

Hitachi Instrumentation Systems & Equipments

Notice: For proper operation, follow the instruction manual when using the instrument.

Specifications in this catalog are subject to change with or without notice, as Hitachi High-Tech Solutions Corporation continues to develop the latest technologies and products for our customers.

Hitachi High-Tech Solutions Corporation

<http://www.hitachi-hightech.com/hsl/>

■ Instruments & Control Systems Sales Div.

Harumi Triton Square Office Tower X
1-8-10, Harumi, Chuo-ku, Tokyo, 104-6031 Japan
Tel: +81-3-6758-2092 FAX: +81-3-5859-5764

■ Mito Manufacturing Div.

500, Miyu-cho, Mito-shi, Ibaraki-ken 319-0316 Japan
Tel: +81-29-257-5100 FAX: +81-29-257-5120



Reliability and Abundant Lineup Contribute to Improvement of Plant Operation Efficiency.

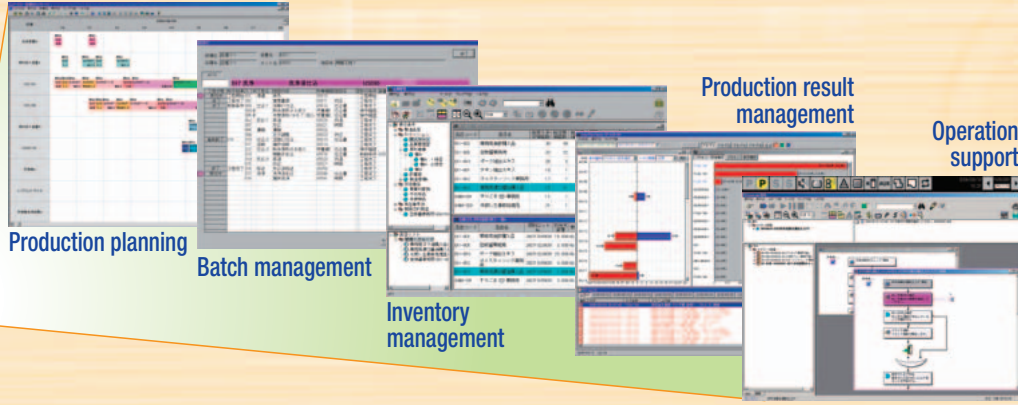
Hitachi High-Tech Solutions Corporation offers a wide variety of measurement & control products, ranging from transmitters with semiconductor sensors to total instrumentation systems and various MES solutions. Making use of abundant know-how and experiences of the Hitachi Group, the company always makes development with state-of-the-art technologies and contributes to efficient operations of plants with its high reliability and advanced functions.

Production Management

Unified MES Solutions

CyberPlant

Package example



Production planning

Batch management

Inventory management

Production result management

Operation support

Solution examples

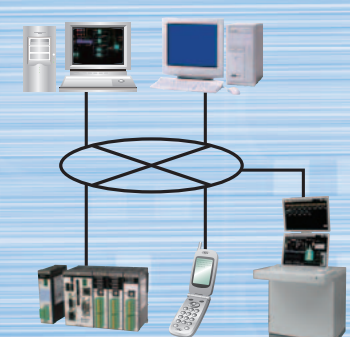
Manufacturing execution system for food plant *CyberChefod*

Weighing management system for *Pharmeceutical*

Manufacturing execution system for assembly processes *CyberPlant-FM*

Remote Monitoring

Remote monitoring system



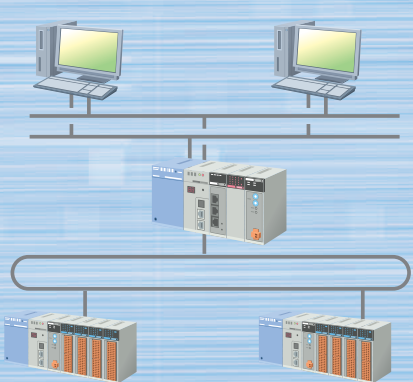
Production Management

Monitoring & control system

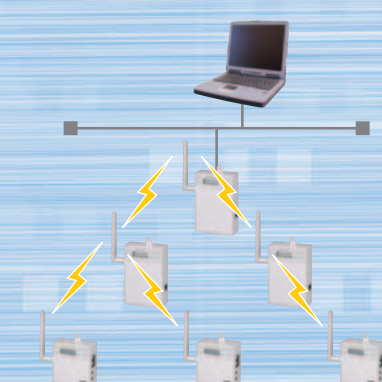
Total instrumentation system EX Series



Compact instrumentation system PD-N01



Environment monitoring system ZigMo



Panel Instruments

ED Series



HINL Series



Sensors and Analyzer

Differential pressure/Pressure

Intelligent transmitter N7 Series



Electromagnetic flow meters FMR102A/104A/204A



Flow Rate

Insertion type electromagnetic flow meter FMR504A



Ultrasonic flow meter FUR-3



Level

Ultrasonic/radio level meters LUR-A/LRR300



Immersion type level transmitters ELR200/200R



Inspection and Analysis

PCB/dioxin-Precursor monitors CP-2000P/CP-2000



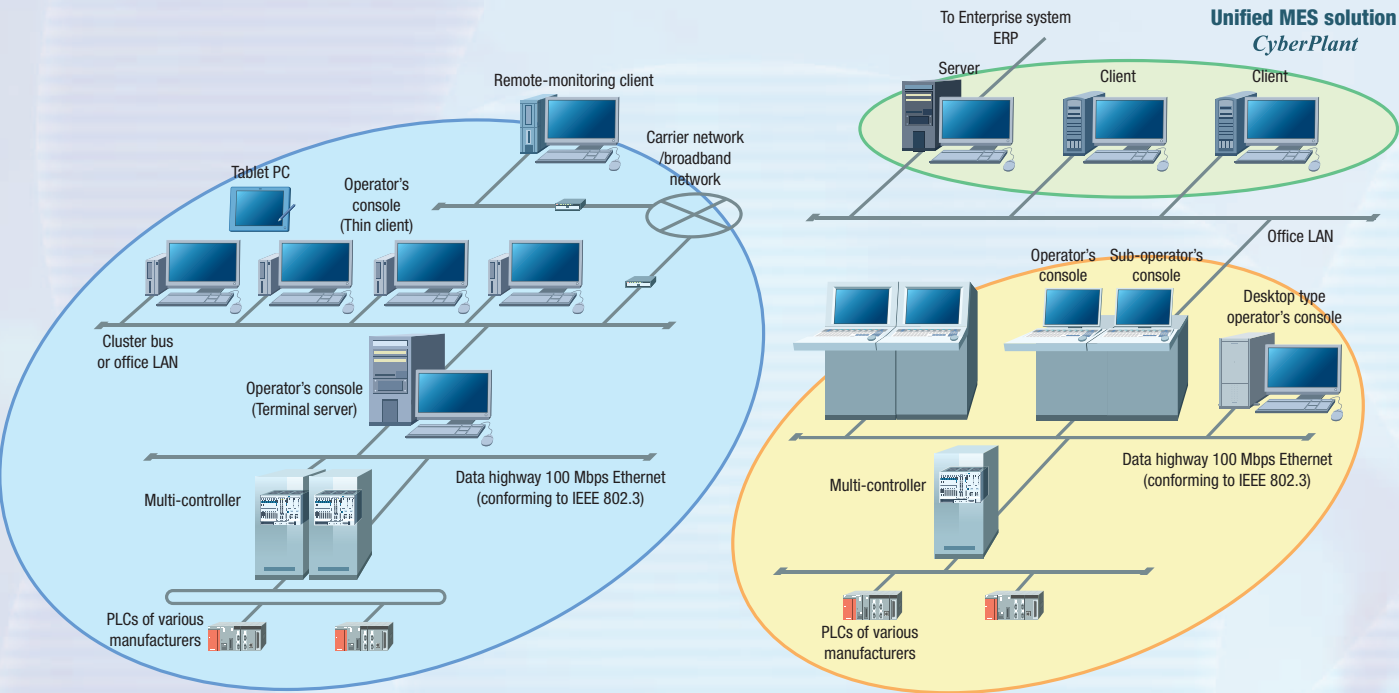
Hitachi Total Instrumentation System

EX Series

The Hitachi Total Instrumentation System EX Series has been used in food, pharmaceutical and chemical manufacturing processes, water treatment facilities, environment and energy plants of many customers since it was put on market in 1975.

The latest EX-N01 uses Windows 7® as the operating system for remarkably improved operation efficiency and refreshed user-oriented engineering functions. It is available in the following two types according to process scales and customers' needs.

System Configuration Example of EX-N01



Thin Client System

The thin client system means a system where the terminal server executes screen processing of all clients. Clients' systems do not have DCS application software but display screen information processed by the terminal server and allow entry processing with a mouse and a keyboard.

Standard System

This is a client server system like the former EX Series where the operator's console serves as the data server. A sub-operator's console may be connected via the cluster bus.

Hardware of EX-N01

(1) Operator's console

Various lineups according to installation conditions and applications

Console

Half console

Desktop

Dual-displays

(2) Operation keyboard

Easy-to-operate dedicated operation keyboard

(3) Multi-controller

Incorporates an RISC processor, fruit of Hitachi microprocessor technologies.

Lineup of Panel Instruments

Hitachi panel instruments offer high reliability and ample product lineups in various applications.

Various instrument lineups, including signal converters, controllers, recorders, and so forth

Paperless Recorder

The VKP5000A Series incorporates versatile display functions and recording media, thanks to CF card. With no recording paper or ink, it offers easy maintenance and total cost reduction.

<VKP5100A/5200A>

Intelligent Recorder

The basic VKP7000 Series of recording paper type accepts DC voltage and other input signals from thermocouples, resistance bulbs, etc. It has a large-size VFD matrix display for versatile displays.(VFD: Vacuum Fluorescent Display)

<VKP7100/7180>

Electronic Instrument E/ED Series

Various instruments are lined up: Programmable type controllers, totalizer, alarm setter, etc. They inherit the high reliability of Hitachi electronic instruments and offer applications in various processes.

<E Series>

<ED Series>

Digital Alarm setter

The 220VAS is an easy-to-use digital alarm setter with advanced functions. It offers lower power consumption than the former models. It has a maximum of four alarm outputs and may be used in various fields and applications.

<220VAS-2A/220VAS-4A>

Signal Converter Series

Hitachi signal converter series have substantial lineups and a variety of applications. They are available in half-size 150A (one-output) and 250A (two-output) series and full-size 100A (one-output) and 200A (two-output) series to meet various needs.

<150A/250A series>

<100A/200A series>

<HR series>

<SR series>

Series		Model
150A/250A series (Half-size)	Signal converter	Thermocouple, resistance bulb, mV, potentiometer, distributor, isolator, voltage and current
100A/200A series	Signal converter	Thermocouple, resistance bulb, mV, potentiometer, distributor, isolator, voltage and current
200A series	Computing unit	Square root extraction, addition and subtraction, multiplication and division, temperature and pressure compensation, limiter, selector, time lag, and linearizer
HR series	Lightning arrestor	Thermocouple, resistance bulb, 4-20 mADC, 1-5 VDC, and AC/DC power supply units
SR series	High-durability lightning arrestor (JIS-compatible)	Thermocouple, resistance bulb, 4-20 mADC, 1-5 VDC, and AC/DC power supply units

3

4

Production planning	Production scheduler: <i>CyberPlanner</i>	Operation support	Operation support system: <i>HiCompassage</i>
Batch control	Integrated batch production system: <i>HIBIS</i>	Production result management and analysis	Process data collection and control system: <i>CyberBridge</i>
Inventory control	Inventory control system		Electronic printer: <i>CyberPrinter</i>
Process management	Field operation support system: <i>CyberCall</i>	Lot tracing	Traceability system
	Manual operation support	Maintenance management	Facility operation control system

Differential Pressure and Pressure Transmitter Series

Long-experienced technologies and substantial lineup offer applications in various fields.

Highly reliable Hitachi semiconductor complex sensors are used.
Capsule have fully welded cubic structures free from liquid leakage and feature high reliability.

HART Communication Function (Optional)

HART communication function may be selected, instead of the standard communication functions for checking and changing the transmitter setting.

Setting Pressure Inlet Direction

High pressure and low pressure of differential pressures may be set to right and left freely. They may be set easily with the communicator (intelligent type only).

Highly Flexible Wire Connection

Wires may be connected to the right or left connector. This feature simplifies equipment installation and enables flexible replacement.

Sensor self-diagnostic function

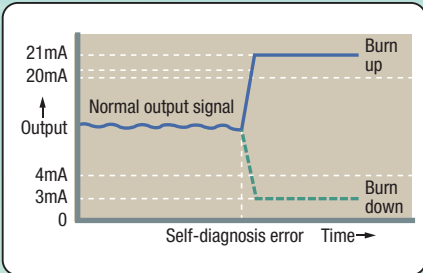
Online detection of pinholes and breakage of the diaphragm by catching changes in sensor resistance. Detects breakage and problems with the sensor early (intelligent type only).

Allows Non-Contact Zero Point Adjustment

May adjust the zero point without contacting with the attached magnet. The amplifier case has no through holes. (Intelligent type only)

Standard Burnout Function

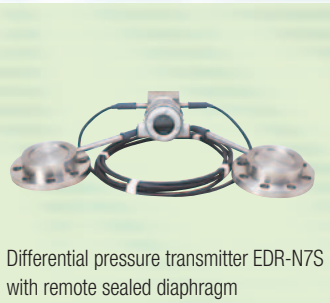
Output signal may be off the upper or lower chart, if some of A/D, EEPROM, or constant among the self-diagnosis data becomes faulty. (Intelligent type only)



Differential pressure transmitter EDR-N7



High durability Differential pressure transmitter EDR-N7H



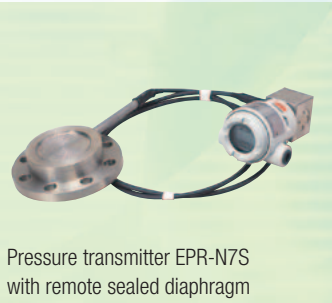
Differential pressure transmitter EDR-N7S with remote sealed diaphragm



Liquid level transmitter EDR-N7F



Pressure transmitter EPR-N7



Pressure transmitter EPR-N7S with remote sealed diaphragm



Absolute pressure transmitter EDR-N7A



Liquid level transmitter EDR-N7FS with remote sealed diaphragm

Easy Replacement

Replacement kit is available for upgrading an old type Hitachi transmitter. It eliminates positional shift of the pipe connection port, which is made by using a smaller-size transmitter. It reduces replacement work costs.

Analog Type

This features superior radiation resistance and high-speed response due to the smooth characteristics of analog devices. Intelligent transmitter with ample achievements or equivalent is used for high reliability.



Analog differential pressure transmitter EDR-N6L

Radiation dose resistance:
51.6 C/kg

Sanitary Type

Sanitary type transmitters capable of IDF clamp connections are lined up for various measurements in food processes. These transmitters may be detached easily and reduce the cleaning work. Propylene glycol may be selected as the sealing liquid. (Optional)



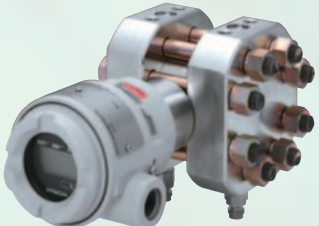
Sanitary differential pressure transmitter EDR-N7SD

Flange Cover Type

This transmitter measures differential pressure (flow rate) of the lines with excessive pulsations near the pump delivery ports, for example, stably by suppressing the influences of pulsations. It is suitable for power plants.



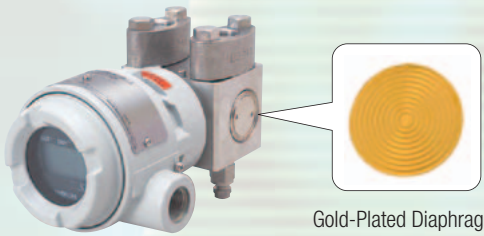
Differential pressure transmitter EDR-N7P



Differential Pressure Transmitter for high working pressure EDR-N7HP

Gold-Plated Diaphragm

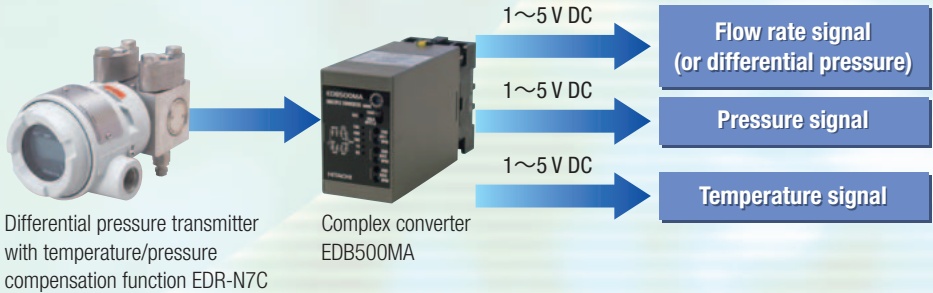
A gold-plated diaphragm, which prevents hydrogen permeation effectively, is optionally available. Plating process is applied only to the inside(filled liquid side) of the transmitter. Accordingly, there is no danger of the gilt coming off and mixing in process fluid.



Gold-Plated Diaphragm

Built-In Intelligent Function

Transmitters with operating functions of density compensation, including temperature/pressure compensation, convenient for vapor and gas measurement are also available. They help to reduce not only the equipment costs but also total costs.



Transmitters for Special Purposes

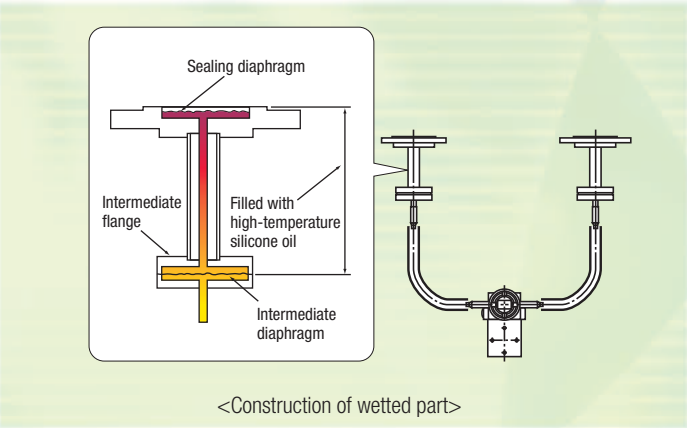
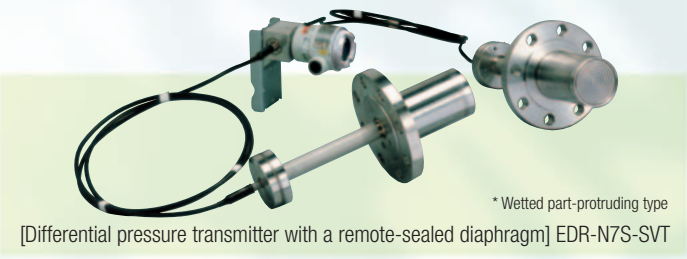
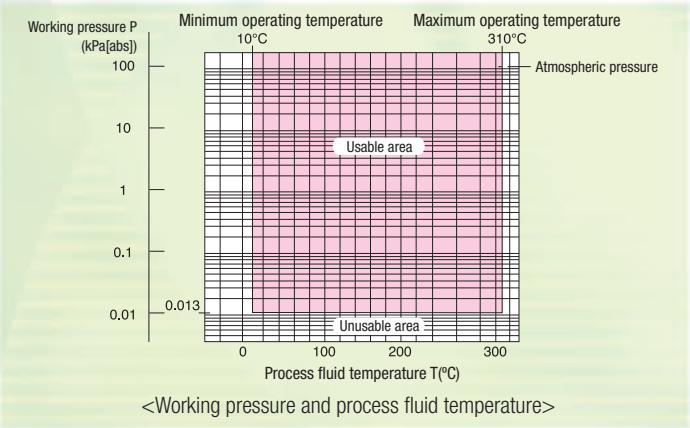
The Hitachi transmitter series demonstrates high performance in vacuum processes, in particular.

High-temperature, high-vacuum transmitters, and absolute pressure transmitters are widely used in various fields in the world.

High-Temperature, high-vacuum specifications based on unique construction

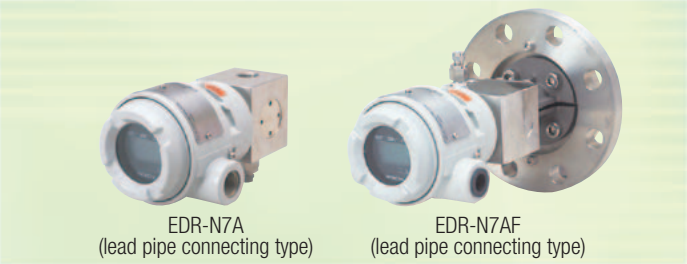
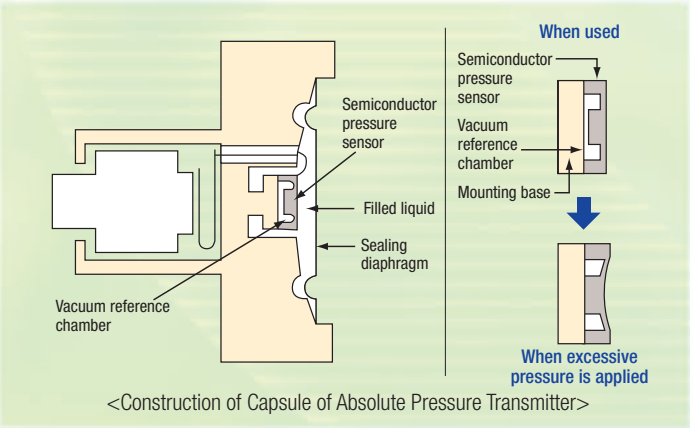
High-temperature, high-vacuum specification of the differential pressure/pressure transmitter fully covers 310°C, 13.3Pa abs.(≒0.1Torr) through a unique wetted construction, thus realizing stable measurement at high temperature and under high vacuum.

- Unique method of manufacturing**
- **Adoption of high-purity filled liquid** — Impurities are eliminated from filled liquid by our own vacuum distillation Original vacuum evaporation method eliminates impurities in sealing liquid.
 - **Adoption of high-temperature dry cleaning method** — The filled liquid chamber wall is cleaned in the high-temperature, high-vacuum atmosphere Contamination on the sealing liquid wall is removed in high-temperature and high-vacuum condition.
 - **Adoption of high-temperature, high-vacuum liquid filling method** — Growth of air bubbles is prevented by filling liquid at high temperature under high vacuum Adoption of high-temperature, high-vacuum construction — Long-term stability optimizing the construction of the wetted part
 - **High-temperature, high-vacuum structure is adopted** — Structure of the wetted part is optimized to offer long-term stability.



Highly reliable absolute pressure transmitter

With E-shape sensors and capsule of unique construction, Hitachi absolute pressure transmitters feature high durability when opened to the atmosphere and excessive pressure is applied. With high reliability and long-term stability, they are widely used in various plants.



Realization of high reliability

When the transmitter is opened to the atmosphere and excessive pressure is applied, the sensor is pressurized and hits against the mounting base, which prevents the sensor from becoming damaged within a certain pressure range.

Secret of long-term stability

The important point of an absolute pressure transmitter is how to stably make the vacuum reference chamber. In the Hitachi absolute pressure transmitter, the semiconductor sensor and mounting base are coupled at **high temperature and high vacuum** using special technologies. **Dry and clean vacuum reference chambers** may be made with this coupling technology. As a result, the vacuum standard chambers are always maintained at high vacuum and enable **drift-free** absolute pressure measurement in various plants.

Immersion Type Level Transmitter

Just hang the sensor in water, and you may measure the water levels of city water, sewage, rivers, dams, etc.

Original semiconductor sensor having been used widely is adopted for high-precision and high-reliability water level measurement.

Installation

Just hang the sensor in water, and you may measure the water level. An exclusive stand is available, and you may install it on the bottom of the water.

Small and Lightweight

The ELR200R has a small and lightweight sensor (25 mm diameter) and is easy to handle.

Maintenance

Measurement range may be set and changed and self-diagnosis may be executed remotely with a communicator. Suitable for measurement in remote places and heavy snowfall areas.

Suitable for Sewage

Diaphragm protection covers with PET films are available as an option. Since cables are made of fluorine resin, they have superior corrosion resistance and are suitable for sewage.

Substantial Product Variations

Not only integrated and separated types but also stands for water bottom installation, power supply units for outdoor and indoor use, cable relay boxes, etc., are available for system construction suitable for uses and environments.



Measuring range ▶	0.1m	1m	10m	100m
Model				
Integrated type (with indicator and relay box)	◀ 0.1m ▶		20m ▶	
applicable to sewage* (with indicator and relay box)		◀ 1m ▶	20m ▶	
Separated type		◀ 2m ▶		100m ▶

<Measurement range of immersion type level transmitter>

* Optional

Electromagnetic Flow Meter Series

These flow meters are widely used to measure flow rates in city water and sewage and the paper and pulp industry.
New functions and a substantial lineup offer a wide variety of applications.

Hitachi electromagnetic flow meter series featuring advanced functions and easy operation are widely used for flow rate measurement in various plants.

Flow Rate Range

As wide measurement range as 0.1 to 10 m/s from low to high flow speeds. Offers high-precision measurement even in low-flow-rate operation.

Self-Diagnostic Function

Provided with standard self-diagnostic functions, including converter failures, wire breakage, and empty detection information.

Range Ability

The range ability is 1:100. Applicable to measurement of flow rates of highly viscous fluid processes incapable of increasing the flow speed.

Warning Output Function

Capable of outputting warnings to the outside if the flow rate exceeds or drops below the preset upper or lower limit.

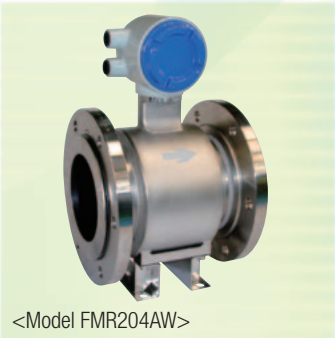
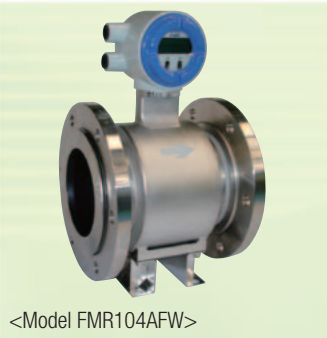
Environment Resistance

Heat-resistant structure withstands high temperature up to 120°C. Vibration resistance is also improved for wider range of applications of the electromagnetic flow meters.



High Visibility

Backlight LCD panels are used to ensure a high level of visibility.



Reflective Switches

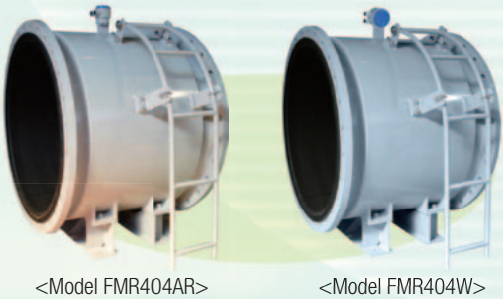
Infrared ray reflective switches allow the user to set various parameters without opening the converter cover.

Digital Transmission Type

These transmitters digitize flow rate signals in an original way and output analog flow rate signals from exclusive converters. Dual-wire cables allow power supply and signal transmission simultaneously.

City Water Meters for Custody Transfer

Hitachi electromagnetic city water meters are based on the FMR204A series. They are type-certified city water meters in conformity to JIS B8570-2: 2009 "City Water Meters and Hot Water Meters, Part 2: For Custody Transfer or Certification." Watertight type and under-ground type are available for flexible selection according to the installation conditions.



Insertion Type Electromagnetic Flow Meters

These meters are most suitable to the flow speed and flow rate measurements of city water pipes and contribute to total cost reduction, including work costs.

New type electromagnetic flow meters, in addition to the former type electromagnetic flow meters, greatly contribute to flow rate measurement in various fields.

Allows work without cutting off water

These meters may be installed without cutting off water, if mass-marketed saddle snap taps are attached to city water pipes. They require smaller spaces than the traditional electromagnetic flow meters and may be installed in shorter time, resulting in total cost reduction.

Applicable to a wide variety of fields

Applicable to as wide range of diameters as 100 to 1,000 mm. Capable of measuring flow rates in the forward and reverse directions. Most suitable to grasping the flow distribution in pipe networks.



Ultrasonic Flow Meter

Just installing onto the outer perimeter of an existing pipe enables flow rate measurement, leading to a reduction in the total cost.

Has substantial intelligent functions and features high reliability.



Electric Wave Type Level Meters

These level meters are capable of measurement without contacting the surface of the liquid to be measured. With no mechanical movable parts, they feature high reliability.

These level meters use microwave technology and are most suitable to level measurements of liquids with a dielectric constant.

Feeble Electric Wave Devices

These meters use feeble electric waves (electric wave strength: 35 V/m or less) and have no restrictions on use in urban areas (cone antenna type only).

Environment Resistance

These meters are free from influences of temperature and pressure of the measured liquid surface, wind, etc., since they use microwaves. They are capable of stable measurement even in environments with excessive amounts of steam and vapor.

Maintenance

Maintenance due to no contact with the measured liquid and no mechanical movable parts.



<Cone antenna type>



<Rod antenna type>

Ultrasonic Level Meters

These meters are most suitable for the level measurement of city water and sewage facilities and chemical tanks. They may incorporate linearizers and may be used as gate type flow meters.

These meters are most suitable for the level measurement of city water and sewage facilities and chemical tanks. They may incorporate linearizers and may be used as gate type flow meters.



<LUR-A-LM5A>



<LUR-A-LM5F>



<X-LUR-A>

Float Type Level Meter

As the float on the water surface moves up and down, the meter detects the water level and indicates it on the scale and outputs 4 to 20 mADC current signals.

The float type water level indicator/transmitter model NWR-2W is suitable for water level measurements of dams, reservoirs, etc.



<NWR-2W>

Online Real-Time Mass Analyzing System

Process Gas Monitor

CP-1000

This system measures toxic components contained in gas in quite small quantity, small-quantity components adhered to material surfaces, etc., at high speed and high sensitivity.

Features

- Uses atmospheric pressure chemical ion source – ion trap mass analyzer for high-precision measurement. (MS/MS function)
- Column-less direct sampling for high-speed measurement. (Several seconds and so forth)
- Continuous measurement by means of the pipe connection or easy high-speed measurement in the wiping method
- Movable with casters
- Automatic concentration calibration by adding standard samples (Optional)



Dioxin-Precursor Monitor

CP-2000

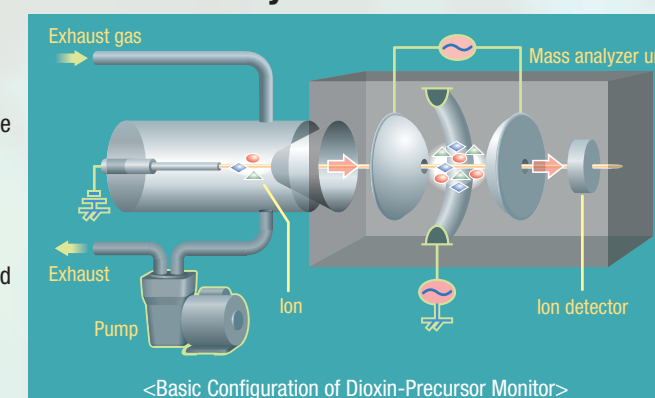
PCB Monitor

CP-2000P

These monitors can measure and monitor the concentrations of chlorophenol and chlorobenzene contained in exhaust gas from garbage incinerator or the PCB concentration in PCB decomposing facilities continuously.

Features

- Highly sensitive detection
- Online real-time measurement
- PCB monochloride to PCB septichloride are measured simultaneously and displayed on the PCB monitor.
- Automatic concentration calibration function by adding standard sample
- Automatic reset from power failure and instantaneous power cut-off
- Capable of multi-point measurement by changing the sampling points automatically.



Hitachi Narcotics Trance Detection System

DS-1100N

Features

- Only one drug inspection equipment in Japan
- Enables highly sensitive, low-error detection using state-of-the-art mass analysis technology (ion trap type mass analyzer).
- Contributes to checking of illegal drugs at borders and in all cases.

