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.

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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.

### Product Lineup

#### Unified MES Solutions **CyberPlant**

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<th>Package example</th>
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<td>Production planning</td>
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<td>Production result management</td>
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### Remote Monitoring

- Remote monitoring system

### Monitoring & control system

<table>
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<th>Package example</th>
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<td>Total instrumentation system <strong>EX Series</strong></td>
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<td>Compact instrumentation system <strong>PD-N01</strong></td>
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### Panel Instruments

- **ED Series**
- **HINL Series**

### Differential pressure/Pressure

<table>
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<th>Intelligent transmitter N7 Series</th>
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<td>Electromagnetic flow meters FMR102A/104A/204A</td>
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<td>Insertion type electromagnetic flow meter FMR504A</td>
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### Flow Rate

| 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 |

### Sensors and Analyzer

- Production planning
- Batch management
- Inventory management
- Production result management
- Operation support

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

**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.

**Thin Client System**

This 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.

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.

**Monitoring & Control**

**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 WP5000A 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.

**Intelligent Recorder**

- The basic WP7000 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)

**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.

**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.

**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.

**Series**

<table>
<thead>
<tr>
<th>Series</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>150A/250A series</td>
<td>Signal converter: Thermocouple, resistance bulb, mV, potentiometer, distributor, isolator, voltage and current.</td>
</tr>
<tr>
<td>100A/200A series</td>
<td>Signal converter: Thermocouple, resistance bulb, mV, potentiometer, distributor, isolator, voltage and current.</td>
</tr>
<tr>
<td>200A series</td>
<td>Computing unit: Square root extraction, addition and subtraction, multiplication and division, temperature and pressure compensation, timer, counter, time lag, and linearizer</td>
</tr>
<tr>
<td>HR series</td>
<td>Lightning arrester: Thermocouple, resistance bulb, 4-20 mADC, 1-5 VDC, and AC/DC power supply units</td>
</tr>
<tr>
<td>SRI series</td>
<td>High-durability Lightning arrester (UL, CS, CE markable)</td>
</tr>
</tbody>
</table>

**Remote-monitoring client**

- To Enterprise system
- ERP
- Office LAN
- Console of various manufacturers
- PLCs of various manufacturers

**Data highway:** 100 Mbps Ethernet (conforming to IEEE 802.3)

**Unified MES solution**

CyberPlant

**Thin Client System Standard 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 keyboard.
Hitachi Compact Instrumentation System

**PD-N01**

The Hitachi PD-N01 is a new-concept compact instrumentation system that incorporates a DCS operation module on the PLC and allows the client to use DCS software.

**Features**
- General-purpose PC and PLC enable full-scale instrumentation system construction.
- DCS operation module enables complicated analog controls.
- Substantial monitoring operation software and engineering tools are available.

Manufacturing Environment Monitoring System

**ZigMo**

The manufacturing environment monitoring system ZigMo is an easy-to-use monitoring system, which combines the monitoring function developed in plant monitoring systems with wireless environment sensors.

- Easy operation
  - All-in-one package that contains monitoring, operation, data collection, and engineering functions. It may be used immediately after installation.
- Easy installation and easy maintenance
  - Just put the sensor nodes and you can use the system. The state-of-the-art wireless system enables easy installation. It runs for long periods on batteries and needs simple maintenance only.
- Low cost
  - A packaged, easy-to-work wireless system enables system construction at low prices.
- Conforms to legal regulations
  - ZigMo conforms to the GMP and other requirements for Drugs.

CyberPlant

Solves various problems of production systems and contributes to improvement of the efficiency of the total plant operations.

The MES solution package CyberPlant is plant control software designed to improve the efficiency of the total manufacturing plant. CyberPlant visualizes production data on the manufacturing site and important know-how and skills of operators and manufacturing personnel and makes them into electronic data to utilize them. It stands in the middle of the Enterprise system and plant control system, such as DCS, and combines them organically.

The CyberPlant software has a record of achievement and employs the knowledge of various manufacturing plant systems developed by Hitachi based on clients’ demands and needs.

![System Configuration Example]
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)

**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.

**Radiation dose resistance:**

51.6 C/kg

**Flow rate signal**

(4-20) mA

**Pressure signal**

(0-5) VDC

**Temperature signal**

(0-5) VDC

**Differential Pressure Transmitter Series**

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.

**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)

**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.

**Gold-Plated Diaphragm**

A gold-plated diaphragm, which prevents hydrogen permeation effectively, is optionally available. Plateing 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.

**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.

**Output signal**

1-5 VDC

**Flow rate signal**

(4-20) mA (or differential pressure)

**Pressure signal**

(0-5) VDC

**Temperature signal**

(0-5) VDC
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

- Adaption 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.
- Adaption 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-purity filled liquid — Impurities are eliminated from filled liquid by our own vacuum distillation. Original vacuum evaporation method eliminates impurities in sealing liquid.
- High-temperature, high-vacuum construction — Long-term stability optimizing the construction of the wetted part.
- High-temperature, high-vacuum structure is adopted — Growth of air bubbles is prevented by filling liquid at high temperature under high vacuum.
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Unique method of manufacturing

High-temperature, high-vacuum structure is adopted — Growth of air bubbles is prevented by filling liquid at high temperature under high vacuum.

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. Oxy 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.

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.

Installation

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

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.

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.
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 a 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.

Sensors and Analyzers

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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.

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.

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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.

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

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 monocloride 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.

PCB Monitor

CP-2000P

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.

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.