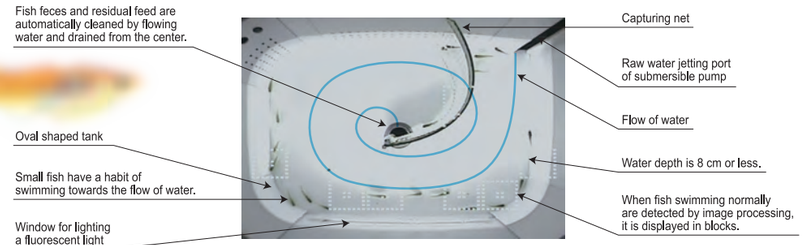
BIOASSAY

Feature 1 Fish respond to 97% of 970 different types of toxic chemicals that cause acute intoxication in human beings.

This monitor automatically monitors water quality for 24 consecutive hours with small fish that are perceived to be highly sensitive to toxicity. Images of behavior of 10~20 fish are analyzed and if their movements become slow or some abnormalities such as death occur, an alarm is automatically activated.



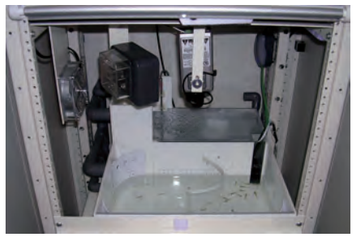




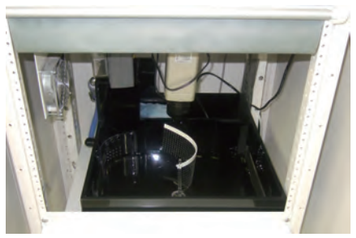
Normal movement

Feature 2 We are a pioneer manufacturer of bioassay equipment, boasting the largest number of domestic shipments of them.

The CCD color camera takes images of fish to be monitored through the water of the monitoring tank from above. Even if the water to be tested is very turbid, image processing is possible because the water depth of the monitoring tank is shallow with 5 to 8 cm.



Monitoring tank A



Monitoring tank B

The oval shaped monitoring tank which prevents water stagnation by flowing water enables quick inspection. A filter for highly turbid water is also available.

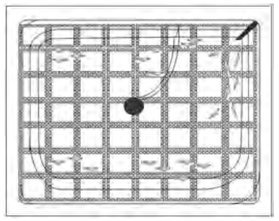
Feature 3 With a block image processing method, even a small amount of toxic can trigger an alarm.

Small fish have protective instinct against big fish, their predators.
This monitor applies such instinct and uses a school of about 20 small fish as a target for monitoring.

Small fish gather to make themselves look bigger by protective instinct against predators.
When fish gather and their area of movement becomes smaller, the number of display blocks decrease and an alarm is activated.
* For example, sardines always school to protect themselves from predators such as whales and dolphins.

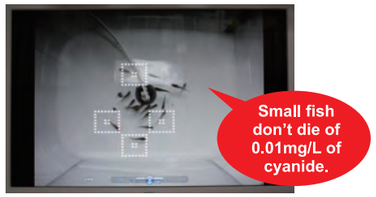
An image of the monitoring tank is divided into 56 blocks by image processing.
64 sensor dots per block detect movements of small fish and the blocks are measured every set time.

An alarm is activated with 0.01mg/L of potassium cyanide. **Only by our products**



Block image processing display

Normal movement

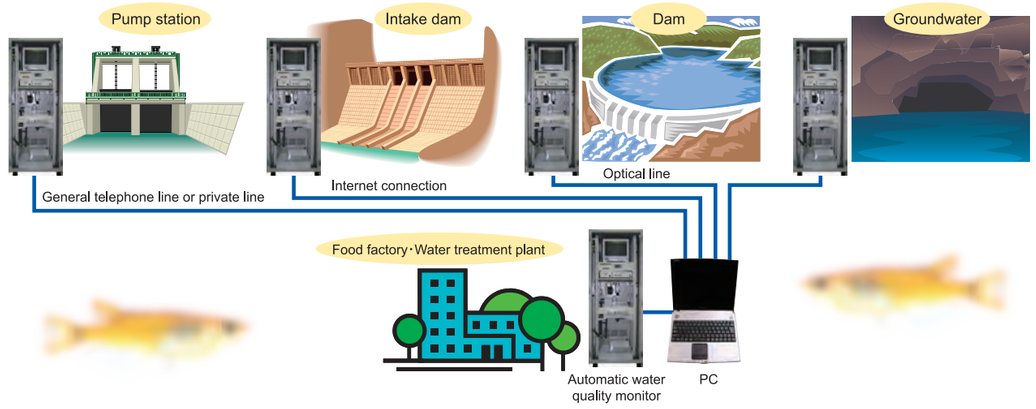


Abnormal behavior of small fish by protective instinct against predators triggered by cyanide influx

* The heart of this monitor, image processing equipment has a logic circuit substrate which is uniquely developed by us.
It is durable for long-term use without malfunction. Also, there is no need to change the OS or to update the model because the PC is not used.

Feature 4 Remote monitoring

Information and images can be transmitted from the monitor to remote locations through the Internet, phone lines and LAN. This is the best system for managing unmanned facilities.



option Dedicated optional equipment

We offer various types of optional equipment to respond to any raw water.

Filter

Filter for highly turbid water

Warmer (separation installation type)

Neutralizing device

Management software & PC (with server function)

Simplified warmer·Simplified filter (installed in a monitoring tank)