Pressure sensor

Water level sensor

General Catalog



SENSEZ Corporation

Sensor Manufacturing

To meet our mission as a manufacturer, we stay committed to the development of innovative technologies and strive to provide excellent sensors and fine-grained services.

Human Resources

A company is its people. Our human resources development efforts are aimed at expanding the circle of empathy as we pass on our values to the younger generation and pursue an ideal as a business with the focus on human qualities.

Sincerity and Integrity

Beautiful products made in a beautiful environment. Building mutual trust and acting with high morality and integrity, we endeavor to be good citizens and good members of the business community.

Contribution to Various Fields of Pressure and Water Level Measurement and Control

SENSEZ Corporation is a manufacturer of high-precision compact pressure sensors and immersion-type water level sensors. Our sensors are used in various fields of pressure and water level measurement and control. As a company loved and trusted by customers, we continue to contribute to society by developing excellent technologies and pursue the limitless potential of sensors.

Company Overview

Company name	SENSEZ Corporation
Representative	Kimitaka Harada, President and CEO
Established	November 14, 2008
Capital	24.04 million yen (as of July 2018)
Business lineup	◎ Design, manufacturing, sale, and import/export of semiconductor pressure sensors ◎ Manufacturing, sale, and import/export of electronic and electric components including semiconductors ◎ Manufacturing, sale, and import/export of electronic devices
Product lineup	■ Stainless steel and titanium pressure sensors (semiconductor type) ■ Immersion-type water level meters (pressure type) ■ Soil moisture meters (tensiometer type) ■ Compact piezometers ■ Data loggers (field type) ■ Control devices ■ Contract development and design of semiconductors
Locations	Head office and main plant : 2-12-8, Myojincho, Hachioji City, Tokyo 192-0046 Japan Phone: +81-42-649-1804 Fax: +81-42-649-1805 Hachioji office : 11th Floor, Hachioji First Square, 3-20-6, Myojincho, Hachioji City, Tokyo 192-0046 Japan Phone: +81-42-660-0091 Fax: +81-42-660-0093
Website	https://www.sensez.co.jp
History	1991 Established the Sensor Systems Department at Hitechs Inc. and constructed a plant in Kokubunji City, Tokyo to develop and manufacture pressure sensors and immersion-type water level meters. 2000 Changed the company name from Hitechs Inc. to HI-NET Co., Ltd. 2008 Founded SENSEZ Corporation. 2009 Transferred the business of the sensor division from HI-NET Co., Ltd. to SENSEZ Corporation and started production at the plant in Kokubunji City, Tokyo. 2012 Relocated the head office and main plant to Hachioji City and started the development and design of semiconductors at the newly established System Development Department. 2013 Became an official member of J-WatER and started the manufacturing and sale of four-channel data loggers. 2015 Started the development, manufacturing, and sale of water level meters with built-in data loggers. 2016 Obtained ISO 9001 certification. 2019 Established the Hachioji office.



ISO 9001 registration certificate

Quality Policy

We provide customers with excellent services through creative and innovative unique technologies.

Registration mark

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High-accuracy Compact Pressure Sensors

Our pressure sensors are all internally developed products. In addition to the products shown in the catalogs, we deliver numerous customized products to meet customer needs, offering fine-grained services. Thanks to the support by our customers, we are dedicating efforts to provide an even wider variety of products and further improve our services and follow-up activities.

Features

■ High accuracy

Our pressure sensors are low in nonlinearity and hysteresis and high in accuracy, and they are used for pressure measuring instruments as well. The standard accuracy of our pressure sensors is ± 0.5% F.S. or less (linearity is ± 0.3% F.S. or less). We can also manufacture optional pressure sensors with higher accuracy (± 0.25% F.S. or less).

■ Wide measurement pressure range

Using a thin stainless steel diaphragm, we manufacture sensors with a structure optimal for measuring low pressure. Our product lineup supports a wide measurement pressure range from 0.02 to 35 MPa and is capable of measuring gauge pressure, absolute pressure, and shield gauge pressure. We can manufacture sensors for measuring negative pressure and compound pressure as well.

■ High corrosion resistance

A double diaphragm structure consisting of a stainless steel diaphragm in the pressure receiving part and a diffusion-type silicon chip in the pressure sensing part (see Sensor Operating Principle / Internal Structure Diagrams on page 91) allows our pressure sensors to measure a vast range of pressure media including water, gas, and medicinal solution. With the wetted part made of stainless steel (SUS316 or SUS316L) or titanium, the sensors have high corrosion resistance.

■ Excellent temperature characteristics

A built-in temperature compensation circuit enables temperature compensation suitable for each individual pressure sensor, resulting in excellent temperature characteristics of ± 0.05% F.S./℃ .

■ High durability / Robust drip-proof structure

The IP65 structure is the standard feature. Products with a waterproof IP67 structure are also available.

■ Built-in amplifier circuit

A built-in amplifier circuit with an output of 4 to 20 mADC or 1 to 5 VDC makes it easy to connect the sensors with various types of measuring instruments.

■ Low current consumption

The standard current consumption of voltage output type sensors is low at 6 mA, making the sensors ideal for use with a battery.

Rich Lineup of Products

Welded structure



- O-ring-free structure
- Ideal for measuring rubber-degrading media

< **Applicable products** > HLV・HLI, ZLV・ZLI, CLV・CLI, MLI, MZLI, HBV・HBI, CBV・CBI, MBI, JW-6000, DL

Flat type



- Little liquid accumulation enabling easy cleaning
- Ideal for measuring the pressure of viscous fluid and medicinal solution

< **Applicable products** > HXV・HXI, PXV・PXI, CXV・CXI, HSV・HSI, CSV・CSI, MSI, JW-5000

Connector type



- Main unit separable from the cable
- Ease of handling / High maintainability

< **Applicable products** > CTV・CTI, CLV・CLI, CXV・CXI, CZLV・CZLI, CAV・CAI, CBV・CBI, CSV・CSI

Terminal box type



- Waterproof IP67 structure
- Suitable for outdoor use

< **Applicable products** > MTI, MLI, MJI, MZTI, MZLI, LTI, LLI, MAI, MBI, MSI, MZHI, LSI

Waterproof connector type



- Waterproof connector type with the IP67 structure
- Ease of handling / High maintainability
- Ideal for outdoor use as well

< **Applicable products** > JW-7000, JW-6000, JW-5000

With adjustment function



- With trimmer for zero and span adjustment
- Terminal box type available

< **Applicable products** > RLV・RLI, LTI, LLI, RBV・RBI, LSI

Sanitary type



- Easy-to-clean sanitary type
- IDF clamp 2S mounting structure (ferrule type)

< **Applicable products** > HJI, MJI

Titanium



- High corrosion resistance against acid, saline water, etc.
- Ideal for measuring the pressure of seawater
- Lightweight

< **Applicable products** > ZTV・ZTI, ZLV・ZLI, CZLV・CZLI, MZTI, MZLI, ZHV・ZHI, MZHI

Terminal box type with digital display



- Pressure indicator with a four-digit red LED
- Waterproof IP67 structure
- Two switches (open collector output: NPN)

< **Applicable products** > DT, DL

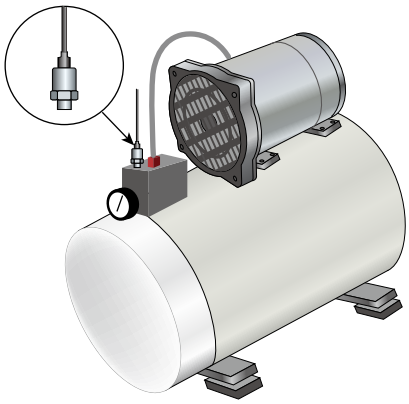
※ The shape and characteristics of each product can also be checked from “Shape / characteristics” in the pressure sensor specification comparison table
(p. 9 - 12)

◎ Examples of Pressure Sensor Applications

Suction and discharge pressure measurement for compressors

● Examples of sensors used

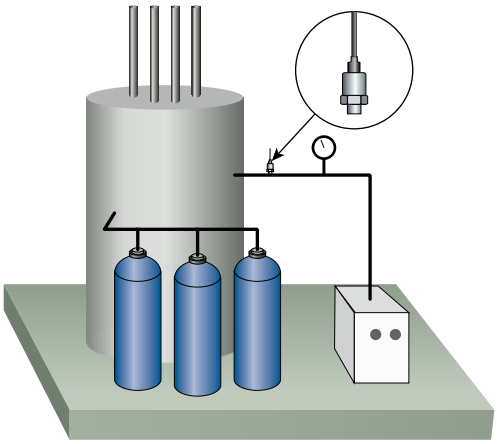
・Gauge pressure sensor (low and medium pressure)
HTV/HTI, HGV/HGI, CTV/CTI, MTI, DT, etc.



Water pressure measurement for pure water production devices

● Examples of sensors used

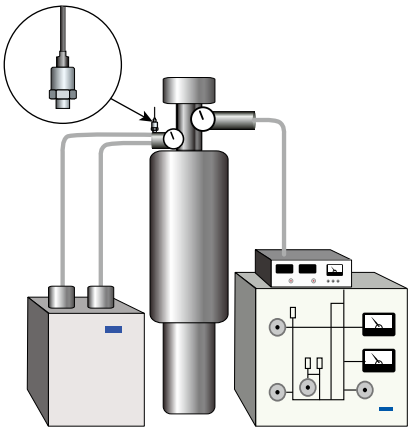
・Welded structure gauge pressure sensor (low and medium pressure)
HLV/HL, CLV/CLI, MLI, etc.
(※ Degreasing treatment option also supported)



Gas pressure measurement for refrigerators (high pressure)

● Examples of sensors used

・Medium and high pressure sensors for 2 to 35 MPa
HSV/HS, CSV/CSI, MSII, etc.

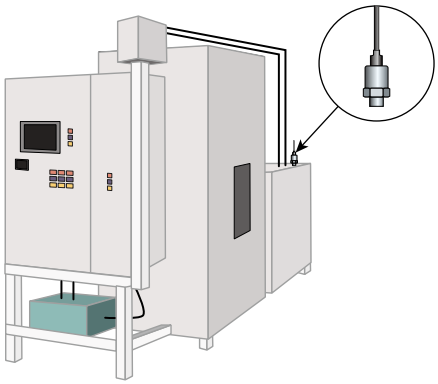


Pressure control for resin injectors and dispensers

● Examples of sensors used

・Easy-to-clean flat-type structure
HXV/HXI, HSV/HSI, CSV/CSI, MS, etc.

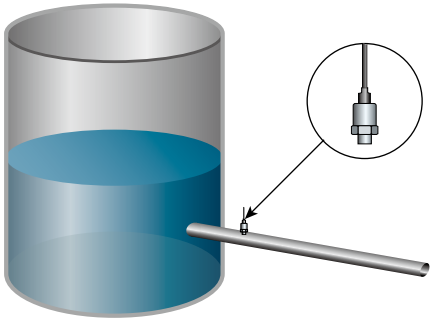
・Special structure
PXV/PXI



Level measurement for open tanks

● Examples of sensors used

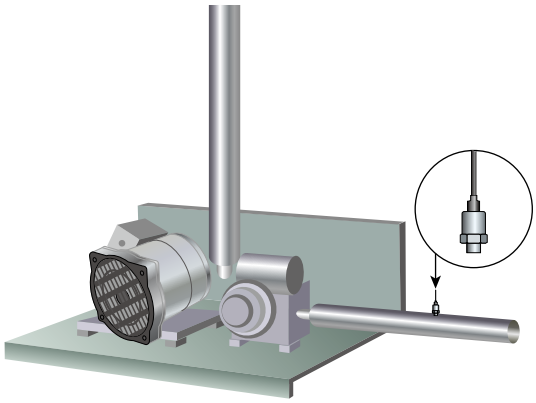
IP67 structure suitable for outdoor use
・Terminal box-type pressure sensor
MTI series , etc.
・Waterproof connector-type pressure sensor
JW-7000 series , etc.



Suction and discharge pressure measurement for pumps

● Examples of sensors used

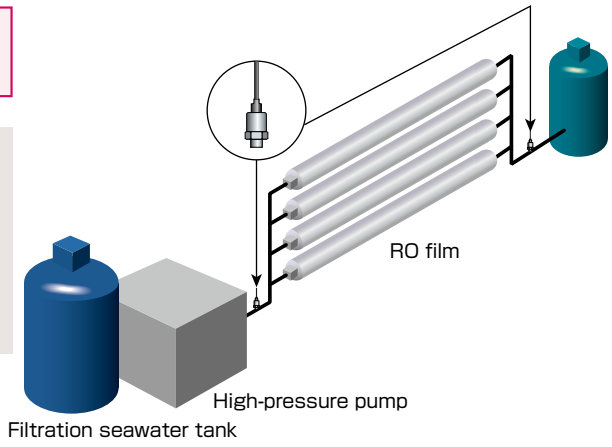
・Highly maintainable connector-type pressure sensor
CTV/CTI series , etc.
・Pressure sensor with digital display
DT, DL



Clogging detection for desalination devices

● Examples of sensors used

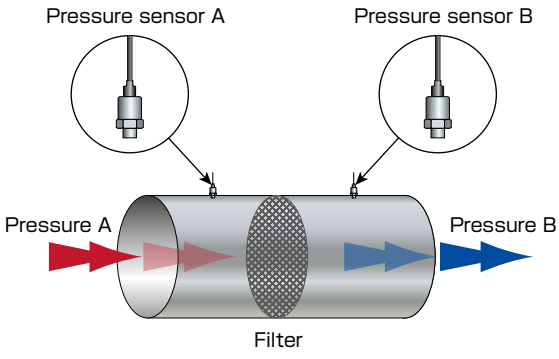
・Titanium pressure sensor suitable for seawater
ZTV/ZTII series , etc.



Filter clogging detection

● Examples of sensors used

・Gauge pressure sensor (low and medium pressure)
HTV/HTI, HGV/HGI, CTV/CTI, MT, DT , etc.



Pressure sensor specification comparison table

Model			HTV・HTI HGV・HGI	HLV・HLI	HLV-S6VL	HXV・HXI	PXV・PXI	HJI	JP-1000	ZTV・ZTI	ZLV・ZLI
											
Page featuring this model			P.13	P.14	P.15	P.16	P.17	P.18	P.19	P.20	P.21
Shape / characteristics			Compact For gauge pressure	Compact Welded structure	Compact Low power	Compact Flat type	Compact Special shape	Compact Sanitary type	Compact For noncorrosive fluid	Compact Titanium	Compact Titanium Welded structure
Rated pressure ※1	Gauge pressure ※2※3	0 to 20kPa									
		0 to 50kPa									
		0 to 100kPa									
		0 to 300kPa									
		0 to 500kPa									
		0 to 1MPa									
		0 to 2MPa									
	Absolute pressure	0 to 50kPa abs									
		0 to 100kPa abs									
		0 to 300kPa abs									
		0 to 600kPa abs									
	Shield gauge pressure	0 to 2MPa									
		0 to 3MPa									
		0 to 5MPa									
		0 to 10MPa									
		0 to 20MPa									
		0 to 35MPa									
Wetted part material		O-ring of the standard specification (fluororubber)	SUS316L SUS316 fluororubber	SUS316L SUS316	SUS316L SUS316	SUS316L fluororubber	SUS316L fluororubber	SUS316L SUS316	SUS316 Pyrex glass Silicon	titanium fluororubber	titanium
Power supply		VDC	12 to 28	12 to 28	3 to 5	12 to 28	12 to 28	12 to 28	12 to 28	12 to 28	12 to 28
Output	Voltage (typical)	VDC	1 – 5	1 – 5	0.1 – 1.1	1 – 5	1 – 5	—	1 – 5	1 – 5	1 – 5
	Current (typical)	mADC	4 – 20	4 – 20	—	4 – 20	4 – 20	4 – 20	4 – 20	4 – 20	4 – 20
Compensated temperature range		℃	0 to 60	0 to 60	0 to 60	0 to 60	0 to 60	0 to 60	0 to 60	0 to 60	0 to 60
Operating temperature range		℃ (No freezing allowed)	– 10 to 80	– 20 to 80	– 20 to 80	– 10 to 80	– 10 to 80	– 10 to 80	– 10 to 80	– 10 to 80	– 20 to 80
Pressure connection port		Standard	R1/4	R1/4	R1/4	G3/8	M22 (Pitch 1.5)	IDF Clamp 2S (Ferrule type)	R1/8	R1/4	R1/4
		Option	R3/8, G3/8	R3/8, R1/2, G1/4, G3/8	R3/8, R1/2, G1/4, G3/8	—	—	—	—	—	—
Protection structure			IP65	IP65	IP65	IP65	IP65	IP65	IP65	IP65	IP65

※1 : We also manufacture negative pressure and compound pressure sensors (gauge pressure of 500 kPa or less).
※2 : Make sure that the operating vacuum pressure is 10 kPa abs or more. (Operating temperature range: 0 - 60℃) (Excluding JP-1000)
※3 : Use a wiring cable for atmospheric pressure correction.
※4 : Conversion joints (models: G3R3 and G3R2) and damper joints (model: G3R3-DSM5) are available. (See page 53 of the catalog.)

	RLV • RLI	CTV • CTI	CLV • CLI	CXV • CXI	CZLV • CZLI	MTI	MLI	MJI	MZTI	MZLI	LTI
											
	P.22	P.23	P.24	P.25	P.26	P.27	P.28	P.29	P.30	P.31	P.32
	Compact	Connector type	Connector type	Connector type	Connector type	Terminal box type	Terminal box type	Terminal box type	Terminal box type	Terminal box type	Terminal box type
	With adjustment function	For gauge pressure	Welded structure	Flat type	Titanium	For gauge pressure	Welded structure	Sanitary type	Titanium	Titanium Welded structure	With adjustment function
	SUS316L SUS316	SUS316L SUS316 Fluororubber	SUS316L SUS316	SUS316L Fluororubber	Titanium	SUS316L SUS316 Fluororubber	SUS316L SUS316	SUS316L SUS316	Titanium Fluororubber	Titanium	SUS316L SUS316 Fluororubber
	12 to 28	12 to 28	12 to 28	12 to 28	12 to 28	12 to 28	12 to 28	12 to 28	12 to 28	12 to 28	12 to 28
	1 – 5	1 – 5	1 – 5	1 – 5	1 – 5	—	—	—	—	—	—
	4 – 20	4 – 20	4 – 20	4 – 20	4 – 20	4 – 20	4 – 20	4 – 20	4 – 20	4 – 20	4 – 20
	0 to 60	0 to 60	0 to 60	0 to 60	0 to 60	0 to 60	0 to 60	0 to 60	0 to 60	0 to 60	0 to 60
	– 20 to 80	– 10 to 80	– 20 to 80	– 10 to 80	– 20 to 80	– 10 to 80	– 20 to 80	– 10 to 80	– 10 to 80	– 20 to 80	– 10 to 80
	R1/4	R1/4	R1/4	G3/8	R1/4	R3/8	R1/4	IDF Clamp 2S (Ferrule type)	R1/4	R1/4	R3/8
	R3/8, R1/2, G1/4, G3/8	R3/8, G3/8	R3/8, R1/2, G1/4, G3/8	—	—	G3/8, R1/4	R3/8, R1/2, G1/4, G3/8	—	—	—	G3/8, R1/4
	—	IP66	IP66	IP66	IP66	IP67	IP67	IP67	IP67	IP67	IP67

Pressure sensor specification comparison table

Model			LLI	HAV・HAI	HBV・HBI	RBV・RBI	CAV・CAI	CBV・CBI	MAI	MBI	HSV・HSI
											
Page featuring this model			P.33	P.34	P.35	P.36	P.37	P.38	P.39	P.40	P.41
Shape / characteristics			Terminal box type With adjustment function	Compact For absolute pressure	Compact Welded structure	Compact With adjustment function	Connector type For absolute pressure	Connector type Welded structure	Terminal box type For absolute pressure	Terminal box type Welded structure	Compact For medium and high pressure
Rated pressure ※1	Gauge pressure ※2※3	0 to 20kPa									
		0 to 50kPa									
		0 to 100kPa									
		0 to 300kPa									
		0 to 500kPa									
		0 to 1MPa									
		0 to 2MPa									
	Absolute pressure	0 to 50kPa abs		1 to 5VDC Output only	1 to 5VDC Output only	1 to 5VDC Output only	1 to 5VDC Output only	1 to 5VDC Output only			
		0 to 100kPa abs									
		0 to 300kPa abs									
		0 to 600kPa abs									
	Shield gauge pressure	0 to 2MPa									
		0 to 3MPa									
		0 to 5MPa									
		0 to 10MPa									
		0 to 20MPa									
		0 to 35MPa									
Wetted part material		O-ring of the standard specification (fluororubber)	SUS316L SUS316	SUS316L SUS316 fluororubber	SUS316L SUS316	SUS316L SUS316	SUS316L SUS316 fluororubber	SUS316L SUS316	SUS316L SUS316 fluororubber	SUS316L SUS316	SUS316L SUS316 fluororubber
Power supply		VDC	12 to 28	12 to 28	12 to 28	12 to 28	12 to 28	12 to 28	12 to 28	12 to 28	12 to 28
Output	Voltage (typical)	VDC	—	1 – 5	1 – 5	1 – 5	1 – 5	1 – 5	—	—	1 – 5
	Current (typical)	mADC	4 – 20	4 – 20	4 – 20	4 – 20	4 – 20	4 – 20	4 – 20	4 – 20	4 – 20
Compensated temperature range		℃	0 to 60	0 to 60	0 to 60	0 to 60	0 to 60	0 to 60	0 to 60	0 to 60	0 to 60
Operating temperature range		℃ (No freezing allowed)	– 20 to 80	– 10 to 80	– 20 to 80	– 20 to 80	– 10 to 80	– 20 to 80	– 10 to 80	– 20 to 80	– 20 to 80
Pressure connection port		Standard	R1/4	R1/4	R1/4	R1/4	R1/4	R1/4	R3/8	R1/4	G3/8
		Option	R3/8, R1/2, G1/4, G3/8	R3/8, G3/8	R3/8, R1/2, G1/4, G3/8	R3/8, R1/2, G1/4, G3/8	R3/8, G3/8	R3/8, R1/2, G1/4, G3/8	R1/4, G3/8	R3/8, R1/2, G1/4, G3/8	※4
Protection structure			IP67	IP65	IP65	—	IP66	IP66	IP67	IP67	IP65

※1 : We also manufacture negative pressure and compound pressure sensors (gauge pressure of 500 kPa or less).
※2 : Make sure that the operating vacuum pressure is 10 kPa abs or more. (Operating temperature range: 0 - 60℃) (Excluding JP-1000)
※3 : Use a wiring cable for atmospheric pressure correction.
※4 : Conversion joints (models: G3R3 and G3R2) and damper joints (model: G3R3-DSM5) are available. (See page 53 of the catalog.)

	HRV • HRI	ZHV • ZHI	CSV • CSI	MSI	MZHI	LSI	JW-7000	JW-6000	JW-5000	DT	DL
											
	P.42	P.43	P.44	P.45	P.46	P.47	P.48	P.49	P.50	P.51	P.52
	Compact	Compact	Connector type	Terminal box type	Terminal box type	Terminal box type	Waterproof connector type	Waterproof connector type	Waterproof connector type	With digital display	With digital display
	For medium and high pressure	Titanium medium and high pressure	For medium and high pressure	For medium and high pressure	Titanium medium and high pressure	With adjustment function	For gauge pressure/ For absolute pressure	Welded structure	For medium and high pressure	—	Welded structure
							1 to 5VDC Output only	1 to 5VDC Output only			
	SUS316L SUS316 fluororubber	Titanium	SUS316L SUS316 fluororubber	SUS316L SUS316 fluororubber	Titanium	SUS316L SUS316 fluororubber	SUS316L SUS316 fluororubber	SUS316L SUS316	SUS316L SUS316 fluororubber	SUS316L SUS316 fluororubber	SUS316L SUS316
	12 to 28	12 to 28	12 to 28	12 to 28	12 to 28	12 to 28	12 to 28	12 to 28	12 to 28	12 to 24	12 to 24
	1 – 5	1 – 5	1 – 5	—	—	—	1 – 5	1 – 5	1 – 5	—	—
	4 – 20	4 – 20	4 – 20	4 – 20	4 – 20	4 – 20	4 – 20	4 – 20	4 – 20	4 – 20	4 – 20
	0 to 60	0 to 60	0 to 60	0 to 60	0 to 60	0 to 60	0 to 60	0 to 60	0 to 60	0 to 60	0 to 60
	– 20 to 80	– 20 to 80	– 20 to 80	– 20 to 80	– 20 to 80	– 20 to 80	– 10 to 80	– 20 to 80	– 20 to 80	– 10 to 60	– 10 to 60
	R1/4	R1/4	G3/8	G3/8	R1/4	G3/8	R1/4	R1/4	G3/8	R3/8	R1/4
	—	—	※4	※4	—	※4	R3/8, G3/8	R3/8, R1/2, G1/4, G3/8	※4	R1/4, R1/2, G3/8	R3/8, R1/2, G1/4, G3/8
	IP65	IP65	IP66	IP67	IP67	IP67	IP67	IP67	IP67	IP67	IP67

HTV • HTI / HGV • HGI



Features **1.Compact** **2.For gauge pressure**

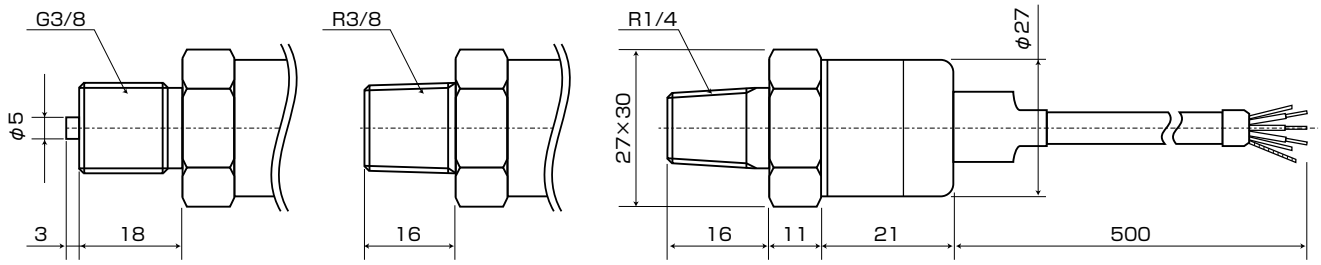
- Gauge pressure sensors with a stainless steel diaphragm structure
- High accuracy and excellent durability for a wide range of pressures
- Support of a wide range of pressure media such as water and oil
- Output signal of 1 to 5 VDC or 4 to 20 mADC from a built-in amplifier circuit

Specifications

Model	HTV • HTI						HGV • HGI	
	N-100KP	-020KP	-050KP	-100KP	-300KP	-500KP	-001MP	-002MP
Rated pressure ※1	0 to −100kPa	0 to 20kPa	0 to 50kPa	0 to 100kPa	0 to 300kPa	0 to 500kPa	0 to 1MPa	0 to 2MPa
Pressure type	Gauge pressure ※2							
Overpressure	HTV/HGV : 200% of the rated pressure ／ HTI/HGI : 150% of the rated pressure							
Wetted part material	Diaphragm : SUS316L Pressure port : SUS316 O-ring : Fluororubber (standard)							
Sealing liquid	Silicone oil							
Applicable media	Gas and fluid (media not damaging the wetted part material)							
Power supply	12 to 28VDC							
Output	HTV/HGV : 1 to 5VDC ／ HTI/HGI : 4 to 20mADC							
Current consumption	HTV/HGV : 6mA or less							
Load resistance	HTV/HGV : 1k Ω or more ／ HTI/HGI : 600 Ω or less (at power of 24 VDC)							
Responsiveness	5 msec or less							
Accuracy (linearity)	± 0.5% F.S. or less ※3 (± 0.3% F.S. or less)							
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)							
Compensated temperature range	0 to 60℃							
Operating temperature range	− 10 to 80℃ (no freezing allowed)							
Operating humidity range	35 to 85% RH (no dew condensation allowed)							
Pressure connection port	R1/4 (standard) ・ R3/8 ・ G3/8							
Cable	ϕ 6 vinyl : 500mm ／ 2000mm (standard) Shield cable + atmospheric relief pipe							
Structure	IP65							
Insulation resistance	100M Ω or more ／ 500VDC							
Withstand voltage	500VAC, 1 minute							
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)							
Weight	Approx 170g							
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.1% F.S.	+ 0.5% F.S.	+ 0.3% F.S.	+ 0.1% F.S.				

※ 1.We also manufacture compound pressure sensors (gauge pressure of 500 kPa or less).
※ 2.Make sure that the operating vacuum pressure is 10 kPa abs or more. (Operating temperature range: 0 - 60℃)
※ 3.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Cables / wires

	HT (G) V	HT (G) I
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—
Atmospheric relief pipe	Present	Present

Model

H	T	V	C	-	0	2	0	K	P	-	0	2	-	V	-	R	3

Type
HT
HG

Output mode
V : Voltage
I : Current

Pressure range
Special
Space : Positive pressure
N : Negative pressure
C : Compound pressure

Unit of pressure
KP : kPa
MP : MPa

Cable length
Space : 0.5m
02 : 2m
05 : 5m
10 : 10m

O-ring
V : Fluororubber
N : NBR
X : Other

Pressure connection port
Space : R1/4 (standard)
R3 : R3/8
G3 : G3/8

HLV • HLI



Features **1.Compact** **2.Welded structure**

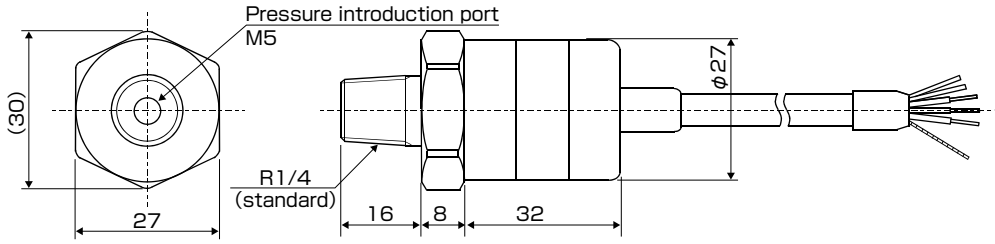
- Pressure sensor with a welded structure that does not use an O-ring in the wetted part
- The wetted part is made of SUS316 or SUS316L that has high corrosion resistance.
- Support of a wide range of pressure media such as gas and medicinal solution
- Output signal of 1 to 5 VDC or 4 to 20 mADC from a built-in amplifier circuit

Specifications

Model	HLV • HLI									
	N-100KP	-020KP	-050KP	-100KP	-300KP	-500KP	-001MP	-002MP	-003MP	-005MP
Rated pressure ※1	0 to −100kPa	0 to 20kPa	0 to 50kPa	0 to 100kPa	0 to 300kPa	0 to 500kPa	0 to 1MPa	0 to 2MPa	0 to 3MPa	0 to 5MPa
Pressure type	Gauge pressure ※2									Shield gauge pressure
Overpressure	HLV : 200% of the rated pressure ／ HLI : 150% of the rated pressure									
Wetted part material	Diaphragm : SUS316L Pressure port : SUS316									
Sealing liquid	Silicone oil									
Applicable media	Gas and fluid (media not damaging the wetted part material)									
Power supply	12 to 28VDC									
Output	HLV : 1 to 5VDC ／ HLI : 4 to 20mADC									
Current consumption	HLV : 6mA or less									
Load resistance	HLV : 1k Ω or more ／ HLI : 600 Ω or less (at power of 24 VDC)									
Responsiveness	5msec or less									
Accuracy (linearity)	± 0.5% F.S. or less ※3 (± 0.3% F.S. or less)									
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)									
Compensated temperature range	0 to 60℃									
Operating temperature range	− 20 to 80℃ (no freezing allowed)									
(Measurement medium temperature)	− 20 to 100℃ (no freezing allowed)									
Operating humidity range	35 to 85% RH (no dew condensation allowed)									
Pressure connection port	R1/4 (standard) ・ R3/8 ・ R1/2 ・ G1/4 ・ G3/8									
Cable	φ6 vinyl : 500mm ／ 2000mm (standard) Shield cable + atmospheric relief pipe (Excluding -003MP and -005MP)									
Structure	IP65									
Insulation resistance	100M Ω or more ／ 500VDC									
Withstand voltage	500VAC, 1 minute									
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)									
Weight	Approx 200g									
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.1% F.S.	+ 0.5% F.S.	+ 0.3% F.S.	+ 0.1% F.S.						

※ 1.We also manufacture compound pressure sensors (gauge pressure of 500 kPa or less).
※ 2.Make sure that the operating vacuum pressure is 10 kPa abs or more. (Operating temperature range: 0 - 60℃)
※ 3.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Cables / wires

	HLV	HLI
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—
Atmospheric relief pipe	Gauge pressure available	

Model

H	L	V	C	-	5	0	0	K	P	-	0	2	-	R	3

Type **Output mode** **Special** **Pressure range** **Unit of pressure** **Cable length** **Pressure connection port**

Output mode
V : Voltage
I : Current

Special
Space : Positive pressure
N : Negative pressure
C : Compound pressure

Unit of pressure
KP : kPa
MP : MPa

Cable length
Space : 0.5m
02 : 2m
05 : 5m
10 : 10m

Pressure connection port
Space : R1/4 (standard)
R3 : R3/8
R4 : R1/2
G2 : G1/4
G3 : G3/8

HLV-S6VL



Features **1.Compact** **2.Low power**

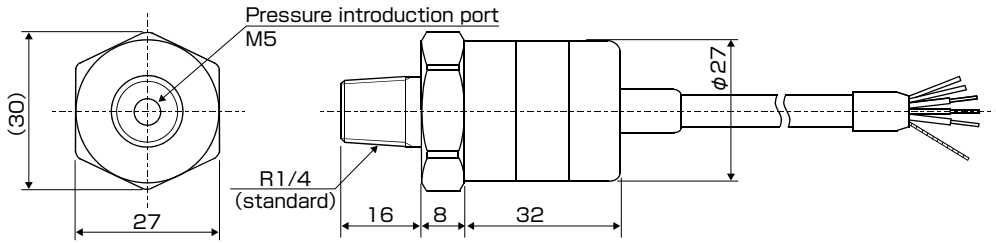
- Pressure sensor designed to operate on 3 to 5 VDC
- Low current consumption ideal for battery-powered sensors
- Pressure sensor with a welded structure that does not use an O-ring in the wetted part
- The wetted part is made of SUS316 or SUS316L that has high corrosion resistance.
- Support of a wide range of pressure media such as gas and medicinal solution
- Output signal of 0.1 to 1.1 VDC from a built-in amplifier circuit

Specifications

Model	HLV(-S6VL)									
	N-100KP	-020KP	-050KP	-100KP	-300KP	-500KP	-001MP	-002MP	-003MP	-005MP
Rated pressure ※1	0 to −100kPa	0 to 20kPa	0 to 50kPa	0 to 100kPa	0 to 300kPa	0 to 500kPa	0 to 1MPa	0 to 2MPa	0 to 3MPa	0 to 5MPa
Pressure type	Gauge pressure ※2								Shield gauge pressure	
Overpressure	200% of the rated pressure									
Wetted part material	Diaphragm : SUS316L Pressure port : SUS316									
Sealing liquid	Silicone oil									
Applicable media	Gas and fluid (media not damaging the wetted part material)									
Power supply	3 to 5VDC									
Output	0.1 to 1.1VDC									
Current consumption	2mA or less									
Load resistance	1k Ω or more									
Responsiveness	5msec or less									
Accuracy (linearity)	± 0.5% F.S. or less ※3 (± 0.3% F.S. or less)									
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)									
Compensated temperature range	0 to 60℃									
Operating temperature range (Measurement medium temperature)	− 20 to 80℃ (no freezing allowed) (− 20 to 100℃ no freezing allowed)									
Operating humidity range	35 ～ 85% RH (no dew condensation allowed)									
Pressure connection port	R1/4 (standard) ・ R3/8 ・ R1/2 ・ G1/4 ・ G3/8									
Cable	ϕ 6 vinyl : 500mm ／ 2000mm (standard) Shield cable + atmospheric relief pipe (Excluding -003MP and -005MP)									
Structure	IP65									
Insulation resistance	100M Ω or more ／ 500VDC									
Withstand voltage	500VAC, 1 minute									
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)									
Weight	Approx 200g									
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.1% F.S.	+ 0.5% F.S.	+ 0.3% F.S.	+ 0.1% F.S.						

※1.We also manufacture compound pressure sensors (gauge pressure of 500 kPa or less).
※2.Make sure that the operating vacuum pressure is 10 kPa abs or more. (Operating temperature range: 0 - 60℃)
※3.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Cables / wires

	HLV
Red	Power supply +
White	Output
Black	Common
Atmospheric relief pipe	Gauge pressure available

Model

H	L	V	C	-	5	0	0	K	P	-	0	2	-	R	3	-	S	6	V	L

- **Type** Output mode: **V** : Voltage
- **Special**: **Space** : Positive pressure, **N** : Negative pressure, **C** : Compound pressure
- **Pressure range** 500
- **Unit of pressure**: **KP** : kPa, **MP** : MPa
- **Cable length**: **Space** : 0.5m, **02** : 2m, **05** : 5m, **10** : 10m
- **Pressure connection port**: **Space** : R1/4 (standard), **R3** : R3/8, **R4** : R1/2, **G2** : G1/4, **G3** : G3/8
- **Voltage output** 0.1-1.1V/3-5V

HXV • HXI



Features **1.Compact** **2.Flat type**

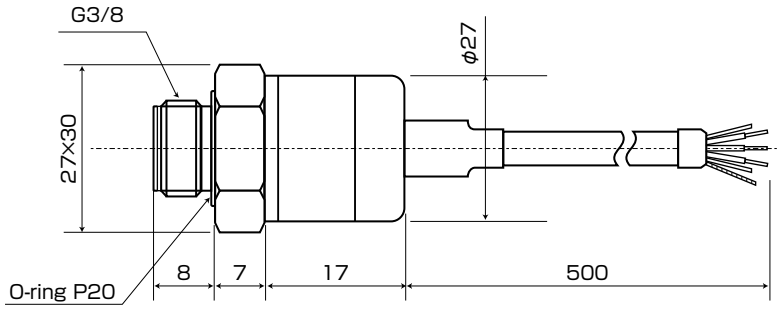
- Flat-type pressure sensor ideal for measuring the pressure of viscous fluid
- Gauge pressure sensors with a stainless steel diaphragm structure
- 32-mm-long sensor with an ultra compact built-in amplifier
- Wetted part easy to clean and ideal for measuring the pressure of medicinal solution and other types of fluid

Specifications

Model	HXV • HXI				
	N-100KP	-100KP	-300KP	-500KP	-001MP
Rated pressure ※1	0 to −100kPa	0 to 100kPa	0 to 300kPa	0 to 500kPa	0 to 1MPa
Pressure type	Gauge pressure ※2				
Overpressure	HXV : 200% of the rated pressure ／ HXI : 150% of the rated pressure				
Wetted part material	Diaphragm : SUS316L Pressure port : SUS316L O-ring : Fluororubber (standard)				
Sealing liquid	Silicone oil				
Applicable media	Gas and fluid (media not damaging the wetted part material)				
Power supply	12 to 28VDC				
Output	HXV : 1 to 5VDC ／ HXI : 4 to 20mADC				
Current consumption	HXV : 6mA or less				
Load resistance	HXV : 1k Ω or more ／ HXI : 600 Ω or less (at power of 24 VDC)				
Responsiveness	5msec or less				
Accuracy (linearity)	± 0.5% F.S. or less ※3 (± 0.3% F.S. or less)				
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)				
Compensated temperature range	0 to 60℃				
Operating temperature range	− 10 to 80℃ (no freezing allowed)				
Operating humidity range	35 to 85% RH (no dew condensation allowed)				
Pressure connection port	G3/8				
Cable	ϕ 6 vinyl : 500mm ／ 2000mm (standard) Shield cable + atmospheric relief pipe				
Structure	IP65				
Insulation resistance	100M Ω or more ／ 500VDC				
Withstand voltage	500VAC, 1 minute				
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)				
Weight	Approx 150g				
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.1% F.S.	+ 0.1% F.S.			

※ 1.We also manufacture compound pressure sensors (gauge pressure of 500 kPa or less).
※ 2.Make sure that the operating vacuum pressure is 10 kPa abs or more. (Operating temperature range: 0 - 60℃)
※ 3.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Cables / wires

	HXV	HXI
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—
Atmospheric relief pipe	Yes	Yes

Model

H	X	V	N	-	1	0	0	K	P	-	0	2	-	V

- **Type** — HX
- **Output mode** — **V** : Voltage, **I** : Current
- **Special** — **Space** : Positive pressure, **N** : Negative pressure, **C** : Compound pressure
- **Pressure range** — 100
- **Unit of pressure** — **KP** : kPa, **MP** : MPa
- **Cable length** — **Space** : 0.5m, **02** : 2m, **05** : 5m, **10** : 10m
- **O-ring** — **V** : Fluororubber, **N** : NBR, **X** : Other

PXV • PXI



Features **1.**Compact **2.**Special shape

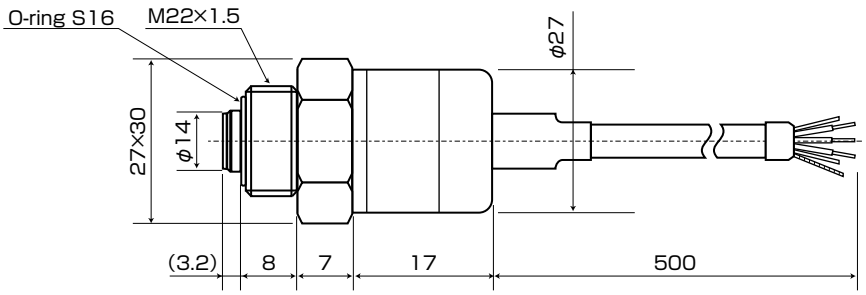
- Special shape with little liquid accumulation ideal for measuring the pressure of medicinal solution
- Gauge pressure sensors with a stainless steel diaphragm structure
- The wetted part is made of SUS316L that has high corrosion resistance.
- Output signal of 1 to 5 VDC or 4 to 20 mADC from a built-in amplifier circuit

Specifications

Model	PXV • PXI				
	N-100KP	-100KP	-300KP	-500KP	-001MP
Rated pressure ※1	0 to −100kPa	0 to 100kPa	0 to 300kPa	0 to 500kPa	0 to 1MPa
Pressure type	Gauge pressure ※2				
Overpressure	PXV : 200% of the rated pressure ／ PXI : 150% of the rated pressure				
Wetted part material	Diaphragm : SUS316L Pressure port : SUS316L O-ring : Fluororubber (standard)				
Sealing liquid	Silicone oil				
Applicable media	Gas and fluid (media not damaging the wetted part material)				
Power supply	12 to 28VDC				
Output	PXV : 1 to 5VDC ／ PXI : 4 to 20mADC				
Current consumption	PXV : 6mA or less				
Load resistance	PXV : 1k Ω or more ／ PXI : 600 Ω or less (at power of 24 VDC)				
Responsiveness	5msec or less				
Accuracy (linearity)	± 0.5% F.S. or less ※3 (± 0.3% F.S. or less)				
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)				
Compensated temperature range	0 to 60℃				
Operating temperature range	− 10 to 80℃ (no freezing allowed)				
Operating humidity range	35 to 85% RH (no dew condensation allowed)				
Pressure connection port	M22 (pitch 1.5)				
Cable	ϕ 6 vinyl : 500mm ／ 2000mm (standard) Shield cable + atmospheric relief pipe				
Structure	IP65				
Insulation resistance	100M Ω or more ／ 500VDC				
Withstand voltage	500VAC, 1 minute				
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)				
Weight	Approx 170g				
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.1% F.S.	+ 0.1% F.S.			

※ 1.We also manufacture compound pressure sensors (gauge pressure of 500 kPa or less).
※ 2.Make sure that the operating vacuum pressure is 10 kPa abs or more. (Operating temperature range: 0 - 60℃)
※ 3.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Cables / wires

	PXV	PXI
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—
Atmospheric relief pipe	Yes	Yes

Model

P	X	I	C	-	1	0	0	K	P	-	0	2	-	V

Type
Output mode
V : Voltage
I : Current
Special
Space : Positive pressure
N : Negative pressure
C : Compound pressure
Pressure range
Unit of pressure
KP : kPa
MP : MPa
Cable length
Space : 0.5m
02 : 2m
05 : 5m
10 : 10m
O-ring
V : Fluororubber
N : NBR
X : Other

HJI



Features **1.Compact** **2.Sanitary type**

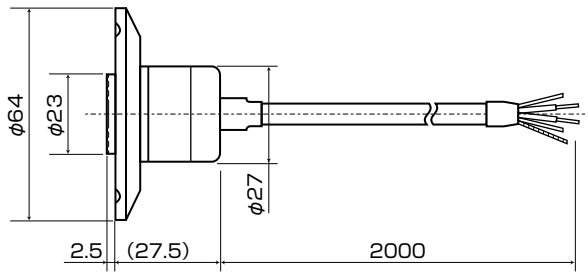
- Sanitary-type pressure sensor easy to clean
- IDF clamp 2S mounting structure (ferrule type)
- High accuracy and excellent durability for a wide range of pressures
- Output signal of 4 to 20 mADC from a built-in amplifier circuit

Specifications

Model	HJI						
	N-100KP	-020KP	-050KP	-100KP	-300KP	-500KP	-001MP
Rated pressure ※1	0 to −100kPa	0 to 20kPa	0 to 50kPa	0 to 100kPa	0 to 300kPa	0 to 500kPa	0 to 1MPa
Pressure type	Gauge pressure ※2						
Overpressure	150% of the rated pressure						
Wetted part material	Diaphragm : SUS316L Pressure port : SUS316						
Sealing liquid	Silicone oil						
Applicable media	Gas and fluid (media not damaging the wetted part material)						
Power supply	12 to 28VDC						
Output	4 to 20mADC						
Load resistance	600 Ω or less (at power of 24 VDC)						
Responsiveness	5msec or less						
Accuracy (linearity)	± 0.5% F.S. or less ※3 (± 0.3% F.S. or less)						
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)						
Compensated temperature range	0 to 60℃						
Operating temperature range	− 10 to 80℃ (no freezing allowed)						
Operating humidity range	35 to 85% RH (no dew condensation allowed)						
Pressure connection port	IDF clamp 2S (ferrule type)						
Cable	φ 6 vinyl (コネクタ付) : 2000mm (standard) Shield cable + atmospheric relief pipe						
Structure	IP65						
Insulation resistance	100M Ω or more ／ 500VDC						
Withstand voltage	500VAC, 1 minute						
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)						
Weight	Approx 220g						
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.1% F.S.	+ 0.5% F.S.	+ 0.3% F.S.	+ 0.1% F.S.			

※ 1.We also manufacture compound pressure sensors (gauge pressure of 500 kPa or less).
※ 2.Make sure that the operating vacuum pressure is 10 kPa abs or more. (Operating temperature range: 0 - 60℃)
※ 3.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Cables / wires

	HJI
Red	Power supply +
White	Power supply −
Atmospheric relief pipe	Yes

Model

H	J	I	N	-	0	5	0	K	P	-	0	2

Type	Output mode	Special	Pressure range	Unit of pressure	Cable length
	I : 電流	**Space** : Positive pressure		**KP** : kPa	**Space** : 0.5m
		N : Negative pressure		**MP** : MPa	**02** : 2m
		C : Compound pressure			**05** : 5m
					10 : 10m

JP-1000



Features **1.Compact** **2.For noncorrosive fluid**

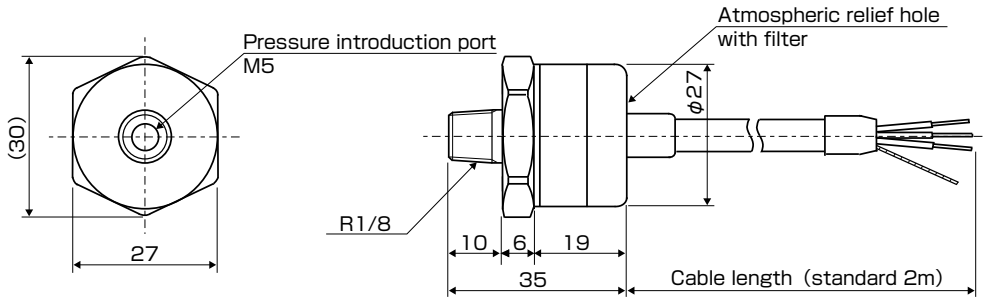
- Lightweight, compact, and robust gauge pressure sensor
- A wide pressure range and positive pressure, negative pressure, and compound pressure
- Output signal of 1 to 5 VDC or 4 to 20 mA from a built-in amplifier circuit
- Inexpensive noncorrosive fluid

Specifications

Model	JP-1300・JP-1200					
	-020KP	-050KP	-100KP	-300KP	-500KP	-001MP
Rated pressure ※1	0 to 20kPa	0 to 50kPa	0 to 100kPa	0 to 300kPa	0 to 500kPa	0 to 1MPa
Pressure type	Gauge pressure					
Overpressure	JP-1300 : 200% of the rated pressure JP-1200 : 150% of the rated pressure					150%
Wetted part material	Pressure port : SUS316 Glass pedestal : Pyrex glass Sensor element : Silicon					
Applicable media	Non-corrosive gas and non-corrosive liquid					
Power supply	12 to 28VDC					
Output	JP-1300 : 1 to 5VDC JP-1200 : 4 to 20 m ADC					
Current consumption	JP-1300 : 6mA or less					
Load resistance	JP-1300 : 1k Ω or more JP-1200 : 600 Ω or less (at power of 24 VDC)					
Responsiveness	5msec or less					
Accuracy (linearity)	± 0.5% F.S. or less (± 0.3% F.S. or less)					
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)					
Compensated temperature range	0 to 60℃					
Operating temperature range	− 10 to 80℃ (no freezing allowed)					
Operating humidity range	35 to 85% RH (no dew condensation allowed)					
Pressure connection port	R1/8					
Cable	ϕ 6 vinyl : Shield cable 2m (standard)					
Structure	IP65					
Insulation resistance	100M Ω or more ／ 500VDC					
Withstand voltage	500VAC, 1 minute					
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)					
Weight	Approx 140g					

※ 1.We also manufacture negative pressure and compound pressure sensors (gauge pressure of 500 kPa or less).

Dimensions (Units : mm)



Cables / wires

	JP-1300	JP-1200
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—

Model

J P - 1 2 0 0 - 0 2 0 K P - 0 2

Type | Output mode | Special | Pressure range | Unit of pressure | Cable length

Output mode
1 : Element
2 : Current 4-20mA
3 : Voltage 1-5V
4 : Voltage 1-2V
(Power supply 6 to 12V)

Special
Pressure type
0 : Positive pressure
1 : Negative pressure
2 : Compound pressure

Unit of pressure
KP : kPa
MP : MPa

Cable length
specifiable
02 : 2m (standard)
05 : 5m
10 : 10m

※ Special
0 : None
1 to 9 : Special
Accuracy ／ Output ／ unit etc.

ZTV • ZTI



Features **1.**Compact **2.**Titanium

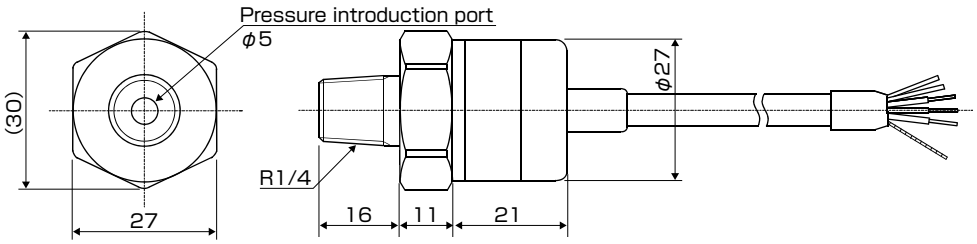
- Titanium gauge pressure sensor
- Compact, lightweight, and high-accuracy sensor
- Support of a wide range of media such as seawater, brackish water, and water
- Output of 1 to 5 VDC or 4 to 20 mADC from a built-in amplifier circuit

Specifications

Model	ZTV • ZTI						
	N-100KP	-020KP	-050KP	-100KP	-300KP	-500KP	-001MP
Rated pressure ※1	0 to − 100kPa	0 to 20kPa	0 to 50kPa	0 to 100kPa	0 to 300kPa	0 to 500kPa	0 to 1MPa
Pressure type	Gauge pressure ※2						
Overpressure	ZTV : 200% of the rated pressure ／ ZTI : 150% of the rated pressure						
Wetted part material	Diaphragm : Titanium Pressure port : Titanium O-ring : Fluororubber (standard)						
Sealing liquid	Silicone oil						
Applicable media	Gas and fluid (media not damaging the wetted part material)						
Power supply	12 to 28VDC						
Output	ZTV : 1 to 5VDC ／ ZTI : 4 to 20mADC						
Current consumption	ZTV : 6mA or less						
Load resistance	ZTV : 1k Ω or more ／ ZTI : 600 Ω or less (at power of 24 VDC)						
Responsiveness	5msec or less						
Accuracy (linearity)	± 0.5% F.S. or less ※3 (± 0.3% F.S. or less)						
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)						
Compensated temperature range	0 to 60℃						
Operating temperature range	− 10 to 80℃ (no freezing allowed)						
Operating humidity range	35 to 85% RH (no dew condensation allowed)						
Pressure connection port	R1/4						
Cable	ϕ 6 vinyl : 500mm ／ 2000mm (standard) Shield cable + atmospheric relief pipe						
Structure	IP65						
Insulation resistance	100M Ω or more ／ 500VDC						
Withstand voltage	500VAC, 1 minute						
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)						
Weight	Approx 120g						
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.1% F.S.	+ 0.5% F.S.	+ 0.3% F.S.	+ 0.1% F.S.			

※ 1.We also manufacture compound pressure sensors (gauge pressure of 500 kPa or less).
※ 2.Make sure that the operating vacuum pressure is 10 kPa abs or more. (Operating temperature range: 0 - 60℃)
※ 3.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Cables / wires

	ZTV	ZTI
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—
Atmospheric relief pipe	Yes	Yes

Model

Z T	V C	-	0 2 0	K P	- 0 2	-	V
Type	Output mode	Special	Pressure range	Unit of pressure	Cable length		O-ring

- Output mode: **V** : Voltage, **I** : Current
- Special: **Space** : Positive pressure, **N** : Negative pressure, **C** : Compound pressure
- Unit of pressure: **KP** : kPa, **MP** : MPa
- Cable length: **Space** : 0.5m, **02** : 2m, **05** : 5m, **10** : 10m
- O-ring: **V** : Fluororubber, **N** : NBR, **X** : Other

ZLV • ZLI



Features **1.Compact** **2.Titanium welded structure**

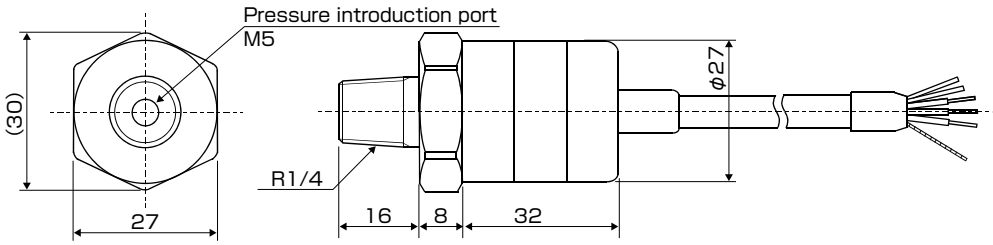
- The wetted part is entirely made of titanium that has high corrosion resistance.
- Gauge pressure sensor with a welded structure that does not use an O-ring in the wetted part
- Support of a wide range of pressure media such as seawater, gas, and medicinal solution
- Output signal of 1 to 5 VDC or 4 to 20 mADC from a built-in amplifier circuit

Specifications

Model	ZLV • ZLI						
	N-100KP	-020KP	-050KP	-100KP	-300KP	-500KP	-001MP
Rated pressure ※1	0 to − 100kPa	0 to 20kPa	0 to 50kPa	0 to 100kPa	0 to 300kPa	0 to 500kPa	0 to 1MPa
Pressure type	Gauge pressure ※2						
Overpressure	ZLV : 200% of the rated pressure ／ ZLI : 150% of the rated pressure						
Wetted part material	Diaphragm : Titanium　Pressure port : Titanium						
Sealing liquid	Silicone oil						
Applicable media	Gas and fluid (media not damaging the wetted part material)						
Power supply	12 to 28VDC						
Output	ZLV : 1 to 5VDC ／ ZLI : 4 to 20mADC						
Current consumption	ZLV : 6mA or less						
Load resistance	ZLV : 1k Ω or more ／ ZLI : 600 Ω or less (at power of 24 VDC)						
Responsiveness	5msec or less						
Accuracy (linearity)	± 0.5% F.S. or less ※3 (± 0.3% F.S. or less)						
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)						
Compensated temperature range	0 to 60℃						
Operating temperature range	− 20 to 80℃ (no freezing allowed)						
(Measurement medium temperature)	− 20 to 100℃ (no freezing allowed)						
Operating humidity range	35 to 85% RH (no dew condensation allowed)						
Pressure connection port	R1/4						
Cable	ϕ 6 vinyl : 500mm ／ 2000mm (standard)　Shield cable + atmospheric relief pipe						
Structure	IP65						
Insulation resistance	100M Ω or more ／ 500VDC						
Withstand voltage	500VAC, 1 minute						
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)						
Weight	Approx 140g						
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.1% F.S.	+ 0.5% F.S.	+ 0.3% F.S.	+ 0.1% F.S.			

※ 1.We also manufacture compound pressure sensors (gauge pressure of 500 kPa or less).
※ 2.Make sure that the operating vacuum pressure is 10 kPa abs or more. (Operating temperature range: 0 - 60℃)
※ 3.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Cables / wires

	ZLV	ZLI
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—
Atmospheric relief pipe	Yes	Yes

Model

Z	L	V	C	-	0	5	0	K	P	-	0	2

Type	Output mode	Special	Pressure range	Unit of pressure	Cable length
	V : Voltage	**Space** : Positive pressure		**KP** : kPa	**Space** : 0.5m
	I : Current	**N** : Negative pressure		**MP** : MPa	**02** : 2m
		C : Compound pressure			**05** : 5m
					10 : 10m

RLV • RLI



Features **1.Compact** **2.With adjustment function**

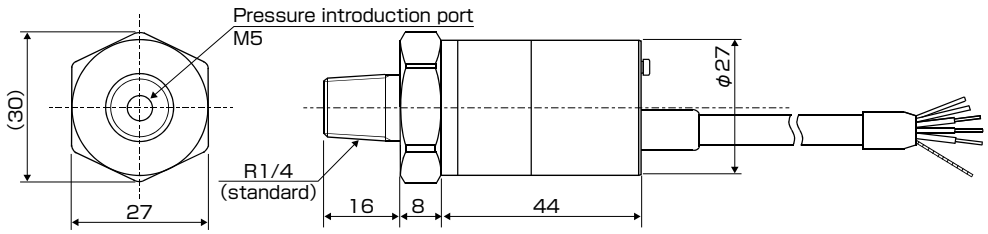
- Pressure sensor with a welded structure that does not use an O-ring in the wetted part
- The wetted part is made of SUS316 or SUS316L that has high corrosion resistance.
- Support of a wide range of pressure media such as gas and medicinal solution
- Output signal of 1 to 5 VDC or 4 to 20 mADC from a built-in amplifier circuit
- With trimmer for zero and span adjustment

Specifications

Model	RLV • RLI									
	N-100KP	-020KP	-050KP	-100KP	-300KP	-500KP	-001MP	-002MP	-003MP	-005MP
Rated pressure ※1	0 to −100kPa	0 to 20kPa	0 to 50kPa	0 to 100kPa	0 to 300kPa	0 to 500kPa	0 to 1MPa	0 to 2MPa	0 to 3MPa	0 to 5MPa
Pressure type	Gauge pressure ※2								Shield gauge pressure	
Overpressure	RLV : 200% of the rated pressure ／ RLI : 150% of the rated pressure									
Wetted part material	Diaphragm : SUS316L　Pressure port : SUS316									
Sealing liquid	Silicone oil									
Applicable media	Gas and fluid (media not damaging the wetted part material)									
Power supply	12 to 28VDC									
Output	RLV : 1 to 5VDC ／ RLI : 4 to 20mADC									
Current consumption	RLV : 6mA or less									
Load resistance	RLV : 1k Ω以上／ RLI : 600 Ω or less (at power of 24 VDC)									
Responsiveness	5msec or less									
Accuracy (linearity)	± 0.5% F.S. or less ※3 (± 0.3% F.S. or less)									
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)									
Compensated temperature range	0 to 60℃									
Operating temperature range	− 20 to 80℃ (no freezing allowed)									
(Measurement medium temperature)	− 20 to 100℃ (no freezing allowed)									
Operating humidity range	35 to 85% RH (no dew condensation allowed)									
Pressure connection port	R1/4 (standard) ・ R3/8 ・ R1/2 ・ G1/4 ・ G3/8									
Cable	φ6 vinyl :500mm ／ 2000mm (standard) Shield cable + atmospheric relief pipe (Excluding -003MP and -005MP)									
Regulator	With trimmer for zero and span adjustment									
Insulation resistance	100M Ω or more ／ 500VDC									
Withstand voltage	500VAC, 1 minute									
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)									
Weight	Approx 200g									
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.1% F.S.	+ 0.5% F.S.	+ 0.3% F.S.	+ 0.1% F.S.						

※ 1.We also manufacture compound pressure sensors (gauge pressure of 500 kPa or less).
※ 2.Make sure that the operating vacuum pressure is 10 kPa abs or more. (Operating temperature range: 0 - 60℃)
※ 3.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Cables / wires

	RLV	RLI
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—
Atmospheric relief pipe	Gauge pressure available	

Model

R L V C - 5 0 0 K P - 0 2 - R 3

Type	Output mode	Special	Pressure range	Unit of pressure	Cable length	Pressure connection port
	V : Voltage	**Space** : Positive pressure		**KP** : kPa	**Space** : 0.5m	**Space** : R1/4 (standard)
	I : Current	**N** : Negative pressure		**MP** : MPa	**02** : 2m	**R3** : R3/8
		C : Compound pressure			**05** : 5m	**R4** : R1/2
					10 : 10m	**G2** : G1/4
						G3 : G3/8

CTV • CTI



Features **1.**Connector type **2.**For gauge pressure

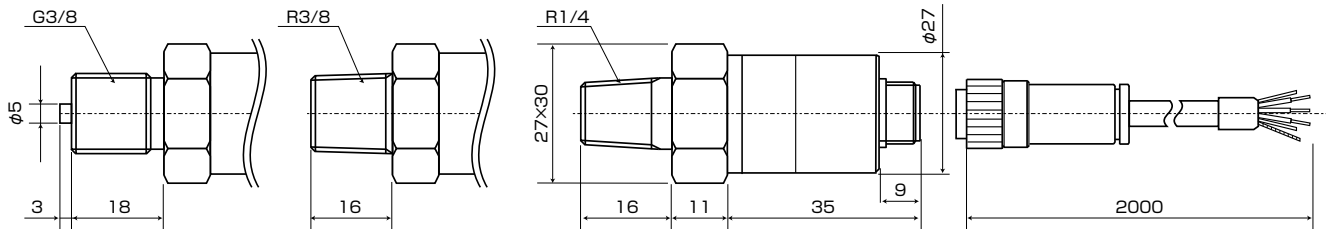
- Connector type of the “HT/HG series” gauge pressure sensor
- Easy to handle and highly maintainable
- Support of a wide range of pressure media such as water and oil
- Output signal of 1 to 5 VDC or 4 to 20 mADC from a built-in amplifier circuit

Specifications

Model	CTV / CTI							
	N-100KP	-020KP	-050KP	-100KP	-300KP	-500KP	-001MP	-002MP
Rated pressure ※1	0 to −100kPa	0 to 20kPa	0 to 50kPa	0 to 100kPa	0 to 300kPa	0 to 500kPa	0 to 1MPa	0 to 2MPa
Pressure type	Gauge pressure ※2							
Overpressure	CTV : 200% of the rated pressure ／ CTI : 150% of the rated pressure							
Wetted part material	Diaphragm : SUS316L Pressure port : SUS316 O-ring : Fluororubber (standard)							
Sealing liquid	Silicone oil							
Applicable media	Gas and fluid (media not damaging the wetted part material)							
Power supply	12 to 28VDC							
Output	CTV : 1 to 5VDC ／ CTI : 4 to 20mADC							
Current consumption	CTV : 6mA or less							
Load resistance	CTV : 1k Ω or more ／ CTI : 600 Ω or less (at power of 24 VDC)							
Responsiveness	5msec or less							
Accuracy (linearity)	± 0.5% F.S. or less ※3 (± 0.3% F.S. or less)							
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)							
Compensated temperature range	0 to 60℃							
Operating temperature range	− 10 to 80℃ (no freezing allowed)							
Operating humidity range	35 to 85% RH (no dew condensation allowed)							
Pressure connection port	R1/4 (standard) · R3/8 · G3/8							
Cable	ϕ 6 vinyl (with connector) : 2000mm (standard) Shield cable + atmospheric relief pipe							
Structure	IP66							
Insulation resistance	100M Ω or more ／ 500VDC							
Withstand voltage	500VAC, 1 minute							
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)							
Weight	Approx 230g							
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.1% F.S.	+ 0.5% F.S.	+ 0.3% F.S.	+ 0.1% F.S.				

※ 1.We also manufacture compound pressure sensors (gauge pressure of 500 kPa or less).
※ 2.Make sure that the operating vacuum pressure is 10 kPa abs or more. (Operating temperature range: 0 - 60℃)
※ 3.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Cables / wires

	CTV	CTI
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—
Atmospheric relief pipe	Yes	Yes

Model

C T I N - 1 0 0 K P - 0 2 - V - R 3

Type	Output mode	Pressure range	Unit of pressure	Cable length	O-ring	Pressure connection port
	V : Voltage	Special	**KP** : kPa	**02** : 2m	**V** : Fluororubber	**Space**:R1/4(standard)
	I : Current	**Space** : Positive pressure	**MP** : MPa	**05** : 5m	**N** : NBR	**R3** : R3/8
		N : Negative pressure		**10** : 10m	**X** : Other	**G3** : G3/8
		C : Compound pressure				

CLV • CLI



Features **1.Connector type** **2.Welded structure**

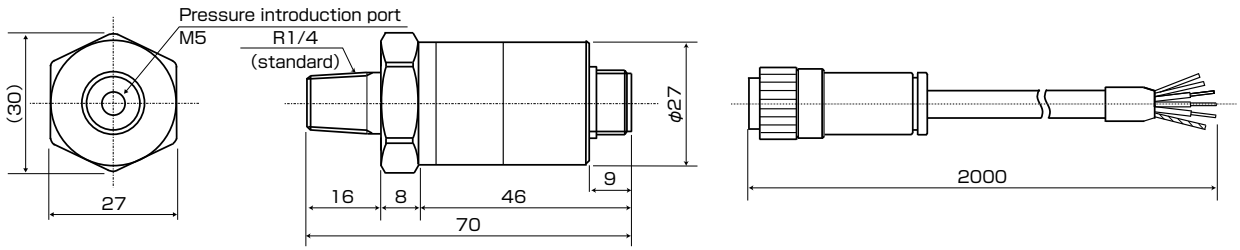
- Connector type of the “HL series” pressure sensor with a welded structure
- Easy to handle and highly maintainable
- Support of a wide range of pressure media such as gas and medicinal solution
- Output signal of 1 to 5 VDC or 4 to 20 mADC from a built-in amplifier circuit

Specifications

Model	CLV • CLI									
	N-100KP	-020KP	-050KP	-100KP	-300KP	-500KP	-001MP	-002MP	-003MP	-005MP
Rated pressure ※1	0 to −100kPa	0 to 20kPa	0 to 50kPa	0 to 100kPa	0 to 300kPa	0 to 500kPa	0 to 1MPa	0 to 2MPa	0 to 3MPa	0 to 5MPa
Pressure type	Gauge pressure ※2								Shield gauge pressure	
Overpressure	CLV : 200% of the rated pressure ／ CLI : 150% of the rated pressure									
Wetted part material	Diaphragm : SUS316L Pressure port : SUS316									
Sealing liquid	Silicone oil									
Applicable media	Gas and fluid (media not damaging the wetted part material)									
Power supply	12 to 28VDC									
Output	CLV : 1 to 5VDC ／ CLI : 4 to 20mADC									
Current consumption	CLV : 6mA or less									
Load resistance	CLV : 1k Ω or more ／ CLI : 600 Ω or less (at power of 24 VDC)									
Responsiveness	5msec or less									
Accuracy (linearity)	± 0.5% F.S. or less ※3 (± 0.3% F.S. or less)									
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)									
Compensated temperature range	0 to 60℃									
Operating temperature range	− 20 to 80℃ (no freezing allowed)									
(Measurement medium temperature)	− 20 to 100℃ (no freezing allowed)									
Operating humidity range	35 to 85% RH (no dew condensation allowed)									
Pressure connection port	R1/4 (standard) ・ R3/8 ・ R1/2 ・ G1/4 ・ G3/8									
Cable	φ6 vinyl : (with connector) 2000mm (standard) Shield cable + atmospheric relief pipe (Excluding -003MP and -005MP)									
Structure	IP66									
Insulation resistance	100M Ω or more ／ 500VDC									
Withstand voltage	500VAC, 1 minute									
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)									
Weight	Approx 260g									
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.1% F.S.	+ 0.5% F.S.	+ 0.3% F.S.	+ 0.1% F.S.						

※ 1.We also manufacture compound pressure sensors (gauge pressure of 500 kPa or less).
※ 2.Make sure that the operating vacuum pressure is 10 kPa abs or more. (Operating temperature range: 0 - 60℃)
※ 3.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Cables / wires

	CLV	CLI
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—
Atmospheric relief pipe	Gauge pressure available	

Model

C L I C - 3 0 0 K P - 0 2 - R 3

Type
Output mode
V : Voltage
I : Current
Special
Space : Positive pressure
N : Negative pressure
C : Compound pressure
Pressure range
Unit of pressure
KP : kPa
MP : MPa
Cable length
02 : 2m (standard)
05 : 5m
10 : 10m
Pressure connection port
Space : R1/4 (standard)
R3 : R3/8
R4 : R1/2
G2 : G1/4
G3 : G3/8

CXV • CXI



Features **1.**Connector type **2.**Flat type

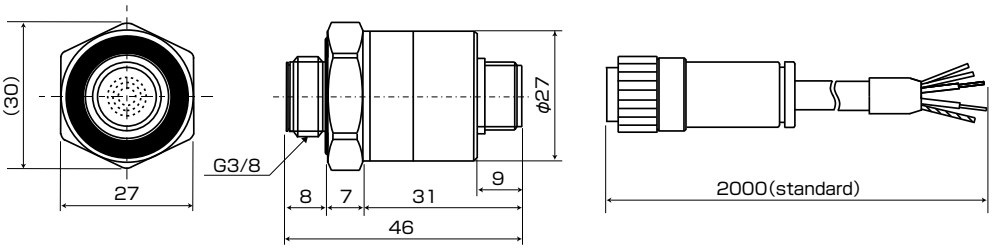
- Connector type of the “HX series” gauge pressure sensor
- Easy to handle and highly maintainable
- Flat-type pressure sensor ideal for measuring the pressure of viscous fluid
- Gauge pressure sensors with a stainless steel diaphragm structure
- Wetted part easy to clean and ideal for measuring the pressure of medicinal solution and other types of fluid

Specifications

Model	CXV • CXI				
	N-100KP	-100KP	-300KP	-500KP	-001MP
Rated pressure ※1	0 to −100kPa	0 to 100kPa	0 to 300kPa	0 to 500kPa	0 to 1MPa
Pressure type	Gauge pressure ※2				
Overpressure	CXV : 200% of the rated pressure ／ CXI : 150% of the rated pressure				
Wetted part material	Diaphragm : SUS316L Pressure port : SUS316L O-ring : Fluororubber (standard)				
Sealing liquid	Silicone oil				
Applicable media	Gas and fluid (media not damaging the wetted part material)				
Power supply	12 to 28VDC				
Output	CXV : 1 to 5VDC ／ CXI : 4 to 20mADC				
Current consumption	CXV : 6mA or less				
Load resistance	CXV : 1k Ω or more ／ CXI : 600 Ω or less (at power of 24 VDC)				
Responsiveness	5msec or less				
Accuracy (linearity)	± 0.5% F.S. or less ※3 (± 0.3% F.S. or less)				
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)				
Compensated temperature range	0 to 60℃				
Operating temperature range	− 10 to 80℃ (no freezing allowed)				
Operating humidity range	35 to 85% RH (no dew condensation allowed)				
Pressure connection port	G3/8				
Cable	ϕ 6 vinyl (with connector) : 2000mm (standard) Shield cable + atmospheric relief pipe				
Structure	IP66				
Insulation resistance	100M Ω or more ／ 500VDC				
Withstand voltage	500VAC, 1 minute				
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)				
Weight	Approx 210g				
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.1% F.S.	+ 0.1% F.S.			

※ 1.We also manufacture compound pressure sensors (gauge pressure of 500 kPa or less).
※ 2.Make sure that the operating vacuum pressure is 10 kPa abs or more. (Operating temperature range: 0 - 60℃)
※ 3.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Cables / wires

	CXV	CXI
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—
Atmospheric relief pipe	Yes	Yes

Model

C	X	V	N	-	1	0	0	K	P	-	0	2	-	V

- **Type** — **CX**
- **Output mode** — **V** : Voltage / **I** : Current
- **Special** — **Space** : Positive pressure / **N** : Negative pressure / **C** : Compound pressure
- **Pressure range** — **100**
- **Unit of pressure** — **KP** : kPa / **MP** : MPa
- **Cable length** — **Space** : 0.5m / **02** : 2m / **05** : 5m / **10** : 10m
- **O-ring** — **V** : Fluororubber / **N** : NBR / **X** : Other

CZLV • CZLI



Features **1.**Connector type **2.**Titanium

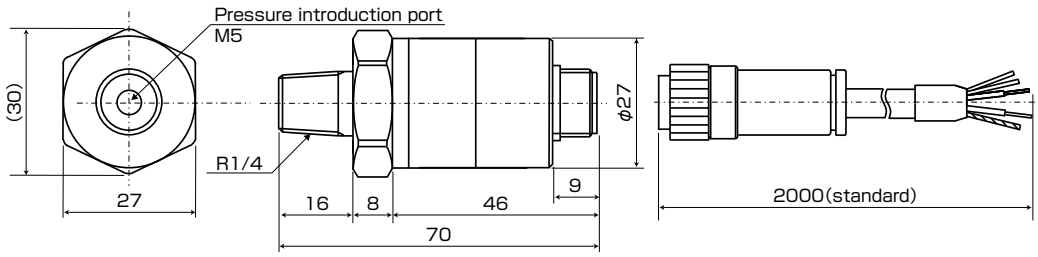
- Connector type of the “ZL series” gauge pressure sensor
- Easy to handle and highly maintainable
- The wetted part is entirely made of titanium that has high corrosion resistance.
- Gauge pressure sensor with a welded structure that does not use an O-ring in the wetted part
- Support of a wide range of pressure media such as seawater, gas, and medicinal solution

Specifications

Model	CZLV • CZLI						
	N-100KP	-020KP	-050KP	-100KP	-300KP	-500KP	-001MP
Rated pressure ※1	0 to −100kPa	0 to 20kPa	0 to 50kPa	0 to 100kPa	0 to 300kPa	0 to 500kPa	0 to 1MPa
Pressure type	Gauge pressure ※2						
Overpressure	CZLV : 200% of the rated pressure ／ CZLI : 150% of the rated pressure						
Wetted part material	Diaphragm : Titanium　Pressure port : Titanium						
Sealing liquid	Silicone oil						
Applicable media	Gas and fluid (media not damaging the wetted part material)						
Power supply	12 to 28VDC						
Output	CZLV : 1 to 5VDC ／ CZLI : 4 to 20mADC						
Current consumption	CZLV : 6mA or less						
Load resistance	CZLV : 1k Ω or more ／ CZLI : 600 Ω or less (at power of 24 VDC)						
Responsiveness	5msec or less						
Accuracy (linearity)	± 0.5% F.S. or less ※3 (± 0.3% F.S. or less)						
Temperature characteristics	± 0.05% F.S. ／℃以下 (0 to 60℃)						
Compensated temperature range	0 to 60℃						
Operating temperature range	− 20 to 80℃ (no freezing allowed)						
(Measurement medium temperature)	− 20 to 100℃ (no freezing allowed)						
Operating humidity range	35 to 85% RH (no dew condensation allowed)						
Pressure connection port	R1/4						
Cable	φ 6 vinyl (with connector) : 2000mm (standard)　Shield cable + atmospheric relief pipe						
Structure	IP66						
Insulation resistance	100M Ω or more ／ 500VDC						
Withstand voltage	500VAC, 1 minute						
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)						
Weight	Approx 200g						
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.1% F.S.	+ 0.5% F.S.	+ 0.3% F.S.	+ 0.1% F.S.			

※ 1.We also manufacture compound pressure sensors (gauge pressure of 500 kPa or less).
※ 2.Make sure that the operating vacuum pressure is 10 kPa abs or more. (Operating temperature range: 0 - 60℃)
※ 3.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Cables / wires

	CZLV	CZLI
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—
Atmospheric relief pipe	Yes	Yes

Model

C Z L V N - 1 0 0 K P - 0 2

Type	Output mode	Special	Pressure range	Unit of pressure	Cable length
	V : Voltage			**KP** : kPa	**Space** : 0.5m
	I : Current	**Space** : Positive pressure		**MP** : MPa	**02** : 2m
		N : Negative pressure			**05** : 5m
		C : Compound pressure			**10** : 10m

MTI



Features **1.Terminal box type** **2.For gauge pressure**

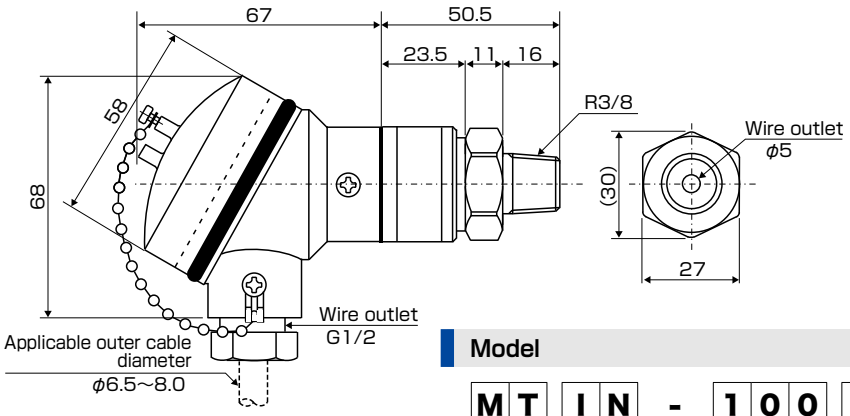
- Terminal box type of the “HT/HG series” gauge pressure sensor
- Outdoor specification / Waterproof IP67 structure
- Support of a wide range of pressure media such as water and oil
- Output signal of 4 to 20 mADC from a built-in amplifier circuit

Specifications

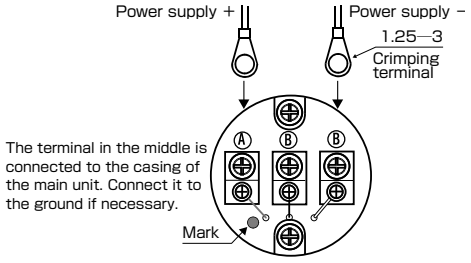
Model	MTI							
	N-100KP	-020KP	-050KP	-100KP	-300KP	-500KP	-001MP	-002MP
Rated pressure ※1	0 to −100kPa	0 to 20kPa	0 to 50kPa	0 to 100kPa	0 to 300kPa	0 to 500kPa	0 to 1MPa	0 to 2MPa
Pressure type	Gauge pressure ※2 ※3							
Overpressure	150% of the rated pressure							
Wetted part material	Diaphragm : SUS316L Pressure port : SUS316 O-ring : Fluororubber (standard)							
Sealing liquid	Silicone oil							
Applicable media	Gas and fluid (media not damaging the wetted part material)							
Power supply	12 to 28VDC							
Output	4 to 20mADC							
Load resistance	600 Ω or less (at power of 24 VDC)							
Responsiveness	5msec or less							
Accuracy (linearity)	± 0.5% F.S. or less ※4 (± 0.3% F.S. or less)							
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)							
Compensated temperature range	0 to 60℃							
Operating temperature range	− 10 to 80℃ (no freezing allowed)							
Operating humidity range	35 to 85% RH (no dew condensation allowed)							
Pressure connection port	R3/8 (standard) · G3/8 · R1/4							
Terminal box	Material : Aluminum die casting							
Wire outlet	G1/2 Applicable outer cable diameter : ϕ 6.5 to 8.0							
Structure	IP67							
Insulation resistance	100M Ω or more ／ 500VDC							
Withstand voltage	500VAC, 1 minute							
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)							
Weight	Approx 320g							
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.1% F.S.	+ 0.5% F.S.	+ 0.3% F.S.	+ 0.1% F.S.				

※ 1.We also manufacture compound pressure sensors (gauge pressure of 500 kPa or less).
※ 2.Make sure that the operating vacuum pressure is 10 kPa abs or more. (Operating temperature range: 0 - 60℃)
※ 3.Use a wiring cable for atmospheric pressure correction.
※ 4.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Internal terminal block / wires



Model

M	T	I	N	-	1	0	0	K	P	-	V	-	R	3

- **Type** — **I** : Current
- **Output mode** — Special: **Space** : Positive pressure, **N** : Negative pressure, **C** : Compound pressure
- **Pressure range**
- **Unit of pressure** — **KP** : kPa, **MP** : MPa
- **O-ring** — **V** : Fluororubber, **N** : NBR, **X** : Other
- **Pressure connection port** — **Space** : R1/4, **R3** : R3/8 (standard), **G3** : G3/8

MLI



Features **1.Terminal box type** **2.Welded structure**

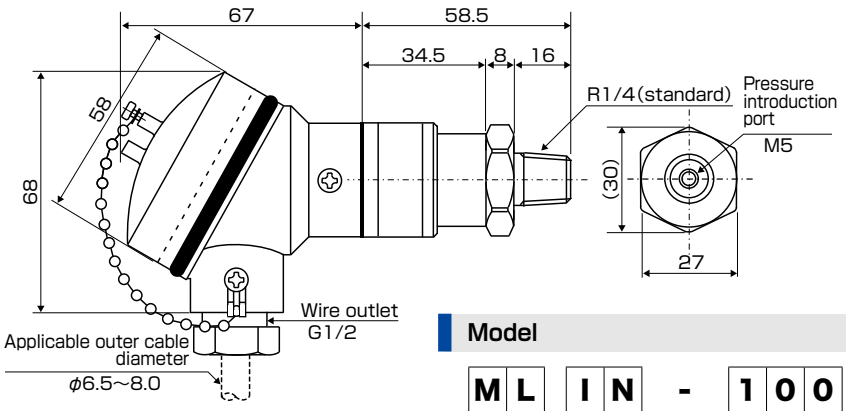
- Terminal box type of the "HL series" pressure sensor with a welded structure
- Outdoor specification / Waterproof IP67 structure
- Support of a wide range of pressure media such as gas and medicinal solution
- Output signal of 4 to 20 mADC from a built-in amplifier circuit

Specifications

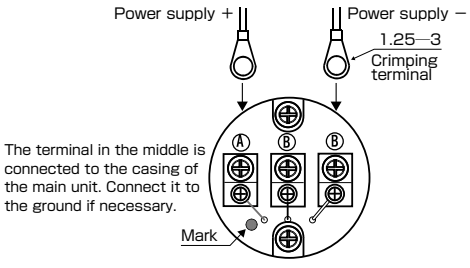
Model	MLI									
	N-100KP	-020KP	-050KP	-100KP	-300KP	-500KP	-001MP	-002MP	-003MP	-005MP
Rated pressure ※1	0 to −100kPa	0 to 20kPa	0 to 50kPa	0 to 100kPa	0 to 300kPa	0 to 500kPa	0 to 1MPa	0 to 2MPa	0 to 3MPa	0 to 5MPa
Pressure type	Gauge pressure ※2 ※3									Shield gauge pressure
Overpressure	150% of the rated pressure									
Wetted part material	Diaphragm : SUS316L Pressure port : SUS316									
Sealing liquid	Silicone oil									
Applicable media	Gas and fluid (media not damaging the wetted part material)									
Power supply	12 to 28VDC									
Output	4 to 20mADC									
Load resistance	600 Ω or less (at power of 24 VDC)									
Responsiveness	5msec or less									
Accuracy (linearity)	± 0.5% F.S. or less ※4 (± 0.3% F.S. or less)									
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)									
Compensated temperature range	0 to 60℃									
Operating temperature range	− 20 to 80℃ (no freezing allowed)									
(Measurement medium temperature)	− 20 to 100℃ (no freezing allowed)									
Operating humidity range	35 to 85% RH (no dew condensation allowed)									
Pressure connection port	R1/4 (standard) ・ R3/8 ・ R1/2 ・ G1/4 ・ G3/8									
Terminal box	Material : Aluminum die casting									
Wire outlet	G1/2 Applicable outer cable diameter : φ 6.5 to 8.0									
Structure	IP67									
Insulation resistance	100M Ω or more ／ 500VDC									
Withstand voltage	500VAC, 1 minute									
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)									
Weight	Approx 320g									
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.1% F.S.	+ 0.5% F.S.	+ 0.3% F.S.	+ 0.1% F.S.						

※1.We also manufacture compound pressure sensors (gauge pressure of 500 kPa or less).
※2.Make sure that the operating vacuum pressure is 10 kPa abs or more. (Operating temperature range: 0 - 60℃)
※3.Use a wiring cable for atmospheric pressure correction.
※4.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Internal terminal block / wires



Model

M L	I N	-	1 0 0	K P	-	R 3
Type	Output mode	Special	Pressure range	Unit of pressure		Pressure connection port
	I : Current	Space : Positive pressure		KP : kPa		Space : R1/4 (standard)
		N : Negative pressure		MP : MPa		R3 : R3/8
		C : Compound pressure				R4 : R1/2
						G2 : G1/4
						G3 : G3/8

MJI



Features **1.**Terminal box type **2.**Sanitary type

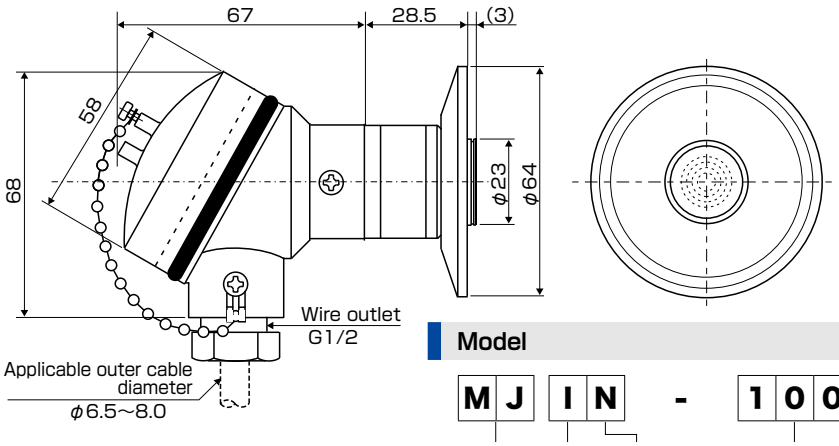
- Terminal box type of the “HJ series” sanitary pressure sensor
- IDF clamp 2S mounting structure (ferrule type)
- High precision and excellent durability for a wide range of pressures
- Output signal of 4 to 20 mADC from a built-in amplifier circuit

Specifications

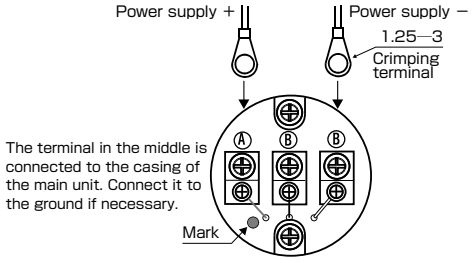
Model	MJI						
	N-100KP	-020KP	-050KP	-100KP	-300KP	-500KP	-001MP
Rated pressure ※1	0 to −100kPa	0 to 20kPa	0 to 50kPa	0 to 100kPa	0 to 300kPa	0 to 500kPa	0 to 1MPa
Pressure type	Gauge pressure ※2 ※3						
Overpressure	150% of the rated pressure						
Wetted part material	Diaphragm : SUS316L Pressure port : SUS316						
Sealing liquid	Silicone oil						
Applicable media	Gas and fluid (media not damaging the wetted part material)						
Power supply	12 to 28VDC						
Output	4 to 20mADC						
Load resistance	600 Ω以下 (at power of 24 VDC)						
Responsiveness	5msec or less						
Accuracy (linearity)	± 0.5% F.S. or less ※4 (± 0.3% F.S. or less)						
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)						
Compensated temperature range	0 to 60℃						
Operating temperature range	− 10 to 80℃ (no freezing allowed)						
Operating humidity range	35 to 85% RH (no dew condensation allowed)						
Pressure connection port	IDF clamp 2S mounting structure (ferrule type)						
Terminal box	Material : Aluminum die casting						
Wire outlet	G1/2 Applicable outer cable diameter : ϕ 6.5 to 8.0						
Structure	IP67						
Insulation resistance	100M Ω or more ／ 500VDC						
Withstand voltage	500VAC, 1 minute						
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)						
Weight	Approx 380g						
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.1% F.S.	+ 0.5% F.S.	+ 0.3% F.S.	+ 0.1% F.S.			

※ 1.We also manufacture compound pressure sensors (gauge pressure of 500 kPa or less).
※ 2.Make sure that the operating vacuum pressure is 10 kPa abs or more. (Operating temperature range: 0 - 60℃)
※ 3.Use a wiring cable for atmospheric pressure correction.
※ 4.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Internal terminal block / wires



Model

M	J	I	N	-	1	0	0	K	P

Type: MJ
Output mode: I : Current
Special: **Space** : Positive pressure / **N** : Negative pressure / **C** : Compound pressure
Pressure range: 100
Unit of pressure: **KP** : kPa / **MP** : MPa

MZTI



Features **1.**Terminal box type **2.**Titanium

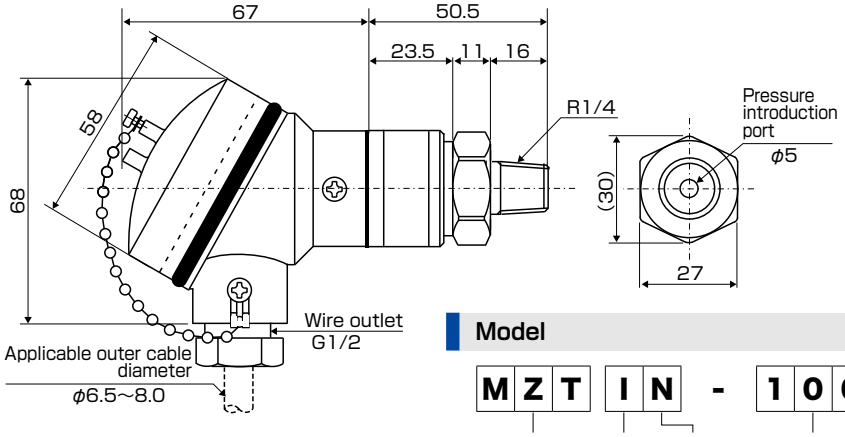
- Titanium gauge pressure sensor
- Terminal box type of the “ZT series” gauge pressure sensor
- Outdoor specification / Waterproof IP67 structure
- Support of a wide range of media such as seawater, brackish water, and water
- Output signal of 4 to 20 mADC from a built-in amplifier circuit

Specifications

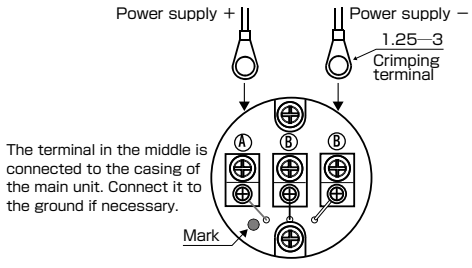
Model	MZTI						
	N-100KP	-020KP	-050KP	-100KP	-300KP	-500KP	-001MP
Rated pressure ※1	0 to −100kPa	0 to 20kPa	0 to 50kPa	0 to 100kPa	0 to 300kPa	0 to 500kPa	0 to 1MPa
Pressure type	Gauge pressure ※2 ※3						
Overpressure	150% of the rated pressure						
Wetted part material	Diaphragm : Titanium Pressure port : Titanium O-ring : Fluororubber (standard)						
Sealing liquid	Silicone oil						
Applicable media	Gas and fluid (media not damaging the wetted part material)						
Power supply	12 to 28VDC						
Output	4 to 20mADC						
Load resistance	600 Ω or less (at power of 24 VDC)						
Responsiveness	5msec or less						
Accuracy (linearity)	± 0.5% F.S. or less ※4 (± 0.3% F.S. or less)						
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)						
Compensated temperature range	0 to 60℃						
Operating temperature range	− 10 to 80℃ (no freezing allowed)						
Operating humidity range	35 to 85% RH (no dew condensation allowed)						
Pressure connection port	R1/4						
Terminal box	Material : Aluminum die casting						
Wire outlet	G1/2 Applicable outer cable diameter : ϕ 6.5 to 8.0						
Structure	IP67						
Insulation resistance	100M Ω or more ／ 500VDC						
Withstand voltage	500VAC, 1 minute						
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)						
Weight	Approx 290g						
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.1% F.S.	+ 0.5% F.S.	+ 0.3% F.S.	+ 0.1% F.S.			

※ 1.We also manufacture compound pressure sensors (gauge pressure of 500 kPa or less).
※ 2.Make sure that the operating vacuum pressure is 10 kPa abs or more. (Operating temperature range: 0 - 60℃)
※ 3.Use a wiring cable for atmospheric pressure correction.
※ 4.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Internal terminal block / wires



Model

M	Z	T	I	N	-	1	0	0	K	P	-	V

Type	Output mode	Special	Pressure range	Unit of pressure	O-ring
	I : Current	**Space** : Positive pressure		**KP** : kPa	**V** : Fluororubber
		N : Negative pressure		**MP** : MPa	**N** : NBR
		C : Compound pressure			**X** : Other

MZLI



Features **1.Terminal box type** **2.Titanium welded structure**

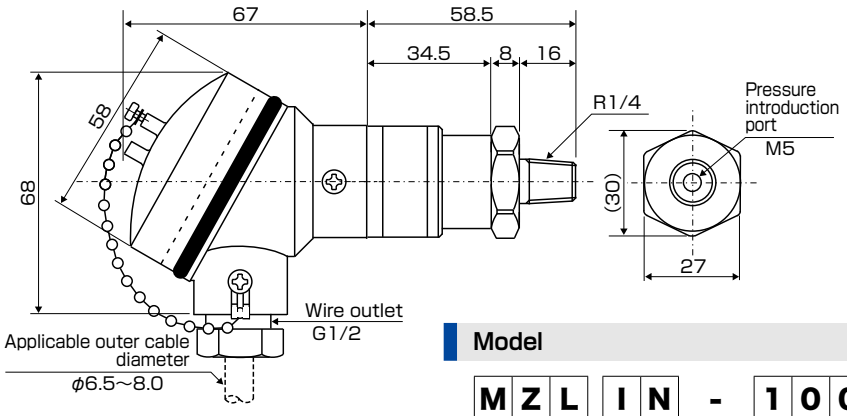
- Terminal box type of the “ZL series” pressure sensor with a welded structure
- Outdoor specification / Waterproof IP67 structure
- The wetted part is entirely made of titanium that has high corrosion resistance.
- Support of a wide range of pressure media such as seawater, gas, and medicinal solution
- Output signal of 4 to 20 mADC from a built-in amplifier circuit

Specifications

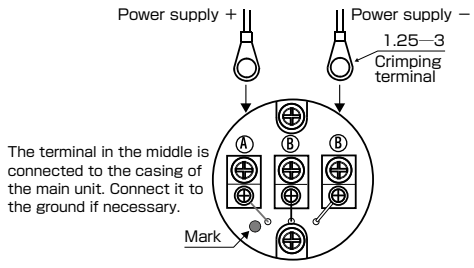
Model	MZLI						
	N-100KP	-020KP	-050KP	-100KP	-300KP	-500KP	-001MP
Rated pressure ※1	0 to −100kPa	0 to 20kPa	0 to 50kPa	0 to 100kPa	0 to 300kPa	0 to 500kPa	0 to 1MPa
Pressure type	Gauge pressure ※2 ※3						
Overpressure	150% of the rated pressure						
Wetted part material	Diaphragm : Titanium Pressure port : Titanium						
Sealing liquid	Silicone oil						
Applicable media	Gas and fluid (media not damaging the wetted part material)						
Power supply	12 to 28VDC						
Output	4 to 20mADC						
Load resistance	600 Ω以下 (at power of 24 VDC)						
Responsiveness	5msec or less						
Accuracy (linearity)	± 0.5% F.S. or less ※4 (± 0.3% F.S. or less)						
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)						
Compensated temperature range	0 to 60℃						
Operating temperature range	− 20 to 80℃ (no freezing allowed)						
(Measurement medium temperature)	− 20 to 100℃ (no freezing allowed)						
Operating humidity range	35 to 85% RH (no dew condensation allowed)						
Pressure connection port	R1/4						
Terminal box	Material : Aluminum die casting						
Wire outlet	G1/2 Applicable outer cable diameter : ϕ 6.5 to 8.0						
Structure	IP67						
Insulation resistance	100M Ω or more ／ 500VDC						
Withstand voltage	500VAC, 1 minute						
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)						
Weight	Approx 260g						
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.1% F.S.	+ 0.5% F.S.	+ 0.3% F.S.	+ 0.1% F.S.			

※ 1.We also manufacture compound pressure sensors (gauge pressure of 500 kPa or less).
※ 2.Make sure that the operating vacuum pressure is 10 kPa abs or more. (Operating temperature range: 0 - 60℃)
※ 3.Use a wiring cable for atmospheric pressure correction.
※ 4.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Internal terminal block / wires



Model

M	Z	L	I	N	-	1	0	0	K	P

Type: MZL
Output mode: **I** : Current
Special: **Space** : Positive pressure, **N** : Negative pressure, **C** : Compound pressure
Pressure range: 100
Unit of pressure: **KP** : kPa, **MP** : MPa

LTI



Features **1.Terminal box type** **2.With adjustment function**

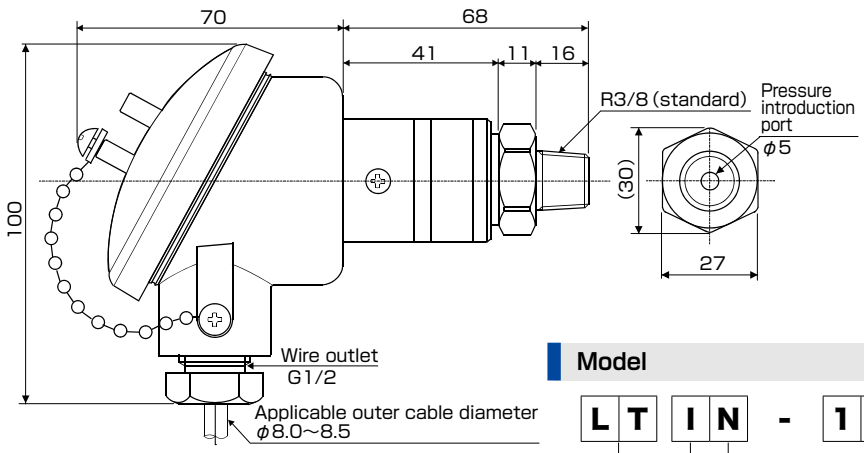
- Large terminal box type with the zero and span adjustment function
- Outdoor specification / Waterproof IP67 structure
- Support of a wide range of pressure media such as water and oil
- Output of 4 to 20 mADC from a built-in amplifier circuit

Specifications

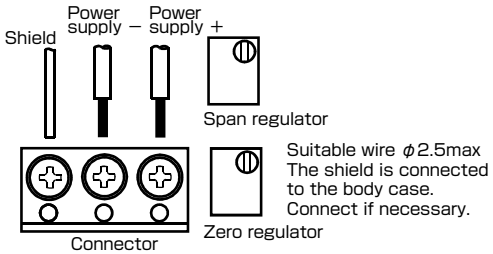
Model	LTI							
	N-100KP	-020KP	-050KP	-100KP	-300KP	-500KP	-001MP	-002MP
Rated pressure ※1	0 to −100kPa	0 to 20kPa	0 to 50kPa	0 to 100kPa	0 to 300kPa	0 to 500kPa	0 to 1MPa	0 to 2MPa
Pressure type	Gauge pressure ※2 ※3							
Overpressure	150% of the rated pressure							
Wetted part material	Diaphragm : SUS316L Pressure port : SUS316 O-ring : Fluororubber (standard)							
Sealing liquid	Silicone oil							
Applicable media	Gas and fluid (media not damaging the wetted part material)							
Power supply	12 to 28VDC							
Output	4 to 20mADC							
Load resistance	600 Ω or less (at power of 24 VDC)							
Responsiveness	5msec or less							
Accuracy (linearity)	± 0.5% F.S. or less ※4 (± 0.3% F.S. or less)							
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)							
Compensated temperature range	0 to 60℃							
Operating temperature range	− 10 to 80℃ (no freezing allowed)							
Operating humidity range	35 to 85% RH (no dew condensation allowed)							
Pressure connection port	R3/8 (standard) ・ G3/8 ・ R1/4							
Terminal box	Material : Aluminum die casting							
Wire outlet	G1/2 Applicable outer cable diameter : φ 8.0 to 8.5							
Structure	IP67							
Insulation resistance	100M Ω or more ／ 500VDC							
Withstand voltage	500VAC, 1 minute							
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)							
Weight	Approx 400g							
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.1% F.S.	+ 0.5% F.S.	+ 0.3% F.S.	+ 0.1% F.S.				

※ 1.We also manufacture compound pressure sensors (gauge pressure of 500 kPa or less).
※ 2.Make sure that the operating vacuum pressure is 10 kPa abs or more. (Operating temperature range: 0 - 60℃)
※ 3.Use a wiring cable for atmospheric pressure correction.
※ 4.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Internal terminal block / wires



Model

L	T	I	N	-	1	0	0	K	P	-	V	-	R	3

Type **I** : Current

Output mode Special
Space : Positive pressure
N : Negative pressure
C : Compound pressure

Pressure range

Unit of pressure
KP : kPa
MP : MPa

O-ring
V : Fluororubber
N : NBR
X : Other

Pressure connection port
Space : R1/4
R3 : R3/8 (standard)
G3 : G3/8

LLI



Features **1.Terminal box type** **2.With adjustment function**

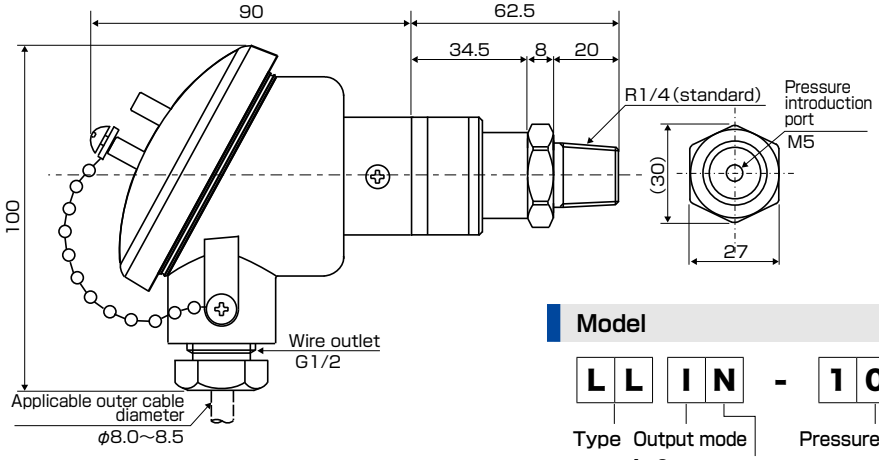
- Large terminal box type with the zero and span adjustment function
- Outdoor specification / Waterproof IP67 structure
- Pressure sensor with a welded structure that does not use an O-ring in the wetted part
- Support of a wide range of pressure media such as water, oil, and gas
- Output of 4 to 20 mADC from a built-in amplifier circuit

Specifications

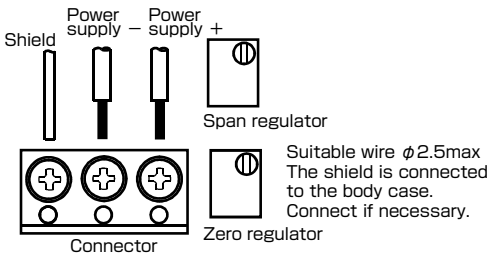
Model	LLI									
	N-100KP	-020KP	-050KP	-100KP	-300KP	-500KP	-001MP	-002MP	-003MP	-005MP
Rated pressure ※1	0 to −100kPa	0 to 20kPa	0 to 50kPa	0 to 100kPa	0 to 300kPa	0 to 500kPa	0 to 1MPa	0 to 2MPa	0 to 3MPa	0 to 5MPa
Pressure type	Gauge pressure ※2 ※3									Shield gauge pressure
Overpressure	150% of the rated pressure									
Wetted part material	Diaphragm : SUS316L Pressure port : SUS316									
Sealing liquid	Silicone oil									
Applicable media	Gas and fluid (media not damaging the wetted part material)									
Power supply	12 to 28VDC									
Output	4 to 20mADC									
Load resistance	600 Ω or less (at power of 24 VDC)									
Responsiveness	5msec or less									
Accuracy (linearity)	± 0.5% F.S. or less ※4 (± 0.3% F.S. or less)									
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)									
Compensated temperature range	0 to 60℃									
Operating temperature range	− 20 to 80℃ (no freezing allowed)									
(Measurement medium temperature)	− 20 to 100℃ (no freezing allowed)									
Operating humidity range	35 to 85% RH (no dew condensation allowed)									
Pressure connection port	R1/4 (standard) ・R3/8 ・R1/2 ・G1/4 ・G3/8									
Terminal box	Material : Aluminum die casting									
Wire outlet	G1/2 Applicable outer cable diameter : ϕ 8.0 to 8.5									
Structure	IP67									
Insulation resistance	100M Ω or more ／ 500VDC									
Withstand voltage	500VAC, 1 minute									
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)									
Weight	Approx 400g									
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.1% F.S.	+ 0.5% F.S.	+ 0.3% F.S.	+ 0.1% F.S.						

※ 1.We also manufacture compound pressure sensors (gauge pressure of 500 kPa or less).
※ 2.Make sure that the operating vacuum pressure is 10 kPa abs or more. (Operating temperature range: 0 - 60℃)
※ 3.Use a wiring cable for atmospheric pressure correction.
※ 4.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Internal terminal block / wires



Model

L	L	I	N	-	1	0	0	K	P	-	R	3

Type
Output mode
I : Current
Special
Space : Positive pressure
N : Negative pressure
C : Compound pressure
Pressure range
Unit of pressure
KP : kPa
MP : MPa
Pressure connection port
Space : R1/4 (standard)
R3 : R3/8
G3 : G3/8
R4 : R1/2
G2 : G1/4

HAV • HAI



Features **1.Compact** **2.For absolute pressure**

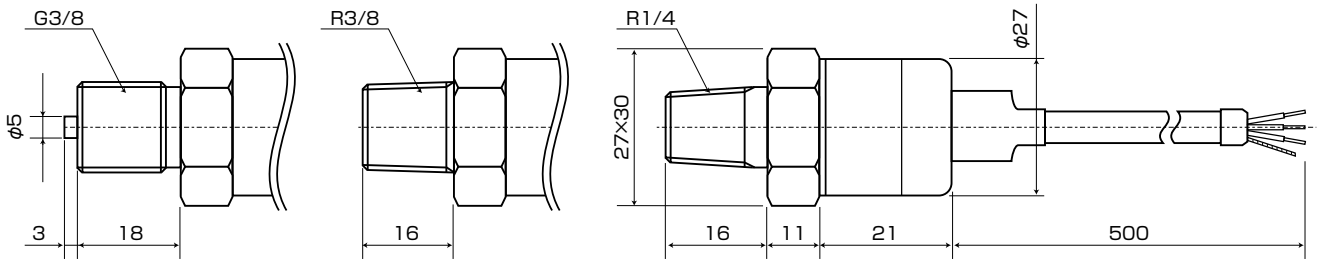
- Absolute pressure sensor with a stainless steel diaphragm structure
- Capable of high-accuracy vacuum region measurement without being affected by atmospheric fluctuations
- High accuracy and excellent durability
- Output signal of 1 to 5 VDC or 4 to 20 mADC from a built-in amplifier circuit

Specifications

Model	HAV • HAI			
	-050KP	-100KP	-300KP	-600KP
Rated pressure	0 to 50kPa abs	0 to 100kPa abs	0 to 300kPa abs	0 to 600kPa abs
Pressure type	Absolute pressure			
Overpressure	HAV : 200% of the rated pressure ／ HAI : 150% of the rated pressure			
Wetted part material	Diaphragm : SUS316L　Pressure port : SUS316　O-ring : Fluororubber (standard)			
Sealing liquid	Silicone oil			
Applicable media	Gas and fluid (media not damaging the wetted part material)			
Power supply	12 to 28VDC			
Output	1 to 5VDC only	HAV : 1 to 5VDC ／ HAI : 4 to 20mADC		
Current consumption	HAV : 6mA or less			
Load resistance	HAV : 1k Ω or more ／ HAI : 600 Ω or less (at power of 24 VDC)			
Responsiveness	5msec or less			
Accuracy (linearity)	± 0.5% F.S. or less ※1 (± 0.3% F.S. or less)			
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)			
Compensated temperature range	0 to 60℃			
Operating temperature range	− 10 to 80℃ (no freezing allowed)			
Operating humidity range	35 to 85% RH (no dew condensation allowed)			
Pressure connection port	R1/4 (standard) ・ R3/8 ・ G3/8			
Cable	φ 6 vinyl : 500mm ／ 2000mm (standard)　Shield cable			
Structure	IP65			
Insulation resistance	100M Ω or more ／ 500VDC			
Withstand voltage	500VAC, 1 minute			
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)			
Weight	Approx 170g			
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.3% F.S.	+ 0.1% F.S.		

※ 1.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Cables / wires

	HAV	HAI
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—

Model

H	A	V	-	1	0	0	K	P	-	0	2	-	V	-	G	3

- Type
- Output mode: **V** : Voltage, **I** : Current
- Pressure range
- Unit of pressure: **KP** : kPa
- Cable length: **Space** : 0.5m, **02** : 2m, **05** : 5m, **10** : 10m
- O-ring: **V** : Fluororubber, **N** : NBR, **X** : Other
- Pressure connection port: **Space** : R1/4 (standard), **R3** : R3/8, **G3** : G3/8

HBV • HBI



Features **1.Compact** **2.Welded structure**

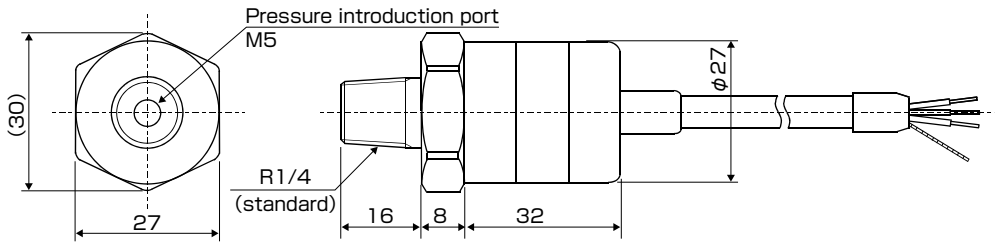
- Absolute pressure sensor with a welded structure that does not use an O-ring in the wetted part
- Capable of high-accuracy vacuum region measurement without being affected by atmospheric fluctuations
- Support of a wide range of pressure media such as gas and medicinal solution
- Output signal of 1 to 5 VDC or 4 to 20 mADC from a built-in amplifier circuit

Specifications

Model	HBV • HBI			
	-050KP	-100KP	-300KP	-600KP
Rated pressure	0 to 50kPa abs	0 to 100kPa abs	0 to 300kPa abs	0 to 600kPa abs
Pressure type	Absolute pressure			
Overpressure	HBV : 200% of the rated pressure ／ HBI : 150% of the rated pressure			
Wetted part material	Diaphragm : SUS316L　Pressure port : SUS316			
Sealing liquid	Silicone oil			
Applicable media	Gas and fluid (media not damaging the wetted part material)			
Power supply	12 to 28VDC			
Output	1 to 5VDC only	HBV : 1 to 5VDC ／ HBI : 4 to 20mADC		
Current consumption	HBV : 6mA or less			
Load resistance	HBV : 1k Ω or more ／ HBI : 600 Ω or less (at power of 24 VDC)			
Responsiveness	5msec or less			
Accuracy (linearity)	± 0.5% F.S. or less ※1 (± 0.3% F.S. or less)			
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)			
Compensated temperature range	0 to 60℃			
Operating temperature range	− 20 to 80℃ (no freezing allowed)			
(Measurement medium temperature)	− 20 to 100℃ (no freezing allowed)			
Operating humidity range	35 to 85% RH (no dew condensation allowed)			
Pressure connection port	R1/4 (standard) ・ R3/8 ・ R1/2 ・ G1/4 ・ G3/8			
Cable	φ 6 vinyl : 500mm ／ 2000mm (standard)　Shield cable			
Structure	IP65			
Insulation resistance	100M Ω or more ／ 500VDC			
Withstand voltage	500VAC, 1 minute			
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)			
Weight	Approx 200g			
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.3% F.S.	+ 0.1% F.S.		

※ 1.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Cables / wires

	HBV	HBI
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—

Model

HB V - 100 KP - 02 - R3

- **HB** : Type
- **V** : Output mode (**V** : Voltage, **I** : Current)
- **100** : Pressure range
- **KP** : Unit of pressure (**KP** : kPa, **MP** : MPa)
- **02** : Cable length (**Space** : 0.5m, **02** : 2m, **05** : 5m, **10** : 10m)
- **R3** : Pressure connection port (**Space** : R1/4 (standard), **R3** : R3/8, **R4** : R1/2, **G2** : G1/4, **G3** : G3/8)

RBV • RBI



Features **1.**Compact **2.**With adjustment function

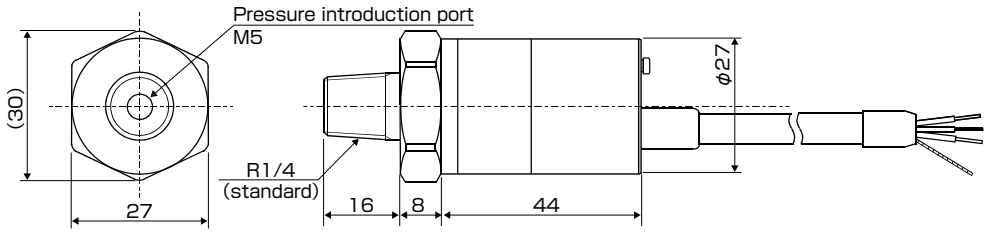
- Absolute pressure sensor with a welded structure that does not use an O-ring in the wetted part
- Capable of high-accuracy vacuum region measurement without being affected by atmospheric fluctuations
- Support of a wide range of pressure media such as gas and medicinal solution
- Output signal of 1 to 5 VDC or 4 to 20 mADC from a built-in amplifier circuit
- With trimmer for zero and span adjustment

Specifications

Model	RBV • RBI			
	-050KP	-100KP	-300KP	-600KP
Rated pressure	0 to 50kPa abs	0 to 100kPa abs	0 to 300kPa abs	0 to 600kPa abs
Pressure type	Absolute pressure			
Overpressure	RBV : 200% of the rated pressure ／ RBI : 150% of the rated pressure			
Wetted part material	Diaphragm : SUS316L　Pressure port : SUS316			
Sealing liquid	Silicone oil			
Applicable media	Gas and fluid (media not damaging the wetted part material)			
Power supply	12 to 28VDC			
Output	1 to 5VDC only	RBV : 1 to 5VDC ／ RBI : 4 to 20mADC		
Current consumption	RBV : 6mA or less			
Load resistance	RBV : 1k Ω or more ／ RBI : 600 Ω or less (at power of 24 VDC)			
Responsiveness	5msec or less			
Accuracy (linearity)	± 0.5% F.S. or less ※1 (± 0.3% F.S. or less)			
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)			
Compensated temperature range	0 to 60℃			
Operating temperature range	− 20 to 80℃ (no freezing allowed)			
(Measurement medium temperature)	− 20 to 100℃ (no freezing allowed)			
Operating humidity range	35 to 85% RH (no dew condensation allowed)			
Pressure connection port	R1/4 (standard) ・ R3/8 ・ R1/2 ・ G1/4 ・ G3/8			
Cable	φ 6 vinyl : 500mm ／ 2000mm (standard)　Shield cable			
Regulator	With trimmer for zero and span adjustment			
Insulation resistance	100M Ω or more ／ 500VDC			
Withstand voltage	500VAC, 1 minute			
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)			
Weight	Approx 200g			
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.3% F.S.	+ 0.1% F.S.		

※ 1.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Cables / wires

	RBV	RBI
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—

Model

RB V - 100 KP - 02 - R3

- **RB** : Type
- **V** : Output mode (**V** : Voltage, **I** : Current)
- **100** : Pressure range
- **KP** : Unit of pressure (**KP** : kPa, **MP** : MPa)
- **02** : Cable length (**Space** : 0.5m, **02** : 2m, **05** : 5m, **10** : 10m)
- **R3** : Pressure connection port (**Space** : R1/4 (standard), **R3** : R3/8, **R4** : R1/2, **G2** : G1/4, **G3** : G3/8)

CAV • CAI



Features **1.Connector type** **2.For absolute pressure**

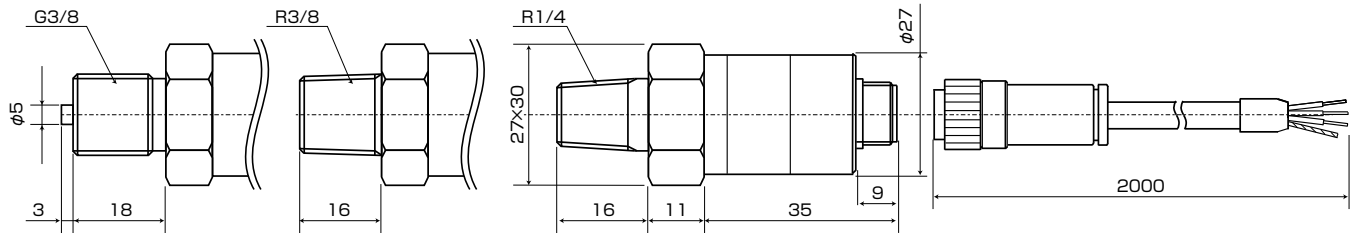
- Connector type of the "HA series" absolute pressure sensor
- Easy to handle and highly maintainable
- Capable of high-accuracy vacuum region measurement without being affected by atmospheric fluctuations
- Output signal of 1 to 5 VDC or 4 to 20 mADC from a built-in amplifier circuit

Specifications

Model	CAV • CAI			
	-050KP	-100KP	-300KP	-600KP
Rated pressure	0 to 50kPa abs	0 to 100kPa abs	0 to 300kPa abs	0 to 600kPa abs
Pressure type	Absolute pressure			
Overpressure	CAV : 200% of the rated pressure ／ CAI : 150% of the rated pressure			
Wetted part material	Diaphragm : SUS316L　Pressure port : SUS316　O-ring : Fluororubber (standard)			
Sealing liquid	Silicone oil			
Applicable media	Gas and fluid (media not damaging the wetted part material)			
Power supply	12 to 28VDC			
Output	1 to 5VDC only	CAV : 1 to 5VDC ／ CAI : 4 to 20mADC		
Current consumption	CAV : 6mA or less			
Load resistance	CAV : 1k Ω or more ／ CAI : 600 Ω or less (at power of 24 VDC)			
Responsiveness	5msec or less			
Accuracy (linearity)	± 0.5% F.S. or less ※1 (± 0.3% F.S. or less)			
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)			
Compensated temperature range	0 to 60℃			
Operating temperature range	− 10 to 80℃ (no freezing allowed)			
Operating humidity range	35 to 85% RH (no dew condensation allowed)			
Pressure connection port	R1/4 (standard) ・ R3/8 ・ G3/8			
Cable	φ 6 vinyl : (with connector) ／ 2000mm (standard)　Shield cable			
Structure	IP66			
Insulation resistance	100M Ω or more ／ 500VDC			
Withstand voltage	500VAC, 1 minute			
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)			
Weight	Approx 230g			
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.3% F.S.	+ 0.1% F.S.		

※ 1.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Cables / wires

	CAV	CAI
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—

Model

C A | I | - | 1 0 0 | K P | - | 0 2 | - | V | - | R 3

- **Type** : CA
- **Output mode** : **V** : Voltage, **I** : Current
- **Pressure range** : 100
- **Unit of pressure** : **KP** : kPa
- **Cable length** : **02** : 2m (standard), **05** : 5m, **10** : 10m
- **O-ring** : **V** : Fluororubber, **N** : NBR, **X** : Other
- **Pressure connection port** : **Space** : R1/4 (standard), **R3** : R3/8, **G3** : G3/8

CBV • CBI



Features **1.Connector type** **2.Welded structure**

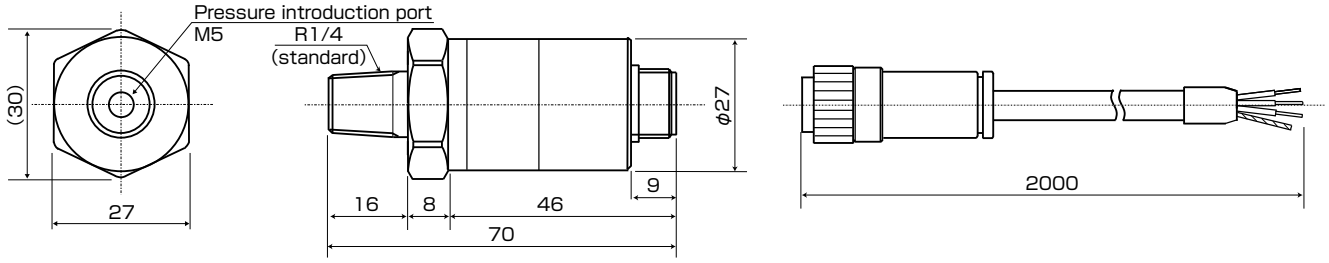
- Connector type of the “HB series” absolute pressure sensor with a welded structure
- Easy to handle and highly maintainable
- Support of a wide range of pressure media such as gas and medicinal solution
- Capable of high-accuracy vacuum region measurement without being affected by atmospheric fluctuations

Specifications

Model	CBV • CBI			
	-050KP	-100KP	-300KP	-600KP
Rated pressure	0 to 50kPa abs	0 to 100kPa abs	0 to 300kPa abs	0 to 600kPa abs
Pressure type	Absolute pressure			
Overpressure	CBV : 200% of the rated pressure ／ CBI : 150% of the rated pressure			
Wetted part material	Diaphragm : SUS316L　Pressure port : SUS316			
Sealing liquid	Silicone oil			
Applicable media	Gas and fluid (media not damaging the wetted part material)			
Power supply	12 to 28VDC			
Output	1 to 5VDC only	CBV : 1 to 5VDC ／ CBI : 4 to 20mADC		
Current consumption	CBV : 6mA or less			
Load resistance	CBV : 1k Ω or more ／ CBI : 600 Ω or less (at power of 24 VDC)			
Responsiveness	5msec or less			
Accuracy (linearity)	± 0.5% F.S. or less ※1 (± 0.3% F.S. or less)			
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)			
Compensated temperature range	0 to 60℃			
Operating temperature range	− 20 to 80℃ (no freezing allowed)			
(Measurement medium temperature)	− 20 to 100℃ (no freezing allowed)			
Operating humidity range	35 to 85% RH (no dew condensation allowed)			
Pressure connection port	R1/4 (standard) ・ R3/8 ・ R1/2 ・ G1/4 ・ G3/8			
Cable	φ 6 vinyl (with connector) : 2000mm (standard)　Shield cable			
Structure	IP66			
Insulation resistance	100M Ω or more ／ 500VDC			
Withstand voltage	500VAC, 1 minute			
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)			
Weight	Approx 260g			
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.3% F.S.	+ 0.1% F.S.		

※ 1.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Cables / wires

	CBV	CBI
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—

Model

C B I - 1 0 0 K P - 0 2 - R 3

- Type
- Output mode: **V** : Voltage / **I** : Current
- Pressure range
- Unit of pressure: **KP** : kPa
- Cable length: **02** : 2m (standard) / **05** : 5m / **10** : 10m
- Pressure connection port: **Space** : R1/4 (standard) / **R3** : R3/8 / **R4** : R1/2 / **G2** : G1/4 / **G3** : G3/8

MAI



Features **1.Terminal box type** **2.For absolute pressure**

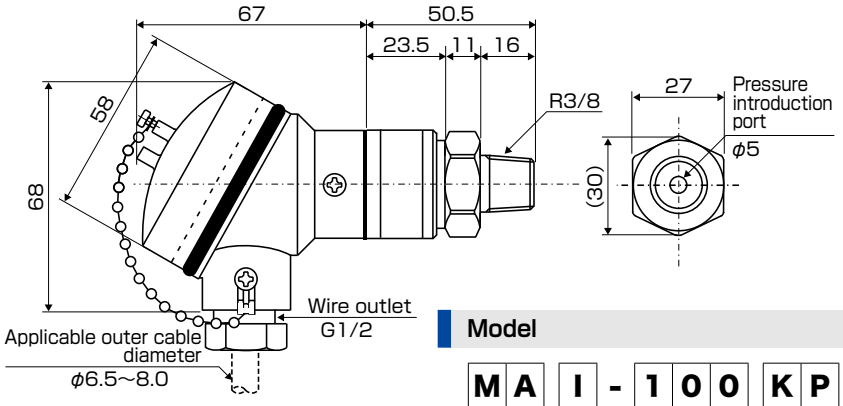
- Terminal box type of the "HA series" absolute pressure sensor
- Outdoor specification / Waterproof IP67 structure
- Capable of high-accuracy vacuum region measurement without being affected by atmospheric fluctuations
- Output signal of 4 to 20 mADC from a built-in amplifier circuit

Specifications

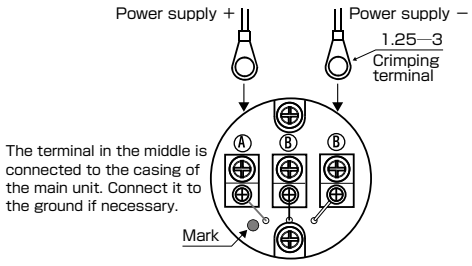
Model	MAI		
	-100KP	-300KP	-600KP
Rated pressure	0 to 100kPa abs	0 to 300kPa abs	0 to 600kPa abs
Pressure type	Absolute pressure		
Overpressure	150% of the rated pressure		
Wetted part material	Diaphragm : SUS316L Pressure port : SUS316 O-ring : Fluororubber (standard)		
Sealing liquid	Silicone oil		
Applicable media	Gas and fluid (media not damaging the wetted part material)		
Power supply	12 to 28VDC		
Output	4 to 20mADC		
Load resistance	600 Ω or less (at power of 24 VDC)		
Responsiveness	5msec or less		
Accuracy (linearity)	± 0.5% F.S. or less ※1 (± 0.3% F.S. or less)		
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)		
Compensated temperature range	0 to 60℃		
Operating temperature range	− 10 to 80℃ (no freezing allowed)		
Operating humidity range	35 to 85% RH (no dew condensation allowed)		
Pressure connection port	R3/8 (standard) · G3/8 · R1/4		
Terminal box	Material : Aluminum die casting		
Wire outlet	G1/2 Applicable outer cable diameter : ϕ 6.5 to 8.0		
Structure	IP67		
Insulation resistance	100M Ω or more ／ 500VDC		
Withstand voltage	500VAC, 1 minute		
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)		
Weight	Approx 320g		
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.3% F.S.	+ 0.1% F.S.	

※ 1.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Internal terminal block / wires



Model

M	A	I	-	1	0	0	K	P	-	V	-	R	3

- Type
- Output mode
  - **I** : Current
- Pressure range
- Unit of pressure
  - **KP** : kPa
- O-ring
  - **V** : Fluororubber
  - **N** : NBR
  - **X** : Other
- Pressure connection port
  - **Space** : R1/4
  - **R3** : R3/8 (standard)
  - **G3** : G3/8

MBI



Features **1.Terminal box type** **2.Welded structure**

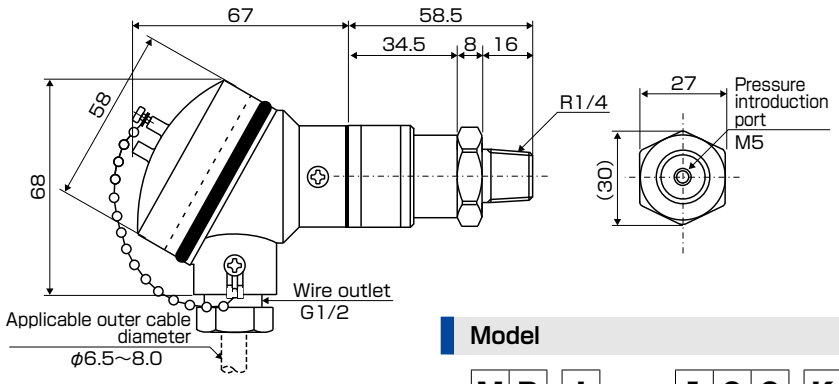
- Terminal box type of the "HB series" absolute pressure sensor with a welded structure
- Outdoor specification / Waterproof IP67 structure
- Support of a wide range of media such as gas and medicinal solution
- Output signal of 4 to 20 mADC from a built-in amplifier circuit

Specifications

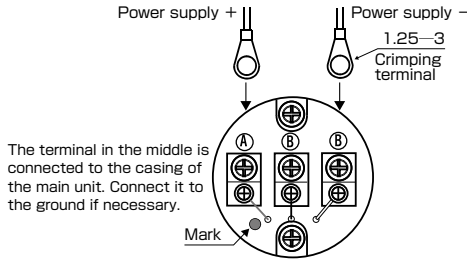
Model	MBI		
	-100KP	-300KP	-600KP
Rated pressure	0 to 100kPa abs	0 to 300kPa abs	0 to 600kPa abs
Pressure type	Absolute pressure		
Overpressure	150% of the rated pressure		
Wetted part material	Diaphragm : SUS316L Pressure port : SUS316		
Sealing liquid	Silicone oil		
Applicable media	Gas and fluid (media not damaging the wetted part material)		
Power supply	12 to 28VDC		
Output	4 to 20mADC		
Load resistance	600 Ω or less (at power of 24 VDC)		
Responsiveness	5msec or less		
Accuracy (linearity)	± 0.5% F.S. or less ※1 (± 0.3% F.S. or less)		
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)		
Compensated temperature range	0 to 60℃		
Operating temperature range	− 20 to 80℃ (no freezing allowed)		
(Measurement medium temperature)	− 20 to 100℃ (no freezing allowed)		
Operating humidity range	35 to 85% RH (no dew condensation allowed)		
Pressure connection port	R1/4 (standard) · R3/8 · R1/2 · G1/4 · G3/8		
Terminal box	Material : Aluminum die casting		
Wire outlet	G1/2 Applicable outer cable diameter : ϕ 6.5 to 8.0		
Structure	IP67		
Insulation resistance	100M Ω or more ／ 500VDC		
Withstand voltage	500VAC, 1 minute		
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)		
Weight	Approx 320g		
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.1% F.S.		

※ 1.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Internal terminal block / wires



Model

M	B	I	-	1	0	0	K	P	-	R	3

- Type
- Output mode — **I** : Current
- Pressure range
- Unit of pressure — **KP** : kPa; **MP** : MPa
- Pressure connection port — **Space** : R1/4 (standard); **R3** : R3/8; **R4** : R1/2; **G2** : G1/4; **G3** : G3/8

HSV • HSI



Features **1.Compact** **2.For medium and high pressure**

- Medium and high pressure sensor with a stainless steel diaphragm structure
- Flat-type diaphragm ideal for measuring the pressure of viscous fluid
- The wetted part is made of SUS316 or SUS316L that has high corrosion resistance.
- Wetted part easy to clean and ideal for measuring the pressure of medicinal solution and other types of fluid

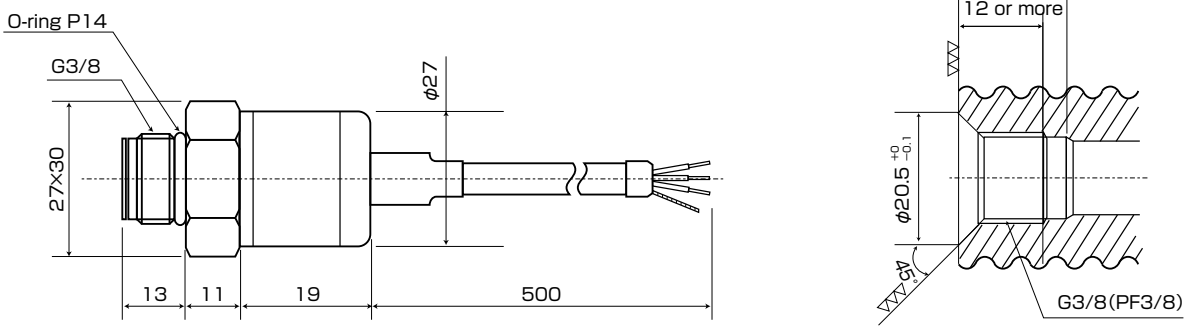
Specifications

Model	HSVR • HSIR					
	-002MP	-003MP	-005MP	-010MP	-020MP	-035MP
Rated pressure	0 to 2MPa	0 to 3MPa	0 to 5MPa	0 to 10MPa	0 to 20MPa	0 to 35MPa
Pressure type	Shield gauge pressure					
Overpressure	HSVR : 200% of the rated pressure ／ HSIR : 150% of the rated pressure					140%
Wetted part material	Diaphragm : SUS316L　Pressure port : SUS316　O-ring : Fluororubber (standard)					
Sealing liquid	Silicone oil					
Applicable media	Gas and fluid (media not damaging the wetted part material)					
Power supply	12 to 28VDC					
Output	HSVR : 1 to 5VDC ／ HSIR : 4 to 20mADC					
Current consumption	HSVR : 6mA or less					
Load resistance	HSVR : 1k Ω or more ／ HSIR : 600 Ω or less (at power of 24 VDC)					
Responsiveness	5msec or less					
Accuracy (linearity)	± 0.5% F.S. or less ※1 (± 0.3% F.S. or less)					
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)					
Compensated temperature range	0 to 60℃					
Operating temperature range	− 20 to 80℃ (no freezing allowed)					
Operating humidity range	35 to 85% RH (no dew condensation allowed)					
Pressure connection port	G3/8 ※2					
Cable	φ 6 vinyl : 500mm ／ 2000mm (standard)　Shield cable					
Structure	IP65					
Insulation resistance	100M Ω or more ／ 500VDC					
Withstand voltage	500VAC, 1 minute					
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)					
Weight	Approx 150g					

※ 1.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

※ 2.Conversion joints (models: G3R3 and G3R2) and damper joints (model: G3R3-DSM5) are available. (See page 53 of the catalog.)

Dimensions (Units : mm)



Cables / wires

	HSVR	HSIR
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—

Model

H	S	I	R	-	0	0	3	M	P	-	0	2	-	V

- **Type** — **Output mode**: **V** : Voltage, **I** : Current; **Special**: **R** : Exposed type, **K** : Protection cover type
- **Pressure range**: 003
- **Unit of pressure**: **MP** : MPa
- **Cable length**: **Space** : 0.5m, **02** : 2m, **05** : 5m, **10** : 10m
- **O-ring**: **V** : Fluororubber, **N** : NBR, **X** : Other

HRV • HRI



Features **1.Compact** **2.For medium and high pressure**

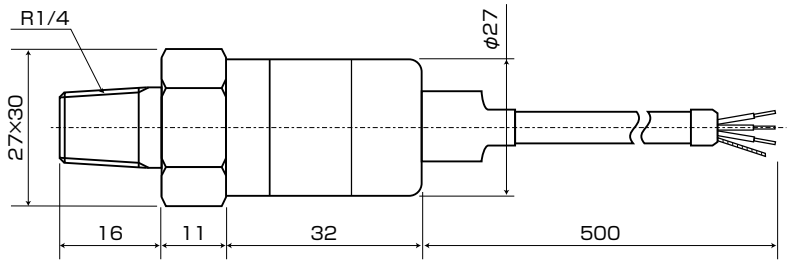
- Medium and high pressure sensor with a stainless steel diaphragm structure
- Support of a wide range of pressure media such as water and oil
- High accuracy and excellent durability
- Output signal of 1 to 5 VDC or 4 to 20 mADC from a built-in amplifier circuit
- Pressure connection port R1/4 type

Specifications

Model	HRV • HRI		
	-003MP	-005MP	-010MP
Rated pressure	0 to 3MPa	0 to 5MPa	0 to 10MPa
Pressure type	Shield gauge pressure		
Overpressure	HRV : 200% of the rated pressure ／ HRI : 150% of the rated pressure		
Wetted part material	Diaphragm : SUS316L　Pressure port : SUS316　O-ring : Fluororubber (standard)		
Sealing liquid	Silicone oil		
Applicable media	Gas and fluid (media not damaging the wetted part material)		
Power supply	12 to 28VDC		
Output	HRV : 1 to 5VDC ／ HRI : 4 to 20mADC		
Current consumption	HRV : 6mA or less		
Load resistance	HRV : 1k Ω以上／ HRI : 600 Ω or less (at power of 24 VDC)		
Responsiveness	5msec or less		
Accuracy (linearity)	± 0.5% F.S. or less ※1 (± 0.3% F.S. or less)		
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)		
Compensated temperature range	0 to 60℃		
Operating temperature range	− 20 to 80℃ (no freezing allowed)		
Operating humidity range	35 to 85% RH (no dew condensation allowed)		
Pressure connection port	R1/4		
Cable	φ 6 vinyl : 500mm ／ 2000mm (standard)　Shield cable		
Structure	IP65		
Insulation resistance	100M Ω or more ／ 500VDC		
Withstand voltage	500VAC, 1 minute		
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)		
Weight	Approx 200g		

※ 1.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Cables / wires

	HRV	HRI
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—

Model

H	R	V	-	0	0	5	M	P	-	0	2	-	V

- Type: HR
- Output mode: **V** : Voltage, **I** : Current
- Pressure range: 005
- Unit of pressure: **MP** : MPa
- Cable length: **Space** : 0.5m, **02** : 2m, **05** : 5m, **10** : 10m
- O-ring: **V** : Fluororubber, **N** : NBR, **X** : Other

ZHV • ZHI



Features **1.Compact** **2.Titanium medium and high pressure**

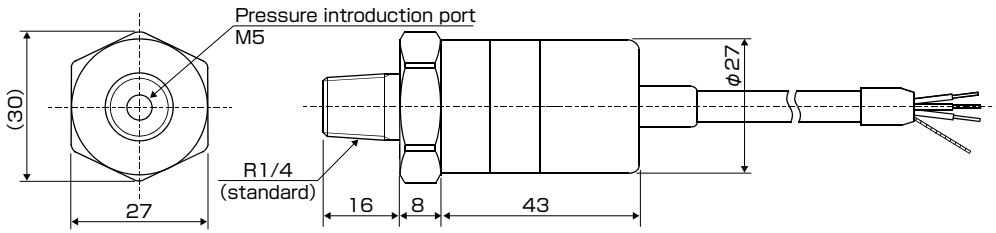
- Titanium pressure sensor for a 3-10 MPa range
- High-accuracy measurement of seawater pressure
- Output signal of 1 to 5 VDC or 4 to 20 mA from a built-in amplifier circuit
- Ideal for sea depth measurement and water pressure control for seawater desalination devices

Specifications

Model	ZHV • ZHI		
	-003MP	-005MP	-010MP
Rated pressure	0 to 3MPa	0 to 5MPa	0 to 10MPa
Pressure type	Shield gauge pressure		
Overpressure	ZHV : 200% of the rated pressure ／ ZHI : 150% of the rated pressure		100%
Wetted part material	Diaphragm : Titanium　Pressure port : Titanium		
Sealing liquid	Silicone oil		
Applicable media	Gas and fluid (media not damaging the wetted part material)		
Power supply	12 to 28VDC		
Output	ZHV : 1 to 5VDC ／ ZHI : 4 to 20mADC		
Current consumption	ZHV : 6mA or less		
Load resistance	ZHV : 1k Ω or more ／ ZHI : 600 Ω or less (at power of 24 VDC)		
Responsiveness	5msec or less		
Accuracy (linearity)	± 0.5% F.S. or less ※1 (± 0.3% F.S. or less)		
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)		
Compensated temperature range	0 to 60℃		
Operating temperature range	− 20 to 80℃ (no freezing allowed)		
Operating humidity range	35 to 85% RH (no dew condensation allowed)		
Pressure connection port	R1/4		
Cable	φ 6 vinyl : 500mm ／ 2000mm (standard)　Shield cable		
Structure	IP65		
Insulation resistance	100M Ω or more ／ 500VDC		
Withstand voltage	500VAC, 1 minute		
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)		
Weight	Approx 150g		

※ 1.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Cables / wires

	ZHV	ZHI
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—

Model

Z H | I - 0 0 5 | M P - 0 2

- Type
- Output mode: **V** : Voltage / **I** : Current
- Pressure range
- Unit of pressure: **KP** : kPa / **MP** : MPa
- Cable length: **Space** : 0.5m / **02** : 2m / **05** : 5m / **10** : 10m

CSV • CSI



Features **1.Connector type** **2.For medium and high pressure**

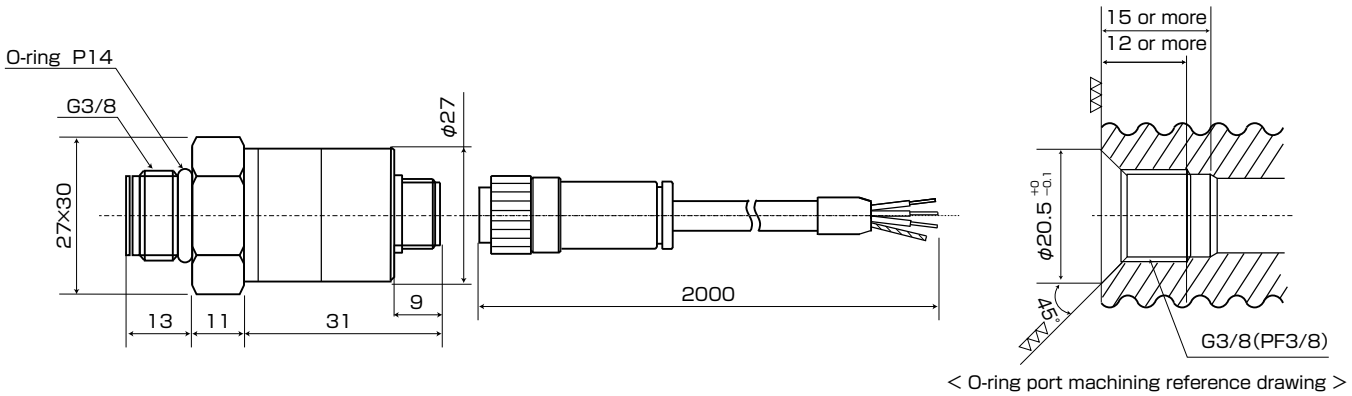
- Connector type of the “HS series” flat-type medium and high pressure sensor
- Easy to handle and highly maintainable
- Flat-type diaphragm ideal for measuring the pressure of viscous fluid
- Wetted part easy to clean and ideal for measuring the pressure of medicinal solution and other types of fluid

Specifications

Model	CSVR • CSIR					
	-002MP	-003MP	-005MP	-010MP	-020MP	-035MP
Rated pressure	0 to 2MPa	0 to 3MPa	0 to 5MPa	0 to 10MPa	0 to 20MPa	0 to 35MPa
Pressure type	Shield gauge pressure					
Overpressure	CSVR : 200% of the rated pressure ／ CSIR : 150% of the rated pressure					140%
Wetted part material	Diaphragm : SUS316L Pressure port : SUS316 O-ring : Fluororubber (standard)					
Sealing liquid	Silicone oil					
Applicable media	Gas and fluid (media not damaging the wetted part material)					
Power supply	12 to 28VDC					
Output	CSVR : 1 to 5VDC ／ CSIR : 4 to 20mADC					
Current consumption	CSVR : 6mA or less					
Load resistance	CSVR : 1k Ω or more ／ CSIR : 600 Ω or less (at power of 24 VDC)					
Responsiveness	5msec or less					
Accuracy (linearity)	± 0.5% F.S. or less ※1 (± 0.3% F.S. or less)					
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)					
Compensated temperature range	0 to 60℃					
Operating temperature range	− 20 to 80℃ (no freezing allowed)					
Operating humidity range	35 to 85% RH (no dew condensation allowed)					
Pressure connection port	G3/8 ※2					
Cable	ϕ 6 vinyl (with connector) : 2000mm (standard) Shield cable					
Structure	IP66					
Insulation resistance	100M Ω or more ／ 500VDC					
Withstand voltage	500VAC, 1 minute					
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)					
Weight	Approx 200g					

※ 1.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).
※ 2.Conversion joints (models: G3R3 and G3R2) and damper joints (model: G3R3-DSM5) are available. (See page 53 of the catalog.)

Dimensions (Units : mm)



< O-ring port machining reference drawing >

Cables / wires

	CSVR	CSIR
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—

Model

C	S	I	R	-	0	0	3	M	P	-	0	2	-	V

- Type: CS
- Output mode: **V** : Voltage, **I** : Current
- Special: **R** : Exposed type, **K** : Protection cover type
- Pressure range: 003
- Unit of pressure: **MP** : MPa
- Cable length: **02** : 2m (standard), **05** : 5m, **10** : 10m
- O-ring: **V** : Fluororubber, **N** : NBR, **X** : Other

MSI



Features **1.Terminal box type** **2.For medium and high pressure**

- Terminal box type of the “HS series” flat-type medium and high pressure sensor
- Outdoor specification / Waterproof IP67 structure
- Flat-type diaphragm ideal for measuring the pressure of viscous fluid
- Output signal of 4 to 20 mADC from a built-in amplifier circuit

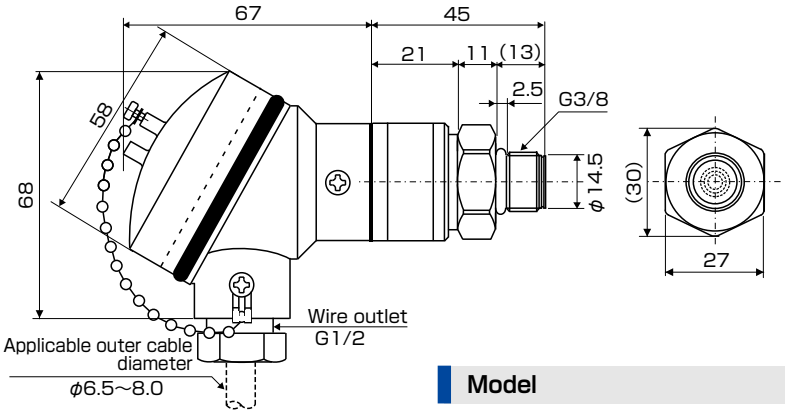
Specifications

Model	MSIR					
	-002MP	-003MP	-005MP	-010MP	-020MP	-035MP
Rated pressure	0 to 2MPa	0 to 3MPa	0 to 5MPa	0 to 10MPa	0 to 20MPa	0 to 35MPa
Pressure type	Shield gauge pressure					
Overpressure	150% of the rated pressure					140%
Wetted part material	Diaphragm : SUS316L Pressure port : SUS316 O-ring : Fluororubber (standard)					
Sealing liquid	Silicone oil					
Applicable media	Gas and fluid (media not damaging the wetted part material)					
Power supply	12 to 28VDC					
Output	4 to 20mADC					
Load resistance	600 Ω or less (at power of 24 VDC)					
Responsiveness	5msec or less					
Accuracy (linearity)	± 0.5% F.S. or less ※1 (± 0.3% F.S. or less)					
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)					
Compensated temperature range	0 to 60℃					
Operating temperature range	− 20 to 80℃ (no freezing allowed)					
Operating humidity range	35 to 85% RH (no dew condensation allowed)					
Pressure connection port	G3/8 ※2					
Terminal box	Material : Aluminum die casting					
Wire outlet	G1/2 Applicable outer cable diameter : ϕ 6.5 to 8.0					
Structure	IP67					
Insulation resistance	100M Ω or more ／ 500VDC					
Withstand voltage	500VAC, 1 minute					
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)					
Weight	Approx 300g					

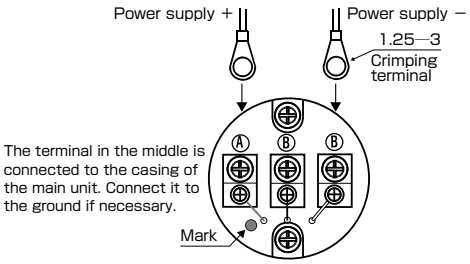
※ 1.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

※ 2.Conversion joints (models: G3R3 and G3R2) and damper joints (model: G3R3-DSM5) are available. (See page 53 of the catalog.)

Dimensions (Units : mm)



Internal terminal block / wires



Model

M S I R - 0 0 5 M P - V

Type	Output mode	Pressure range	Unit of pressure	O-ring
	I : Current			
	Special			
	R : Exposed type		**KP** : kPa	**V** : Fluororubber
	K : Protection cover type		**MP** : MPa	**N** : NBR
				X : Other

MZHI



Features **1.Terminal box type** **2.Titanium medium and high pressure**

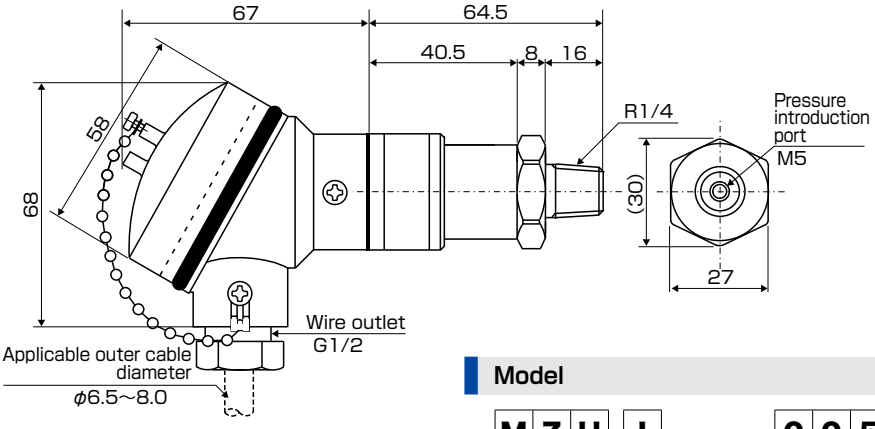
- Terminal box type of the "ZHI series" titanium pressure sensor
- Pressure range: 3 to 10 MPa
- Outdoor specification / Waterproof IP67 structure
- Support of media such as seawater and brackish water
- Output signal of 4 to 20 mADC from a built-in amplifier circuit

Specifications

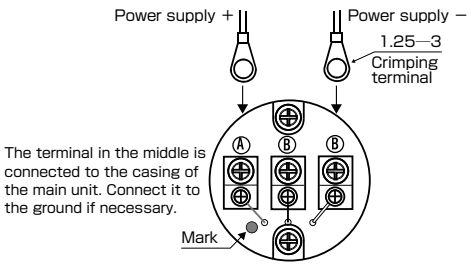
Model	MZHI		
	-003MP	-005MP	-010MP
Rated pressure	0 to 3MPa	0 to 5MPa	0 to 10MPa
Pressure type	Shield gauge pressure		
Overpressure	MZHV : 200% of the rated pressure ／ MZHI : 150% of the rated pressure		100%
Wetted part material	Diaphragm : Titanium Pressure port : Titanium		
Sealing liquid	Silicone oil		
Applicable media	Gas and fluid (media not damaging the wetted part material)		
Power supply	12 to 28VDC		
Output	4 to 20mADC		
Load resistance	600 Ω or less (at power of 24 VDC)		
Responsiveness	5msec or less		
Accuracy (linearity)	± 0.5% F.S. or less ※1 (± 0.3% F.S. or less)		
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)		
Compensated temperature range	0 to 60℃		
Operating temperature range	− 20 to 80℃ (no freezing allowed)		
(Measurement medium temperature)	− 20 to 100℃ (no freezing allowed)		
Operating humidity range	35 to 85% RH (no dew condensation allowed)		
Pressure connection port	R1/4		
Terminal box	Material : Aluminum die casting		
Wire outlet	G1/2 Applicable outer cable diameter : ϕ 6.5 to 8.0		
Structure	IP67		
Insulation resistance	100M Ω or more ／ 500VDC		
Withstand voltage	500VAC, 1 minute		
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)		
Weight	Approx 300g		

※ 1.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Internal terminal block / wires



Model

M	Z	H	I	-	0	0	5	M	P

Type: MZH

Output mode: **I** : Current

Pressure range: 005

Unit of pressure: **KP** : kPa, **MP** : MPa

LSI



Features **1.Terminal box type** **2.With adjustment function**

- Large terminal box type of the "HS series" flat-type medium and high pressure sensor with the zero and span adjustment function
- Outdoor specification / Waterproof IP67 structure
- Flat-type diaphragm ideal for measuring the pressure of viscous fluid
- Output signal of 4 to 20 mADC from a built-in amplifier circuit

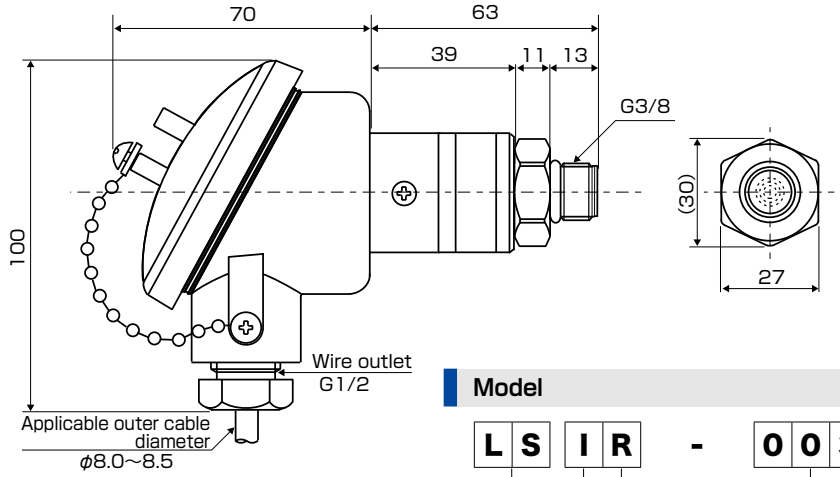
Specifications

Model	LSIR					
	-002MP	-003MP	-005MP	-010MP	-020MP	-035MP
Rated pressure	0 to 2MPa	0 to 3MPa	0 to 5MPa	0 to 10MPa	0 to 20MPa	0 to 35MPa
Pressure type	Shield gauge pressure					
Overpressure	150% of the rated pressure					
Wetted part material	Diaphragm : SUS316L Pressure port : SUS316 O-ring : Fluororubber (standard)					
Sealing liquid	Silicone oil					
Applicable media	Gas and fluid (media not damaging the wetted part material)					
Power supply	12 to 28VDC					
Output	4 to 20mADC					
Load resistance	600 Ω or less (at power of 24 VDC)					
Responsiveness	5msec or less					
Accuracy (linearity)	± 0.5% F.S. or less ※1 (± 0.3% F.S. or less)					
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)					
Compensated temperature range	0 to 60℃					
Operating temperature range	− 20 to 80℃ (no freezing allowed)					
Operating humidity range	35 to 85% RH (no dew condensation allowed)					
Pressure connection port	G3/8 ※2					
Terminal box	Material : Aluminum die-cast					
Wire outlet	G1/2 Applicable outer cable diameter : φ 6.5 to 8.0					
Structure	IP67					
Insulation resistance	100M Ω or more ／ 500VDC					
Withstand voltage	500VAC, 1 minute					
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)					
Weight	Approx 400g					

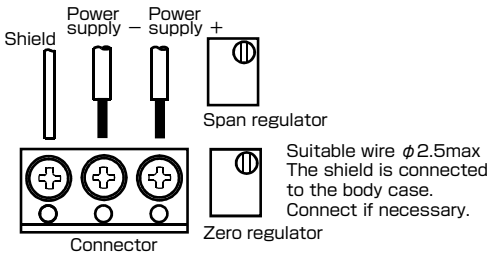
※ 1.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

※ 2.Conversion joints (models: G3R3 and G3R2) and damper joints (model: G3R3-DSM5) are available. (See page 53 of the catalog.)

Dimensions (Units : mm)



Internal terminal block / wires



Model

L S	I R	-	0 0 3	M P	-	V
Type	Output mode		Pressure range	Unit of pressure		O-ring

I : Current

Special
R : Exposed type
K : Protection cover type

MP : MPa

V : Fluororubber
N : NBR
X : Other

JW-7000



Features

1.Waterproof connector type
2.For gauge pressure/For absolute pressure

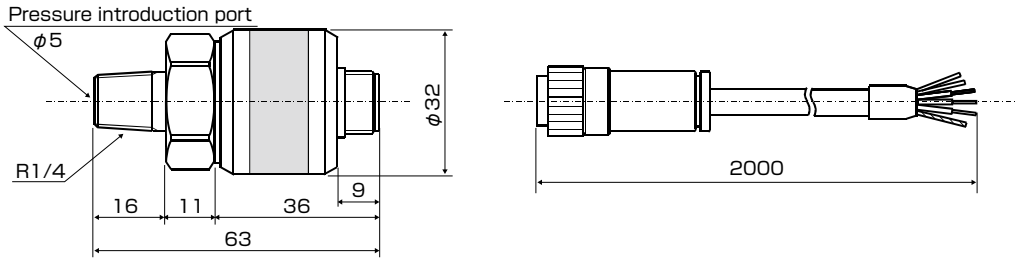
- Waterproof IP67 structure that is also suitable for outdoor use
- Compact pressure sensor with a stainless steel diaphragm structure
- Easy-to-handle waterproof connector type
- Output signal of 1 to 5 VDC or 4 to 20 mADC from a built-in amplifier circuit

Specifications

Model	JW-7300 / JW-7200							
	-020KP	-050KP	-100KP	-300KP	-500KP	-600KP	-001MP	-002MP
Rated pressure ※1	0 to 20kPa	0 to 50kPa	0 to 100kPa	0 to 300kPa	0 to 500kPa	0 to 600kPa	0 to 1MPa	0 to 2MPa
Pressure type ※2	Gauge pressure					—	Gauge pressure	
	—	Absolute pressure			—	Absolute pressure	—	—
Overpressure	JW-7300 : 200% of the rated pressure ／ JW-7200 : 150% of the rated pressure							
Wetted part material	Diaphragm : SUS316L Pressure port : SUS316 O-ring : Fluororubber							
Sealing liquid	Silicone oil							
Applicable media	Gas and fluid (media not damaging the wetted part material)							
Power supply	12 to 28VDC							
Output	JW-7300 : 1 to 5VDC ／ JW-7200 : 4 to 20mADC ※3							
Current consumption	JW-7300 : 6mA or less							
Load resistance	JW-7300 : 1k Ω or more ／ JW-7200 : 600 Ω or less (at power of 24 VDC)							
Responsiveness	5msec or less							
Accuracy (linearity)	± 0.5% F.S. or less ※4 (± 0.3% F.S. or less)							
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)							
Compensated temperature range	0 to 60℃							
Operating temperature range	− 10 to 80℃ (no freezing allowed)							
Operating humidity range	35 to 85% RH (no dew condensation allowed)							
Pressure connection port	R1/4 (standard) · R3/8 · G3/8							
Cable	φ 6 vinyl (with connector) : 2000mm (standard) Shield + atmospheric relief pipe (Gauge pressure)							
Structure	IP67							
Insulation resistance	100M Ω or more ／ 500VDC							
Withstand voltage	500VAC, 1 minute							
Vibration resistance	98.1m/s^2, 2 hours (X, Y, and Z directions)							
Weight	Approx 220g							
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.5% F.S.	+ 0.3% F.S.	+ 0.1% F.S.					

※1.We also manufacture negative pressure and compound pressure sensors (gauge pressure of 500 kPa or less).
※2.In the case of gauge pressure, make sure that the operating vacuum pressure is 10 kPa abs or more. (Operating temperature range: 0 - 60℃)
※3.For the pressure range of 50 kPa abs, we can manufacture sensors only with a voltage output of 1 to 5 VDC. (Overpressure: 100 kPa abs)
※4.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Cables / wires

	JW-7300	JW-7200
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—
Atmospheric relief pipe	Gauge pressure available	

Model

JW-7000-□□□KP/MP-□□-□-□□

Output mode	Pressure type	Special	Unit of pressure	Cable length	O-ring	Pressure connection port
1 : Element	**0** : Positive pressure	**0** : None		**02** : 2m	**V** : Fluororubber	**Space** : R1/4 (standard)
2 : Current 4 — 20mA	**1** : Negative pressure	**1 to 9** : Special		**05** : 5m	**N** : NBR	**G3** : G3/8
3 : Voltage 1 — 5V	**2** : Compound pressure	(Accuracy ／ Output ／ unit etc.)		**10** : 10m	**X** : Other	**R3** : R3/8
4 : Voltage 1 — 2V ／ 6 — 12V	**3** : Absolute pressure					

JW-6000



Features **1.Waterproof connector type** **2.Welded structure**

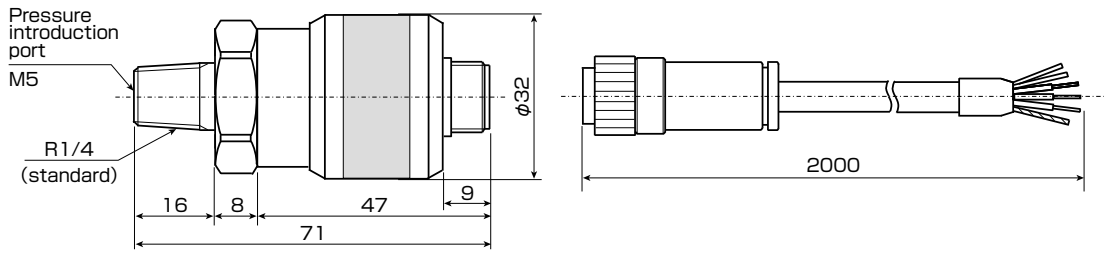
- Compact pressure sensor with a stainless steel diaphragm structure
- Outdoor specification / Waterproof IP67 structure
- Welded structure type that does not use an O-ring in the wetted part; wetted part made of SUS316 or SUS316L that has high corrosion resistance to support a wide range of pressure media such as water, oil, and gas
- Easy-to-handle waterproof connector type
- A wide range of absolute and gauge pressures from 20 kPa to 5 MPa
- Output signal of 1 to 5 VDC or 4 to 20 mADC from a built-in amplifier circuit

Specifications

Model	JW-6300 / JW-6200									
	-020KP	-050KP	-100KP	-300KP	-500KP	-600KP	-001MP	-002MP	-003MP	-005MP
Rated pressure ※1	0 to 20kPa	0 to 50kPa	0 to 100kPa	0 to 300kPa	0 to 500kPa	0 to 600kPa	0 to 1MPa	0 to 2MPa	0 to 3MPa	0 to 5MPa
Pressure type ※2	Gauge pressure	Gauge pressure/ Absolute pressure			Gauge pressure	Absolute pressure	Gauge pressure		Shield gauge pressure	
Overpressure	JW-6300 : 200% of the rated pressure / JW-6200 : 150% of the rated pressure									
Wetted part material	Diaphragm : SUS316L Pressure port : SUS316									
Sealing liquid	Silicone oil									
Applicable media	Gas and fluid (media not damaging the wetted part material)									
Power supply	12 to 28VDC									
Output	JW-6300 : 1 to 5VDC / JW-6200 : 4 to 20mADC ※3									
Load resistance	JW-6300 : 1k Ω or more / JW-6200 : 600 Ω or less (at power of 24 VDC)									
Responsiveness	5msec or less									
Accuracy (linearity)	± 0.5% F.S. or less ※4 (± 0.3% F.S. or less)									
Temperature characteristics	± 0.05% F.S. /℃ or less (0 to 60℃)									
Compensated temperature range	0 to 60℃									
Operating temperature range	− 20 to 80℃ (no freezing allowed)									
(Measurement medium temperature)	− 20 to 100℃ (no freezing allowed)									
Operating humidity range	35 to 85% RH (no dew condensation allowed)									
Pressure connection port	R1/4 (standard) · R3/8 · R1/2 · G1/4 · G3/8									
Cable	φ 6 vinyl (with connector) : 2000mm (standard) Shield + (Gauge pressure : atmospheric relief pipe)									
Wire outlet	G1/2 Applicable outer cable diameter : φ 6.5 to 8.0									
Structure	IP67									
Insulation resistance	100M Ω or more / 500VDC									
Withstand voltage	500VAC, 1 minute									
Vibration resistance	98.1m / s^2, 2 hours (X, Y, and Z directions)									
Weight	Approx 270g									
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.5% F.S.	+ 0.3% F.S.	+ 0.1% F.S.							

※1.We also manufacture negative pressure and compound pressure sensors (gauge pressure of 500 kPa or less).
※2.In the case of gauge pressure, make sure that the operating vacuum pressure is 10 kPa abs or more. (Operating temperature range: 0 - 60℃)
※3.For the pressure range of 50 kPa abs, we can manufacture sensors only with a voltage output of 1 to 5 VDC. (Overpressure: 100 kPa abs)
※4.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

Dimensions (Units : mm)



Cables / wires

	JW-6300	JW-6200
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—
Atmospheric relief pipe	Gauge pressure available	

Model

JW - 6000 - □□□KP/MP - □□ - □□

- Output mode: **1** : Element; **2** : Current 4 − 20mA; **3** : Voltage 1 − 5V; **4** : Voltage 1 − 2V / 6 − 12V
- Pressure type: **0** : Positive pressure; **1** : Negative pressure; **2** : Compound pressure; **3** : Absolute pressure
- Special: **0** : None; **1 to 9** : Special (Accuracy / Output / unit etc.)
- Unit of pressure
- Cable length: **02** : 2m; **05** : 5m; **10** : 10m
- Pressure connection port: **Space** : R1/4 (standard); **R3** : R3/8; **R4** : R1/2; **G2** : G1/4; **G3** : G3/8

JW-5000



Features **1.Waterproof connector type** **2.For medium and high pressure**

- Medium and high pressure sensor with a stainless steel diaphragm structure
- Outdoor specification / Waterproof IP67 structure
- Flat-type diaphragm ideal for measuring the pressure of viscous fluid
- Easy-to-handle waterproof connector type
- Semiconductor type with high precision and excellent durability
- Output signal of 1 to 5 VDC or 4 to 20 mADC from a built-in amplifier circuit

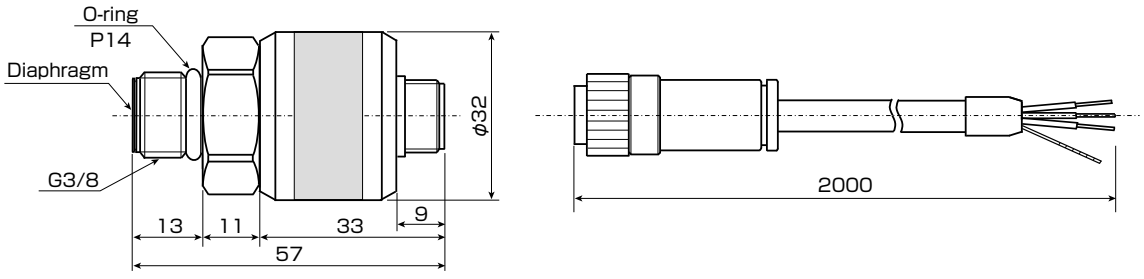
Specifications

Model	JW-5300 / JW-5200					
	-002MP	-003MP	-005MP	-010MP	-020MP	-035MP
Rated pressure	0 to 2MPa	0 to 3MPa	0 to 5MPa	0 to 10MPa	0 to 20MPa	0 to 35MPa
Pressure type	Shield gauge pressure					
Overpressure	JW-5300 : 200% of the rated pressure / JW-5200 : 150% of the rated pressure					140%
Wetted part material	Diaphragm : SUS316L Pressure port : SUS316 O-ring : Fluororubber (standard)					
Sealing liquid	Silicone oil					
Applicable media	Gas and fluid (media not damaging the wetted part material)					
Power supply	12 to 28VDC					
Output	JW-5300 : 1 to 5VDC / JW-5200 : 4 to 20mADC					
Current consumption	6mA or less					
Load resistance	JW-5300 : 1k Ω or more / JW-5200 : 600 Ω or less (at power of 24 VDC)					
Responsiveness	5msec or less					
Accuracy (linearity)	± 0.5% F.S. or less ※1 (± 0.3% F.S. or less)					
Temperature characteristics	± 0.05% F.S. /℃ or less (0 to 60℃)					
Compensated temperature range	0 to 60℃					
Operating temperature range	− 20 to 80℃ (no freezing allowed)					
Operating humidity range	35 to 85% RH (no dew condensation allowed)					
Pressure connection port	G3/8 ※2					
Cable	φ 6 vinyl (with connector) : 2000mm (standard) Shield cable					
Structure	IP67					
Insulation resistance	100M Ω or more / 500VDC					
Withstand voltage	500VAC, 1 minute					
Vibration resistance	98.1m / s^2, 2 hours (X, Y, and Z directions)					
Weight	Approx 1210g					

※ 1.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.25% F.S. or less).

※ 2.Conversion joints (models: G3R3 and G3R2) and damper joints (model: G3R3-DSM5) are available. (See page 53 of the catalog.)

Dimensions (Units : mm)



Cables / wires

	JW-5300	JW-5200
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—

Model

JW - 5000 - □□□MP - □□ - □

Output mode	Pressure type	Special	Unit of pressure	Cable length	O-ring
1 : Element	**0** : Positive pressure	**0** : None		**02** : 2m	**V** : Fluororubber
2 : Current 4 — 20mA		**1 to 9** : Special ※3 (Accuracy / Output / unit etc.)		**05** : 5m	**N** : NBR
3 : Voltage 1 — 5V				**10** : 10m	**X** : Other
4 : Voltage 1 — 2V / 6 — 12V					

※ 3.We also manufacture protection cover type sensors (special code 8).

DT



Features With digital display

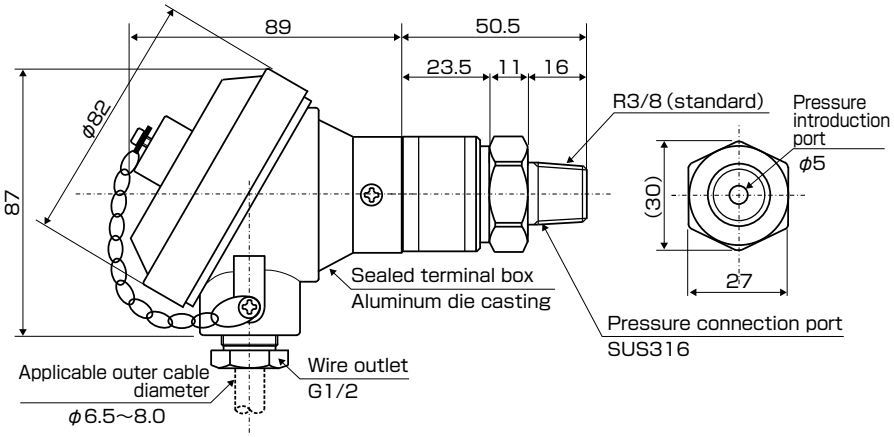
- Pressure indicator with a four-digit red LED
- Waterproof IP67 structure
- Stainless steel diaphragm structure for water, oil, and other types of fluid
- Two switches (open collector output: NPN)
- Scalable analog output signal of 4 to 20 mADC
- Semiconductor type with high accuracy and excellent durability

Specifications

Model	DT							
	-N100KP	-020KP	-050KP	-100KP	-300KP	-500KP	-001MP	-002MP
Rated pressure ※1	0 to −100kPa	0 to 20kPa	0 to 50kPa	0 to 100kPa	0 to 300kPa	0 to 500kPa	0 to 1MPa	0 to 2MPa
Impact of orientation	＋0.1%F.S.	＋0.5%F.S.	＋0.3%F.S.	＋0.1%F.S.	Posture : downward → sideward			
Pressure type	Gauge pressure ※2※3							
Overpressure	200% of the rated pressure							
Wetted part material	Diaphragm : SUS316L　Pressure port : SUS316　O-ring : Fluororubber (standard)							
Sealing liquid	Silicone oil							
Applicable media	Gas and fluid (media not damaging the wetted part material)							
Measurement medium temperature	− 10 to 80℃ (no freezing allowed)							
Power supply	12 to 24VDC							
Current consumption	60mA or less (ON/OFF output and analogue output current are not included)							
Output	4 to 20mADC							
Load resistance	800 Ω以下 (at power of 24 VDC)							
Responsiveness	Select from 5msec to 5sec							
Compensated temperature range	0 to 60℃							
Operating temperature range	− 10 to 60℃ (no freezing allowed)							
Operating humidity range	35 to 85% RH (no dew condensation allowed)							
Pressure connection port	R3/8 (standard)・G3/8・R1/2・R1/4							
Casing material	Pressure connection part : SUS316　Connection part : Aluminum　Terminal box : Aluminum die casting							
Display part	4 digits red LED　Text height : 8mm							
Display cycle	0.1sec							
Display range	− 1999 to 9999							
Decimal point display	0 ／ 0.0 ／ 0.00 ／ 0.000							
Operation display	Red LED : Turns ON when the switch is output							
Display precision	± 1.0% F.S. ± 1digit or less (Include temperature characteristics from 0 to 60℃)							
linearity	± 0.3% F.S. or less							
Structure	IP67							
Insulation resistance	100M Ω以上／ 500VDC							
Withstand voltage	500VAC, 1 minute							
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)							
Weight	Approx 400g							

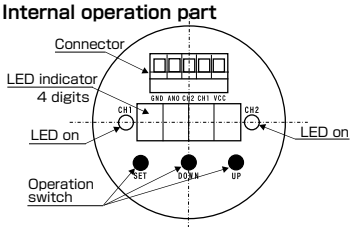
※ 1.We also manufacture compound pressure sensors (gauge pressure of 500 kPa or less).
※ 2.Make sure that the operating vacuum pressure is 10 kPa abs or more. (Operating temperature range: 0 - 60℃)
※ 3.Use a wiring cable for atmospheric pressure correction.

Dimensions (Units : mm)

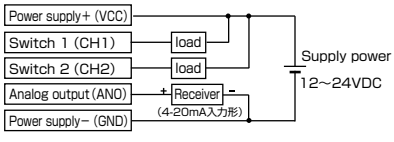


Internal terminal block / wires

Internal operation part



Wiring connection diagram



Option

Optionally, the lid of the terminal box can be changed to a transparent acrylic plate.



Model

DT - A N N - 100 KP - V - R3

Type	Output mode	Special	Pressure range	Unit of pressure	O-ring	Pressure connection port
	A : 4-20mA			**KP** : kPa	**V** : Fluororubber	**Space** : R1/4
	Switch output	**Space** : Positive pressure		**MP** : MPa	**N** : NBR	**G3** : G3/8
	N : NPN	**N** : Negative pressure			**X** : Other	**R3** : R3/8(standard)
		C : Compound pressure				**R4** : R1/2

DL



Features **1.With digital display** **2.Welded structure**

- Pressure indicator with a four-digit red LED
- Waterproof IP67 structure
- Stainless steel diaphragm structure for water, oil, and other types of fluid
- Pressure sensor with a welded structure that does not use an O-ring in the wetted part
- Scalable analog output signal of 4 to 20 mADC
- Semiconductor type with high accuracy and excellent durability

Specifications

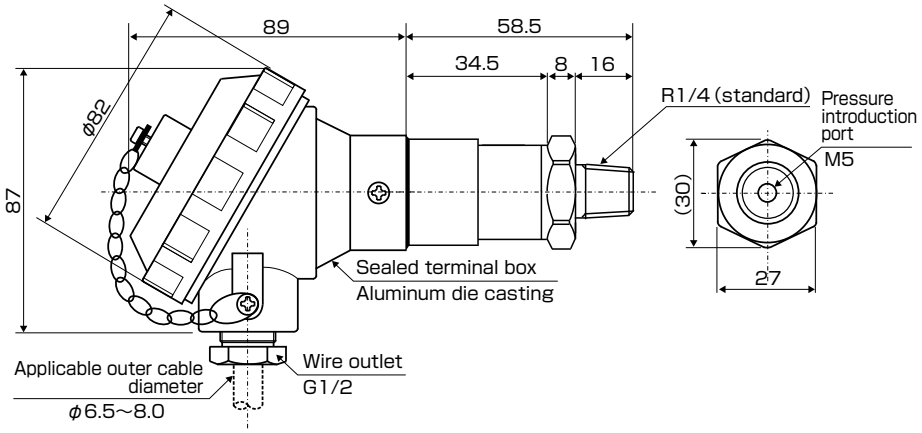
Model	DL							
	-N100KP	-020KP	-050KP	-100KP	-300KP	-500KP	-001MP	-002MP
Rated pressure ※1	0 to −100kPa	0 to 20kPa	0 to 50kPa	0 to 100kPa	0 to 300kPa	0 to 500kPa	0 to 1MPa	0 to 2MPa
Impact of orientation	＋0.1%F.S.	＋0.5%F.S.	＋0.3%F.S.	＋0.1%F.S.	Posture : downward → sideward			
Pressure type	Gauge pressure ※2 ※3							
Overpressure	200% of the rated pressure							
Wetted part material	Diaphragm : SUS316L　Pressure port : SUS316							
Sealing liquid	Silicone oil							
Applicable media	Gas and fluid (media not damaging the wetted part material)							
Measurement medium temperature	− 10 to 80℃ (no freezing allowed)							
Power supply	12 to 24VDC							
Current consumption	60mA or less (ON/OFF output and analogue output current are not included)							
Output	4 to 20mADC							
Load resistance	800 Ω or less (at power of 24 VDC)							
Responsiveness	Select from 5msec to 5sec							
Compensated temperature range	0 to 60℃							
Operating temperature range	− 10 to 60℃ (no freezing allowed)							
Operating humidity range	35 to 85% RH (no dew condensation allowed)							
Pressure connection port	R1/4 (standard) ・ G3/8 ・ R1/2 ・ R3/8 ・ G1/4							
Casing material	Pressure connection part : SUS316　Connection part : Aluminum　Terminal box : Aluminum die casting							
Display part	4 digits red LED　Text height : 8mm							
Display cycle	0.1sec							
Display range	− 1999 to 9999							
Decimal point display	0 ／ 0.0 ／ 0.00 ／ 0.000							
Operation display	Red LED : Turns ON when the switch is output							
Display precision	± 1.0% F.S. ± 1digit or less (Include temperature characteristics from 0 to 60℃)							
linearity	± 0.3% F.S. or less							
Structure	IP67							
Insulation resistance	100M Ω or more ／ 500VDC							
Withstand voltage	500VAC, 1 minute							
Vibration resistance	98.1m ／ s^2, 2 hours (X, Y, and Z directions)							
Weight	Approx 400g							

※ 1.We also manufacture compound pressure sensors (gauge pressure of 500 kPa or less).

※ 2.Make sure that the operating vacuum pressure is 10 kPa abs or more. (Operating temperature range: 0 - 60℃)

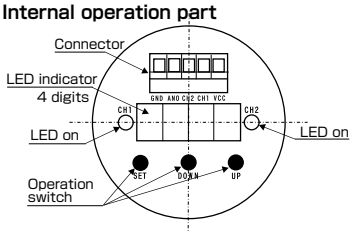
※ 3.Use a wiring cable for atmospheric pressure correction.

Dimensions (Units : mm)

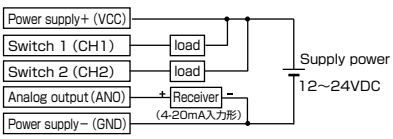


Internal terminal block / wires

Internal operation part



Wiring connection diagram



Option

Optionally, the lid of the terminal box can be changed to a transparent acrylic plate.



Model

DL - A N N - 100 KP - R3

Type	Output mode	Special	Pressure range	Unit of pressure	Pressure connection port
	A : 4-20mA			**KP** : kPa	**Space** : R1/4 (standard)
				MP : MPa	**G3** : G3/8
	Switch output	**Space** : Positive pressure			**R3** : R3/8
	N : NPN	**N** : Negative pressure			**R4** : R1/2
		C : Compound pressure			**G2** : G1/4

G3R3 • G3R3-DSM5 • G3R2

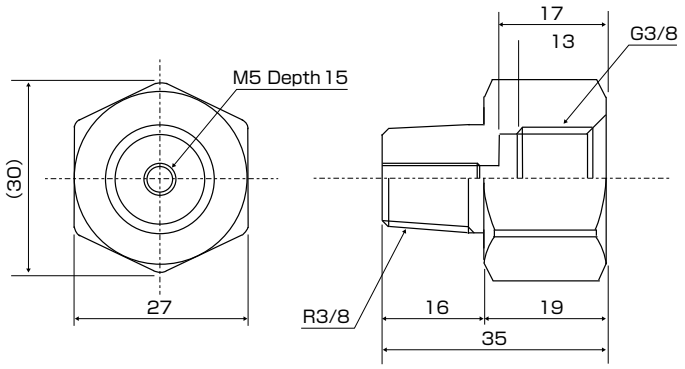
Conversion joint



Model : **G3R3**

● Material : SUS316

Dimensions (unit : mm)

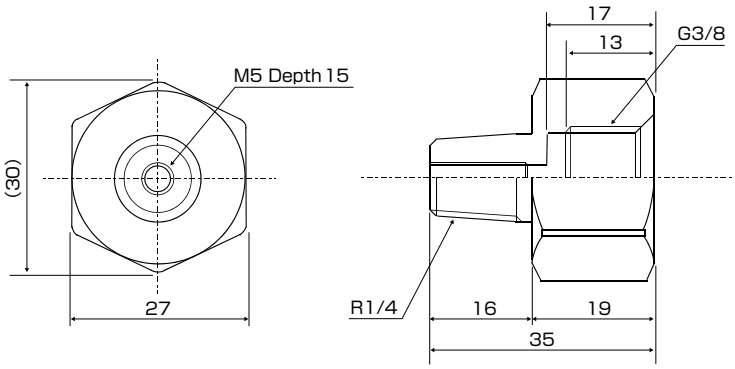




Model : **G3R2**

● Material : SUS316

Dimensions (unit : mm)



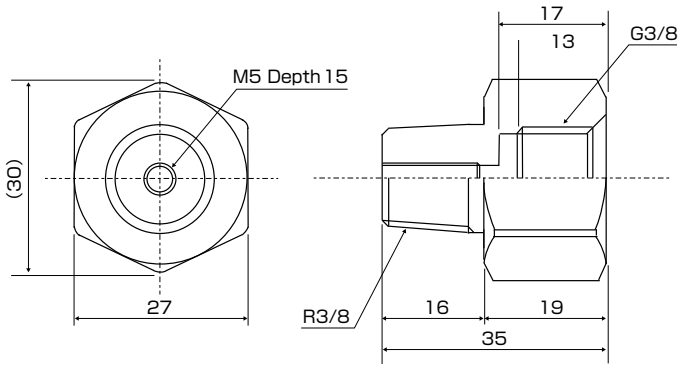
Damper Joint



Model:**G3R3-DSM5**

● Material : SUS316

Dimensions (unit : mm)



Applicable products			
HS Series	·····Catalog P.41	**LSI Series**	·····Catalog P.47
CS Series	·····Catalog P.44	**JW-5000 Series**	·····Catalog P.50
MSI Series	·····Catalog P.45		

We also provide the options listed below. We manufacture customized products as well.

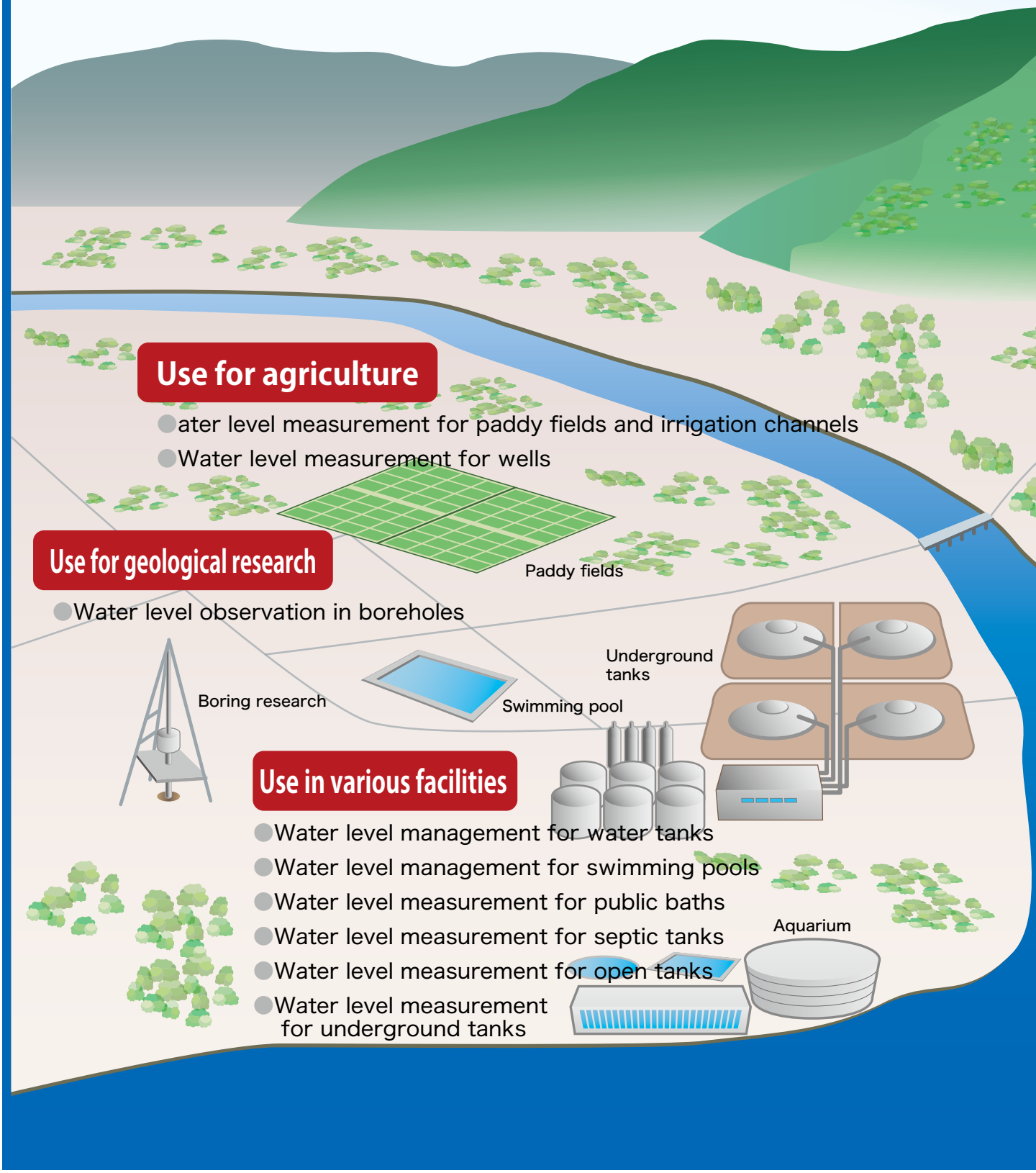
Option examples (not available for some products)

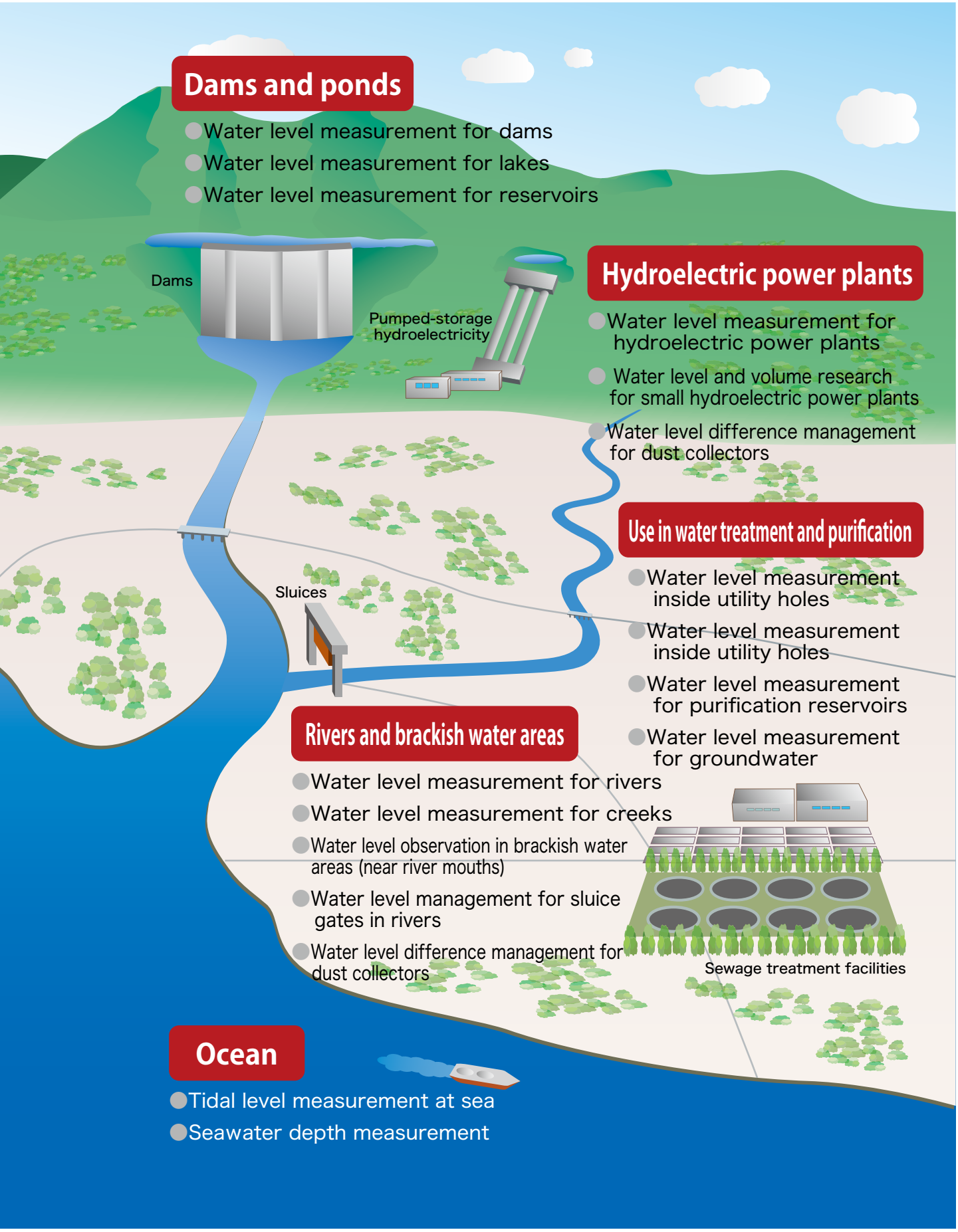
Cable extension	High accuracy product
Pressure connection port joint change	Degreasing and water prohibition treatment
O-ring material change	Other

◎ For details, contact us via the inquiry section of our website or our sales representative.
Web site https://www.sensez.co.jp

Our diverse lineup of products is used in various fields and applications of water level measurement and research.

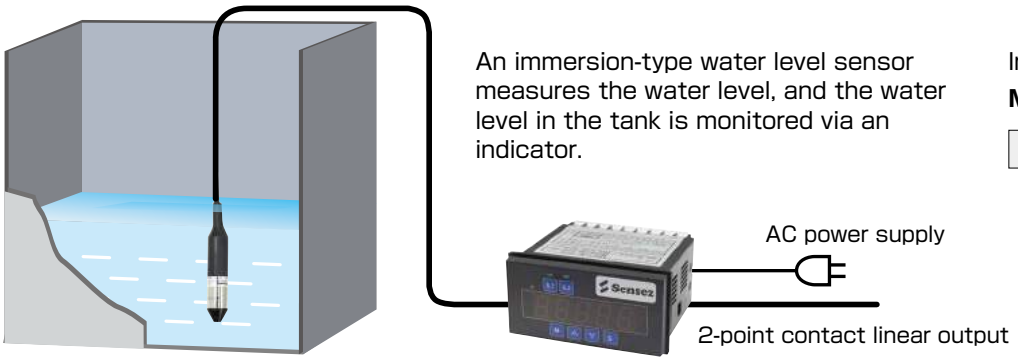
Our water level sensors are of the “immersion-type” or “pressure type,” which measures the water level by measuring the water pressure with a diffusion-type semiconductor pressure sensor. They are easy to maintain, have long service lives, and remain highly accuracy and stable for an extended period of time, making these sensors ideal for long-term water level measurement, research, and monitoring.




Dams and ponds
Water level measurement for dams
Water level measurement for lakes
Water level measurement for reservoirs
Dams
Pumped-storage hydroelectricity
Hydroelectric power plants
Water level measurement for hydroelectric power plants
Water level and volume research for small hydroelectric power plants
Water level difference management for dust collectors
Use in water treatment and purification
Water level measurement inside utility holes
Water level measurement inside utility holes
Water level measurement for purification reservoirs
Water level measurement for groundwater
Sluices
Rivers and brackish water areas
Water level measurement for rivers
Water level measurement for creeks
Water level observation in brackish water areas (near river mouths)
Water level management for sluice gates in rivers
Water level difference management for dust collectors
Sewage treatment facilities
Ocean
Tidal level measurement at sea
Seawater depth measurement

◎ Examples of Water Level Sensor Applications

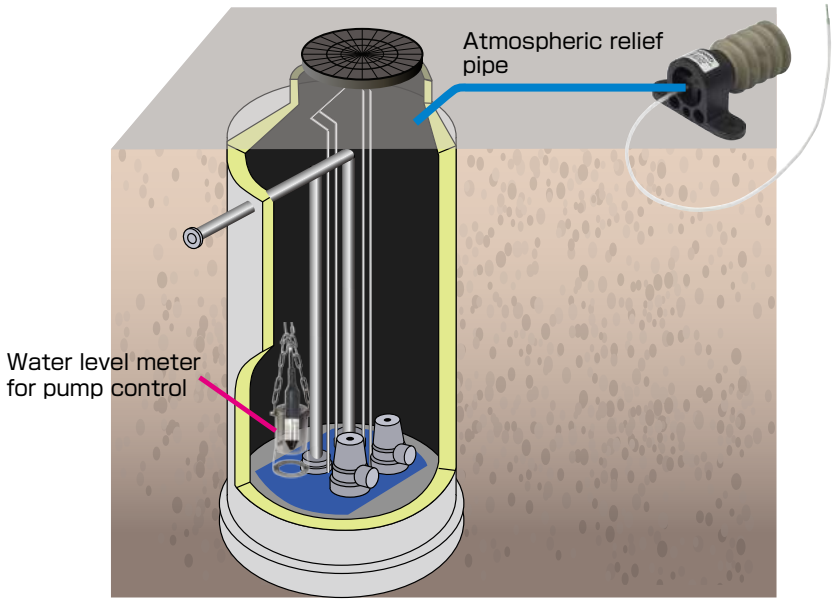
Water level measurement for tanks



An immersion-type water level sensor measures the water level, and the water level in the tank is monitored via an indicator.

Indicator
MM-2200/3300
See page 87.

Installation in a utility hole pump

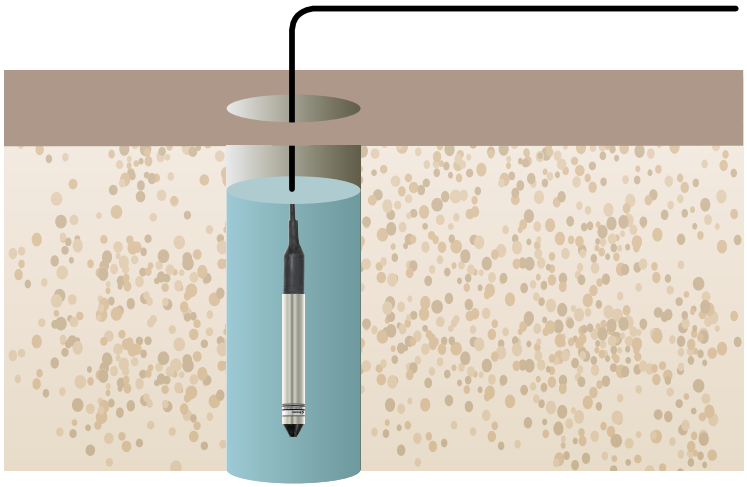


Dew Condensation Prevention Items
Aneroid bellows AB-815
See page 77.

Immersion-type Water Level Sensors (4-20mA Output)
HM-300 See page 45.
HM-700 See page 48.
HM-920 See page 49.

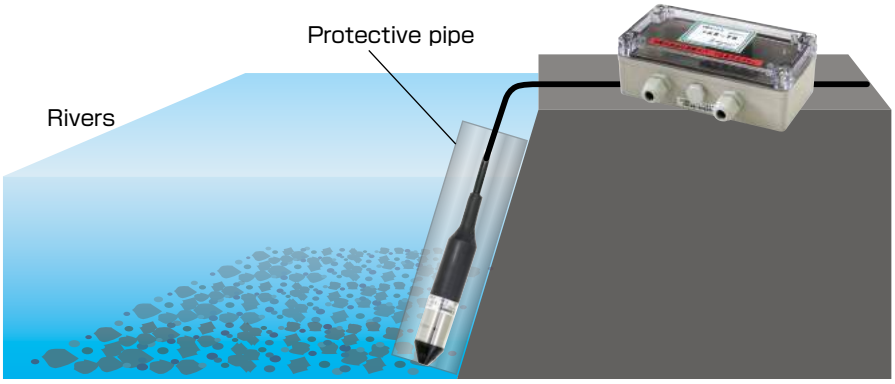
Fixed Hanging Anchors
Anchor head AH-20/AH-10
See page 78.

Water level observation in boreholes using a thin-diameter water level sensor



Immersion-type Water Level Sensors (thin-diameter type)
HM-450/470 series
See page 63.

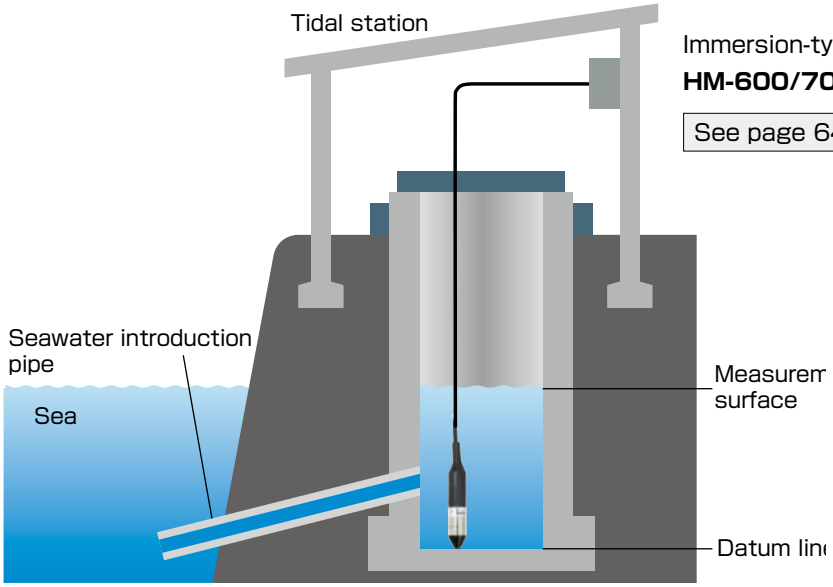
Water level observation for rivers



Relay box
TKB series
See page 79.

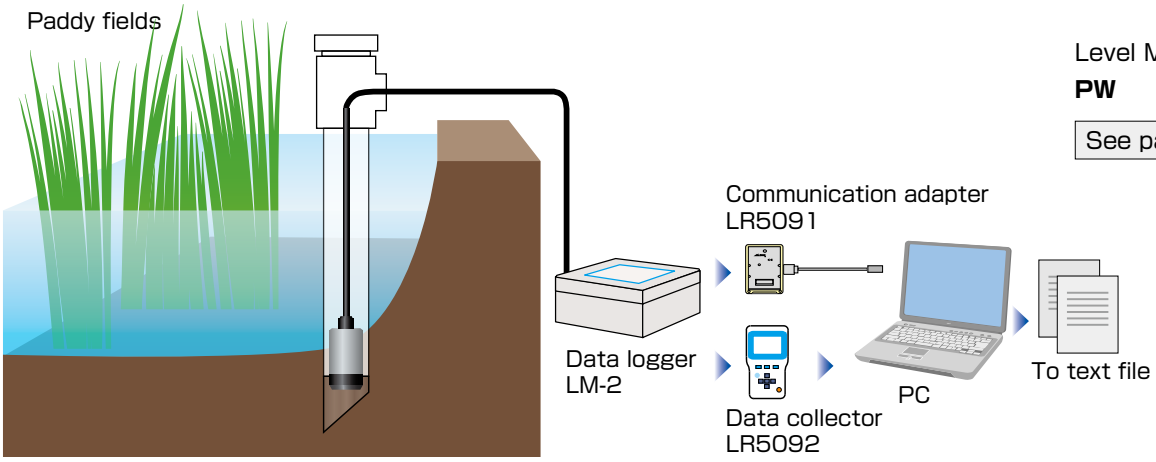
Immersion-type water level sensor

Tidal level observation at sea using a titanium water level sensor



Immersion-type Water Level Sensors (Titanium)
HM-600/700 series
See page 64.

Water level observation for paddy fields and irrigation channels



Level Memory
PW
See page 76.

▶ Water level sensor specification comparison table

Model		HM-200 • HM-300 	HM-220 	HM-450 • HM-470 	HM-600 • HM-700 
Page featuring this model		P.61	P.62	P.63	P.64
Characteristics		This is a pressure-type water level sensor using a stainless steel diaphragm. Ideal for long-term water level observation for rivers, water channels, dams, wells, groundwater, etc. A range of meters, from 2 m to 50 m, is available, enabling water level measurement to an accuracy of millimeters.	This is an immersion-type water level sensor that operates on 3 to 5 VDC. Low current consumption makes this model an ideal battery-powered sensor. Output signal of 0.1 to 1.1 VDC from a built-in amplifier circuit.	This is a thin immersion-type water level sensor whose outer diameter is 20 mm. Ideal for groundwater level measurement in small boreholes.	This is a pressure-type water level sensor entirely made of titanium. It has outstanding corrosion resistance against seawater and is ideal for water level measurement of seawater and brackish water.
Rated pressure	1m	Contact us.	Contact us.		Contact us.
	2m				
	5m				
	10m				
	20m				
	30m				
	50m				
Power supply	VDC	12 to 28	3 to 5	12 to 28	12 to 28
Output Voltage (standard)	VDC	1 – 5	0.1 – 1.1	1 – 5	1 – 5
Output Current (standard)	mADC	4 – 20	—	4 – 20	4 – 20
Accuracy	%F.S./℃ or less	± 0.3	± 0.3	± 0.3	± 0.3
High accuracy type (option)	—	○	—	○	○
Temperature characteristics at zero degrees (within the compensated temperature range)	%F.S./℃ or less	± 0.01	± 0.01	± 0.015	± 0.01
Compensated temperature range	℃	– 2 to 30	– 2 to 30	– 2 to 30	– 2 to 30
Operating temperature range	℃ (no freezing allowed)	– 10 to 50	– 10 to 50	– 10 to 50	– 10 to 50
Wetted part material	—	Diaphragm : SUS316L Main unit : SUS316 O-ring : Fluororubber Cap : Plastic Shrinkable tube: Polyolefin	Diaphragm : SUS316L Main unit : SUS316 O-ring : Fluororubber Cap : Plastic Shrinkable tube: Polyolefin	Diaphragm : SUS316L Main unit : SUS316 O-ring : Fluororubber Cap : Plastic Shrinkable tube: Polyolefin	Diaphragm : Titanium Main unit : Titanium O-ring : Fluororubber Cap : Plastic Shrinkable tube: Polyolefin
Cable	—	φ 8 polyurethane: 30 m (standard) Shield + atmospheric relief pipe	φ 8 polyurethane: 30 m (standard) Shield + atmospheric relief pipe	φ 8 polyurethane: 10 m (standard) Shield + atmospheric relief pipe	φ 8 polyurethane: 30 m (standard) Shield + atmospheric relief pipe
Tensile strength (between main unit and cable)	N	300	300	100	300
Temperature sensor option		○	○	—	○

	HM-900 • HM-920	JW-8700 • JW-8600 ※1	PPV	WLG
				
	P.65	P.66	P.67 to P.68	P.69 to P.70
	This is a low-cost immersion-type water level sensor. Ideal for water level measurement for underground tanks, plant tanks, etc. The water levels 2 m, 5 m, and 10 m are supported.	This is an immersion-type water level sensor that can also be used as a water pressure sensor. Ideal for water level observation for water channels, groundwater, reservoirs, tanks, etc.	This sensor enables high-accuracy, low-cost water level observation for paddy fields and irrigation channels. The measurement range is 1 m. A low-power model that operates on a 9-V battery. An output signal of 1 to 5 VDC from a built-in amplifier circuit.	A water level meter integrated with a built-in data logger. Lightweight and compact with an environmentally robust casing made of stainless steel. The built-in battery ensures long-term measurement for approx. three years and can be replaced with a new one (the replacement work to be done by the manufacturer). Atmospheric correction is performed after measurement is made with an atmospheric measurement sensor. The measurement data can be retrieved easily simply by inserting the meter into the cradle (to be purchased separately).
	12 to 28	12 to 28	8 to 15	Built-in lithium battery
	1 – 5	1 – 5	1 – 5	—
	4 – 20	4 – 20	—	—
	± 0.3	± 0.3	± 0.3	± 0.3
	—	—	—	—
	± 0.015	± 0.015	± 0.01	± 0.01
	– 2 to 30	– 2 to 30	0 to 60	0 to 40
	– 10 to 50	– 10 to 70	– 10 to 60	– 20 to 50
	Diaphragm : SUS316L Main unit : SUS316 O-ring : Fluororubber Cap : Plastic Shrinkable tube: Polyolefin	Diaphragm : SUS316L Main unit : SUS316 O-ring : Fluororubber Cap : Plastic Shrinkable tube: Polyolefin	Diaphragm : SUS316L O-ring : Fluororubber Cap、Case、Connector : Plastic Shrinkable tube: Polyolefin	Diaphragm : SUS316L Pressure port : SUS316L O-ring : Fluororubber Communication part: : Polycarbonate
	φ 7 vinyl : 10m (standard) Shield + atmospheric relief pipe	φ 7 vinyl : 10m (standard) Shield + atmospheric relief pipe	φ 7 vinyl : 1m (standard) Shield + atmospheric relief pipe	—
	100	100	100	—
	—	—	—	Standard (measurement range : – 20 to 50℃)

※ 1 : When used as an immersion-type water level sensor

HM-200 • HM-300



Features Immersion-type

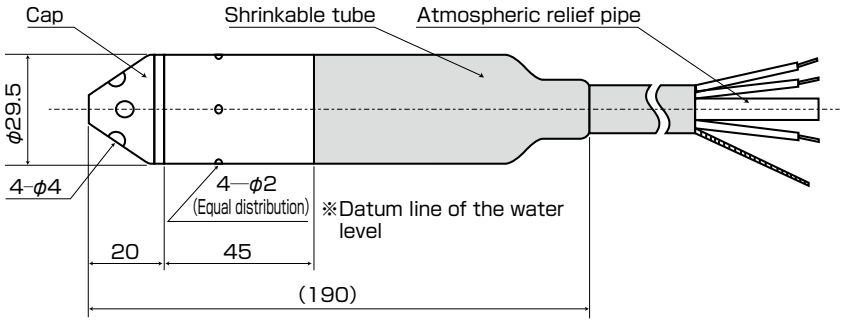
- Pressure-type water level sensor with a stainless steel diaphragm
- Ideal for long-term water level observation for rivers, water channels, dams, wells, groundwater, etc.
- Meter lineup from 2 m to 50 m
- Water level measurement to an accuracy of millimeters possible
- Output signal of 1 to 5 VDC or 4 to 20 mADC from a built-in amplifier circuit
- Built-in arrester

Specifications ※1

Model	HM-200						HM-300					
	-02	-05	-10	-20	-30	-50	-02	-05	-10	-20	-30	-50
Rated pressure	2mH$_2$O	5mH$_2$O	10mH$_2$O	20mH$_2$O	30mH$_2$O	50mH$_2$O	2mH$_2$O	5mH$_2$O	10mH$_2$O	20mH$_2$O	30mH$_2$O	50mH$_2$O
Overpressure	200% of the rated pressure						150% of the rated pressure					
Power supply	12 to 28VDC											
Output	1 to 5VDC						4 to 20mADC					
Current consumption	6mA or less						—					
Load resistance	1k Ω or more						600 Ω or less (at power of 24 VDC)					
Accuracy (linearity)	± 0.3% F.S. or less ※2 (± 0.2% F.S. or less)											
Temperature characteristics at zero degrees	± 0.01% F.S. ／℃ or less (− 2 to 30℃)											
Compensated temperature range	− 2 to 30℃											
Operating temperature range	− 10 to 50℃ (no freezing allowed)											
Material	Diaphragm : SUS316L Main unit : SUS316 O-ring : Fluororubber Cap : Plastic Shrinkable tube: Polyolefin											
Sealing liquid	Silicone oil											
Cable	φ 8 polyurethane : 30m (standard) Shield + atmospheric relief pipe											
Tensile strength	300N (Between the main unit and cable)											
Insulation resistance	100M Ω or more ／ 500VDC											
Withstand voltage	500VAC, 1 minute											
Weight	Main unit : approx 300g Cable : approx 65g per meter											

※1.We also manufacture a water level sensor with a built-in temperature sensor (PT-100).
※2.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.1% F.S. or less).

Dimensions (Units : mm)



Cables / wires

	HM-200	HM-300
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—
Atmospheric relief pipe	Yes	Yes

Model

HM - 200 - 10 - 30

- **Type**
- **Output mode**
  - **200** : Voltage output
  - **210** : Voltage output、With temperature sensor
  - **240** : Voltage output、1-2V/6-12V
  - **300** : Current output
  - **310** : Current output、With temperature sensor
- **Measurement range**
  - **02** : 2m
  - **05** : 5m
  - **10** : 10m
  - **20** : 20m
  - **30** : 30m
  - **50** : 50m
- **Cable length**
  - **30** : 30m (standard)
  - **50** : 50m
  - **100** : 100m

HM-220



Features **1.**Immersion-type **2.**Low power

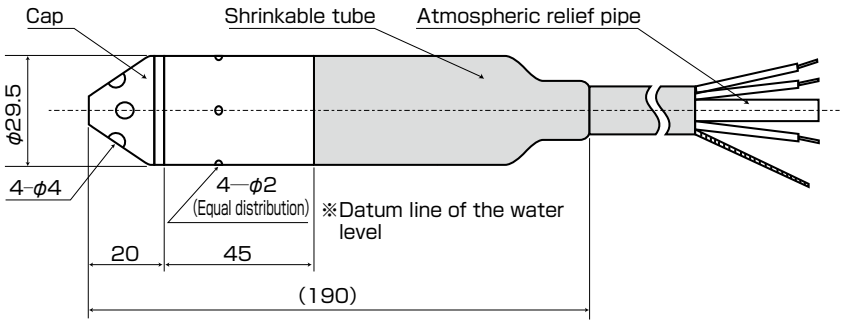
- Water level sensor designed to operate on 3 to 5 VDC
- Low current consumption ideal for battery-powered sensors
- Pressure-type water level sensor with a stainless steel diaphragm
- Meter lineup from 2 m to 50 m
- Output signal of 0.1 to 1.1 VDC from a built-in amplifier circuit

Specifications ※1

Model	HM-220					
	-02	-05	-10	-20	-30	-50
Rated pressure	2mH_2O	5mH_2O	10mH_2O	20mH_2O	30mH_2O	50mH_2O
Overpressure	200% of the rated pressure					
Power supply	3 to 5VDC					
Output	0.1 to 1.1VDC					
Current consumption	2mA or less					
Load resistance	1k Ω or more					
Accuracy (linearity)	± 0.3% F.S. or less (± 0.2% F.S. or less)					
Temperature characteristics at zero degrees	± 0.01% F.S. ／℃ or less （− 2 to 30℃）					
Compensated temperature range	− 2 to 30℃					
Operating temperature range	− 10 to 50℃ （no freezing allowed）					
Material	Diaphragm : SUS316L Main unit : SUS316 O-ring : Fluororubber Cap : Plastic Shrinkable tube: Polyolefin					
Sealing liquid	Silicone oil					
Cable	ϕ 8 polyurethane : 30m （standard） Shield + atmospheric relief pipe					
Tensile strength	300N （Between the main unit and cable）					
Insulation resistance	100M Ω or more ／ 500VDC					
Withstand voltage	500VAC, 1 minute					
Weight	Main unit : approx 300g Cable : approx 65g per meter					

※ 1.We also manufacture a water level sensor with a built-in temperature sensor (PT-100).

Dimensions (Units : mm)



Cables / wires

	HM-220
Red	Power supply +
White	Output
Black	Common
Atmospheric relief pipe	Yes

Model

HM - 220 - 10 - 30

- **HM** — Type
- **220** — Output mode : Voltage output、0.1-1.1V/3-5V
- **10** — Measurement range
  - **02** : 2m
  - **05** : 5m
  - **10** : 10m
  - **20** : 20m
  - **30** : 30m
  - **50** : 50m
- **30** — Cable length
  - **30** : 30m （standard）
  - **50** : 50m
  - **100** : 100m

HM-450 • HM-470



Features **1.**Immersion-type **2.**Thin-diameter type

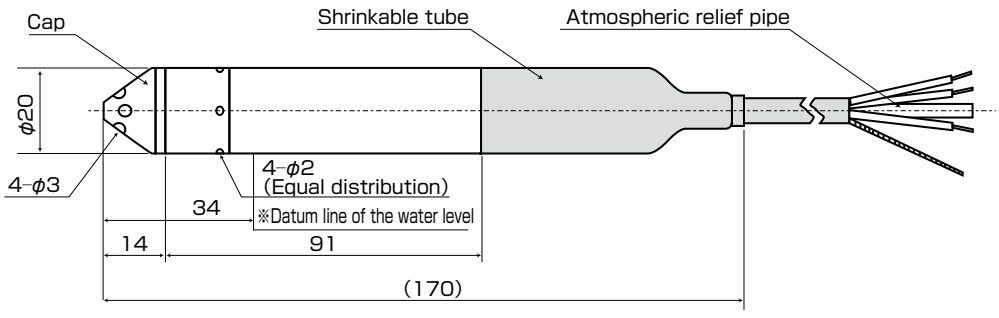
- Thin immersion-type water level sensor whose outer diameter is 20 mm
- Ideal for groundwater level measurement in small boreholes
- Water level measurement to an accuracy of millimeters possible
- Output signal of 1 to 5 VDC or 4 to 20 mADC from a built-in amplifier circuit
- Built-in arrester

Specifications

Model	HM-450					HM-470				
	-05	-10	-20	-30	-50	-05	-10	-20	-30	-50
Rated pressure	5mH$_2$O	10mH$_2$O	20mH$_2$O	30mH$_2$O	50mH$_2$O	5mH$_2$O	10mH$_2$O	20mH$_2$O	30mH$_2$O	50mH$_2$O
Overpressure	200% of the rated pressure					150% of the rated pressure				
Power supply	12 to 28VDC									
Output	1 to 5VDC					4 to 20mADC				
Current consumption	6mA or less					—				
Load resistance	1k Ω or more					600 Ω以下 (at power of 24 VDC)				
Accuracy (linearity)	± 0.3% F.S. or less ※1 (± 0.2% F.S. or less)									
Temperature characteristics at zero degrees	± 0.015% F.S. ／℃ or less (− 2 to 30℃)									
Compensated temperature range	− 2 to 30℃									
Operating temperature range	− 10 to 50℃ (no freezing allowed)									
Material	Diaphragm : SUS316L Main unit : SUS316 O-ring : Fluororubber Cap : Plastic Shrinkable tube: Polyolefin									
Sealing liquid	Silicone oil									
Cable	φ 8 polyurethane : 10m (standard) Shield + atmospheric relief pipe									
Tensile strength	100N (Between the main unit and cable)									
Insulation resistance	100M Ω or more ／ 500VDC									
Withstand voltage	500VAC, 1 minute									
Weight	Main unit : approx 160g Cable : approx 65g per meter									

※ 1.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.1% F.S. or less).

Dimensions (Units : mm)



Cables / wires

	HM-450	HM-470
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—
Atmospheric relief pipe	Yes	Yes

Model

HM - 450 - 05 - 30

- **Type**
- **Output mode**
  - **450** : Voltage output
  - **470** : Current output
- **Measurement range**
  - **05** : 5m
  - **10** : 10m
  - **20** : 20m
  - **30** : 30m
  - **50** : 50m
- **Cable length**
  - **10** : 10m (standard)
  - **20** : 20m
  - **30** : 30m

HM-600 • HM-700



Features **1.**Immersion-type **2.**Titanium

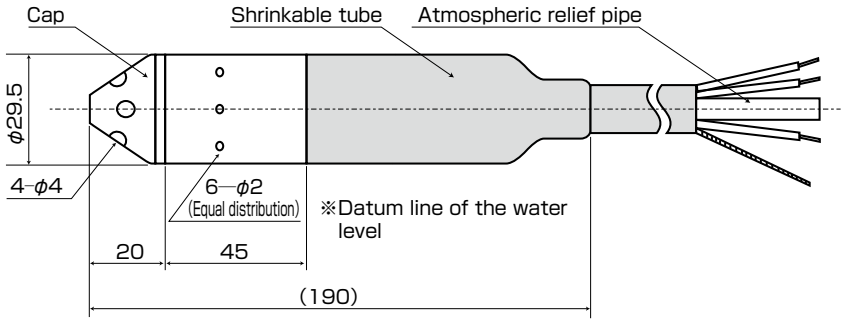
- Pressure-type water level sensor entirely made of titanium
- Titanium has outstanding corrosion resistance against seawater.
- Meter lineup from 2 m to 50 m
- Water level measurement to an accuracy of millimeters possible
- Output signal of 1 to 5 VDC or 4 to 20 mADC from a built-in amplifier circuit
- Built-in arrester

Specifications ※1

Model	HM-600						HM-700					
	-02	-05	-10	-20	-30	-50	-02	-05	-10	-20	-30	-50
Rated pressure	2mH$_2$O	5mH$_2$O	10mH$_2$O	20mH$_2$O	30mH$_2$O	50mH$_2$O	2mH$_2$O	5mH$_2$O	10mH$_2$O	20mH$_2$O	30mH$_2$O	50mH$_2$O
Overpressure	200% of the rated pressure						150% of the rated pressure					
Power supply	12 to 28VDC											
Output	1 to 5VDC						4 to 20mADC					
Current consumption	6mA or less						—					
Load resistance	1k Ω or more						600 Ω or less (at power of 24 VDC)					
Accuracy (linearity)	± 0.3% F.S. or less ※2 (± 0.2% F.S. or less)											
Temperature characteristics at zero degrees	± 0.01% F.S. ／℃ or less (− 2 to 30℃)											
Compensated temperature range	− 2 to 30℃											
Operating temperature range	− 10 to 50℃ (no freezing allowed)											
Material	Diaphragm : Titanium Main unit : Titanium O-ring : Fluororubber Cap : Plastic Shrinkable tube: Polyolefin											
Sealing liquid	Silicone oil											
Cable	ϕ 8 polyurethane : 30m (standard) Shield + atmospheric relief pipe											
Tensile strength	300N (Between the main unit and cable)											
Insulation resistance	100M Ω or more ／ 500VDC											
Withstand voltage	500VAC, 1 minute											
Weight	Main unit : approx 200g Cable : approx 65g per meter											

※ 1.We also manufacture a water level sensor with a built-in temperature sensor (PT-100).
※ 2.We also manufacture high-accuracy pressure sensors (accuracy: ± 0.1% F.S. or less).

Dimensions (Units : mm)



Cables / wires

	HM-600	HM-700
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—
Atmospheric relief pipe	Yes	Yes

Model

HM - 700 - 10 - 30

Type

Output mode
600 : Voltage output
610 : Voltage output、With temperature sensor
700 : Current output
710 : Current output、With temperature sensor

Measurement range
02 : 2m
05 : 5m
10 : 10m
20 : 20m
30 : 30m
50 : 50m

Cable length
30 : 30m (standard)
50 : 50m
100 : 100m

HM-900 • HM-920



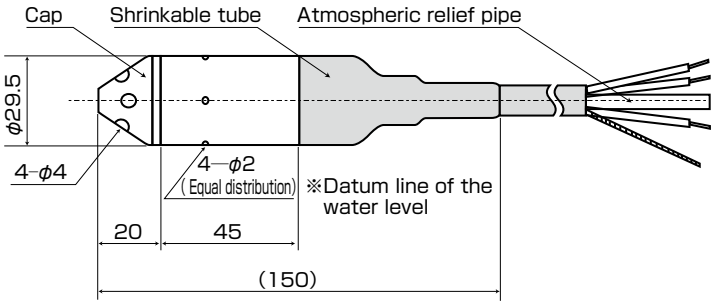
Features **1.**Immersion-type **2.**Low-cost

- Low-cost immersion-type water level sensor
- Ideal for water level measurement for underground tanks, plant tanks, etc.
- Water level lineup of 2 m, 5 m, and 10 m
- Water level measurement to an accuracy of millimeters possible
- Output signal of 1 to 5 VDC or 4 to 20 mADC from a built-in amplifier circuit

Specifications

Model	HM-900			HM-920		
	-02	-05	-10	-02	-05	-10
Rated pressure	2mH_2O	5mH_2O	10mH_2O	2mH_2O	5mH_2O	10mH_2O
Overpressure	200% of the rated pressure			150% of the rated pressure		
Power supply	12 to 28VDC					
Output	1 to 5VDC			4 to 20mADC		
Current consumption	6mA or less			—		
Load resistance	1k Ω or more			600 Ω or less (at power of 24 VDC)		
Accuracy (linearity)	± 0.3% F.S. or less (± 0.2% F.S. or less)					
Temperature characteristics at zero degrees	± 0.015% F.S. ／℃ or less (− 2 to 30℃)					
Compensated temperature range	− 2 to 30℃					
Operating temperature range	− 10 to 50℃ (no freezing allowed)					
Material	Diaphragm : SUS316L Main unit : SUS316 O-ring : Fluororubber Cap : Plastic Shrinkable tube: Polyolefin					
Sealing liquid	Silicone oil					
Cable	ϕ 7 vinyl : 10m (standard) Shield + atmospheric relief pipe					
Tensile strength	100N (Between the main unit and cable)					
Insulation resistance	100M Ω or more ／ 500VDC					
Withstand voltage	500VAC, 1 minute					
Weight	Main unit : approx 220g Cable : approx 65g per meter					

Dimensions (Units : mm)



Cables / wires

	HM-900	HM-920
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—
Atmospheric relief pipe	Yes	Yes

Model

HM - 920 - 02 - 30

Type

Output mode
- **900** : Voltage output
- **910** : Voltage output 1-2V/6-12V
- **920** : Current output
- **930** : Voltage output 1-3V/6-12V

Measurement range
- **02** : 2m
- **05** : 5m
- **10** : 10m

Cable length
- **10** : 10m (standard)
- **20** : 20m
- **30** : 30m

JW-8700 • JW-8600



Features **1.**Immersion-type **2.**Water pressure measurement

- When used as an immersion-type water level sensor :
  - Ideal for water level observation for water channels, groundwater, reservoirs, tanks, etc.
  - Measurement to an accuracy of millimeters possible
  - Need for atmospheric correction eliminated by the built-in atmospheric relief pipe
- When used as a water pressure sensor :
  - Full waterproof type with the IP68 structure with high environmental resistance
  - Air release possible with a sealed screw
  - Wide range of positive pressure, negative pressure, and compound pressure
- Output signal of 1 to 5 VDC or 4 to 20 mADC from a built-in amplifier circuit

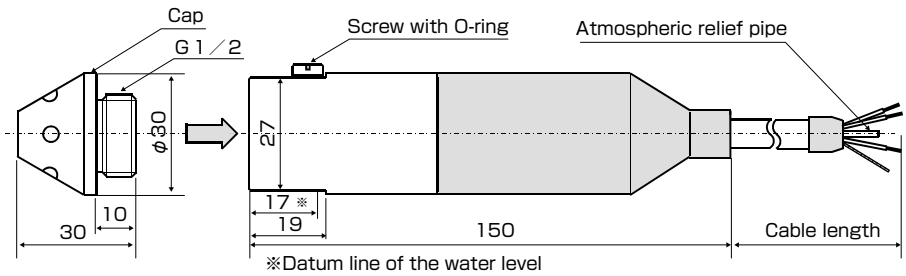
Specifications

Model	JW-8700 • JW-8600							
	Water pressure sensor					Water level sensor		
	-020KP	-050KP	-100KP	-300KP	-500KP	-02M	-05M	-10M
Rated pressure ※1	0 to 20kPa	0 to 50kPa	0 to 100kPa	0 to 300kPa	0 to 500kPa	0 to 2mH_2O	0 to 5mH_2O	0 to 10mH_2O
Pressure type	Gauge pressure ※2							
Overpressure	JW-8700 : 200% of the rated pressure ／ JW-8600 : 150% of the rated pressure							
Wetted part material	Diaphragm : SUS316L Pressure port : SUS316 O-ring : Fluororubber Cap : Plastic Shrinkable tube : Polyolefin							
Sealing liquid	Silicone oil							
Power supply	12 to 28VDC							
Output	JW-8700 : 1 to 5VDC ／ JW-8600 : 4 to 20mADC							
Current consumption	JW-8700 : 6mA or less							
Load resistance	JW-8700 : 1k Ω or more ／ JW-8600 : 600 Ω or less (at power of 24 VDC)							
Responsiveness	5msec or less							
Accuracy (linearity)	± 0.3% F.S. or less (± 0.2% F.S. or less)							
Zero temperature characteristics	± 0.025% F.S./℃ or less (0 to 60℃)					± 0.015% F.S./℃ or less (− 2 to 30℃)		
Compensated temperature range	0 to 60℃					− 2 to 30℃		
Operating temperature range	− 10 to 70℃ (no freezing allowed)							
Pressure connection port	G1/2 female screw							
Cable	φ 7 vinyl : 10m (standard) Shield + atmospheric relief pipe							
Tensile strength	100N (Between the main unit and cable)							
Structure	IP68							
Insulation resistance	100M Ω or more ／ 500VDC							
Withstand voltage	500VAC, 1 minute							
Vibration resistance	98.1m/s^2, 2 hours (X, Y, and Z directions)							
Weight	Main unit : approx 250g Cable : approx 65g per meter							
Impact of mounting orientation (port orientation changed from downward to sideways)	+ 0.5% F.S.	+ 0.3% F.S.	+ 0.1% F.S.			+ 0.5% F.S.	+ 0.3% F.S.	+ 0.1% F.S.

※ 1.We also manufacture negative pressure and compound pressure sensors (gauge pressure of 500 kPa or less).

※ 2.Make sure that the operating vacuum pressure is 10 kPa abs or more. (Operating temperature range: 0 - 60℃)

Dimensions (Units : mm)



※Datum line of the water level

Cables / wires

	JW-8700	JW-8600
Red	Power supply +	Power supply +
White	Output	Power supply −
Black	Common	—
Atmospheric relief pipe	Yes	Yes

Model

JW - 8000 - □□□KP/□□M - □□□

Output mode
- **5** : Element
- **6** : Current 4—20mA
- **7** : Voltage 1—5V
- **8** : Voltage 1—2V／6—12V

Pressure type
- **0** : Positive pressure
- **1** : Negative pressure
- **2** : Compound pressure

Special
- **0** : None
- **1 to 9** : Special (Accuracy、Output、unit etc.)

Unit of pressure or Measurement range

Cable length
- **010** : 10m (standard)
- **030** : 30m
- **050** : 50m
- **100** : 100m

PPV

◎ This sensor enables high-accuracy, low-cost water level observation for paddy fields and irrigation channels.

◎ The sensor is easy to install and maintain.



Features **1.Immersion-type** **2.For paddy fields and irrigation channels**

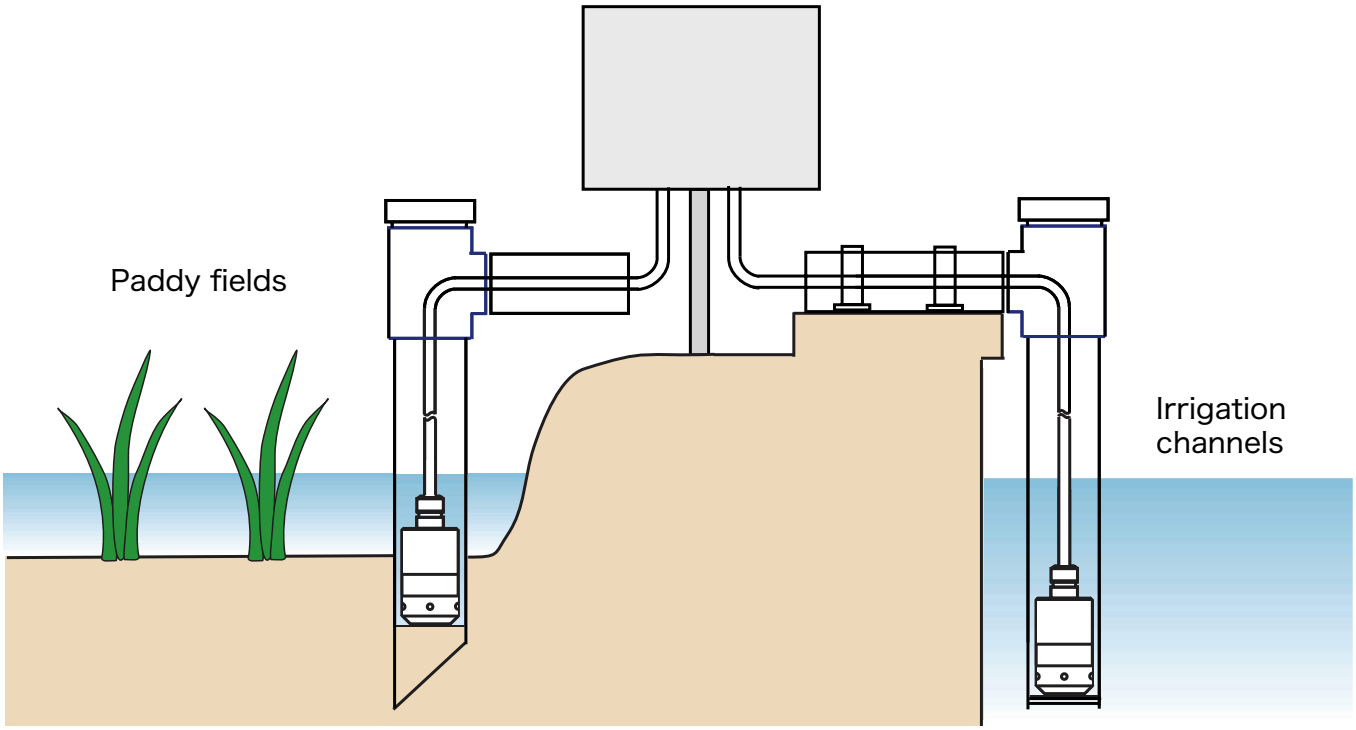
- Pressure-type water level sensor with a stainless steel diaphragm
- Water level measurement to an accuracy of millimeters possible (accuracy: ± 0.3% F.S. or less)
- Making the sensor dedicated to paddy fields and irrigation channels has led to low cost.
- The immersion-type sensor can be installed easily.
- The maintenance workload is reduced as litter, algae, and other foreign matters do not easily attach to the sensor.
- Measurement range: : 1 m
- Low-power model that operates on a 9-V battery
- Output signal of 1 to 5 VDC from a built-in amplifier circuit

Uses

- Water level observation for paddy fields
- Water level observation for irrigation channels

Installation example

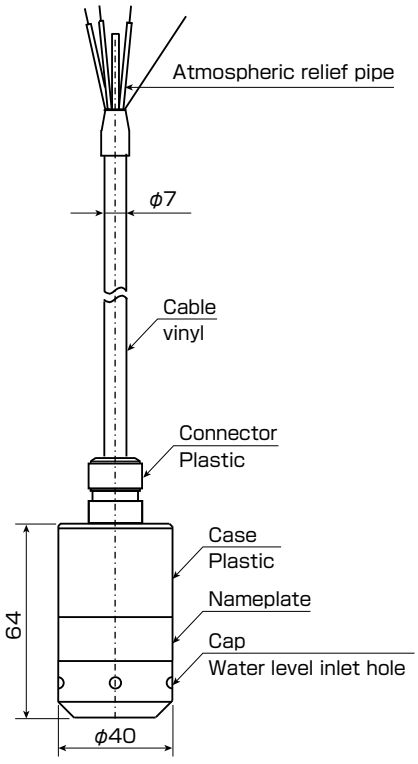
A polyvinyl chloride pipe or other pipe is set up at the measurement location so that water flows through it. The PPV is installed and wired inside the pipe.



Specifications

Model	PPV-010KP
Rated pressure	1mH₂O (10kPa)
Overpressure	2mH₂O (20kPa)
Power supply	8 to 15VDC
Output	1 to 5VDC
Current consumption	6mA or less
Load resistance	1k Ω or more
Accuracy (linearity)	± 0.3% F.S. or less (± 0.2% F.S. or less)
Temperature characteristics at zero degrees	± 0.01% F.S. ／℃ or less (0 to 60℃)
Operating temperature range	− 10 to 60℃ (no freezing allowed)
Storage temperature range	− 10 to 60℃ (no freezing allowed)
Material	Diaphragm : SUS316L O-ring : Fluororubber Cap, case, and connector : Plastic Shrinkable tube: Polyolefin
Sealing liquid	Silicone oil
Cable	ϕ 7 vinyl : 1m (standard) Shield + atmospheric relief pipe
Tensile strength	100N (BBetween the main unit and cable)
Insulation resistance	100M Ω or more ／ 500VDC (Between the signal and case)
Withstand voltage	500VAC, 1 minute
Weight	Main unit : approx 130g Cable : approx 65g per meter

Dimensions (Units : mm)



Model

PPV - 010KP - 02

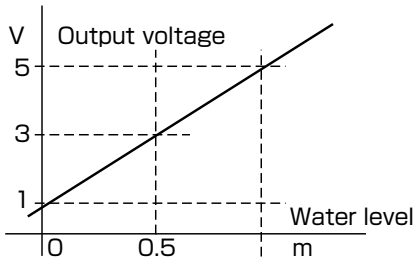
Pressure (water level)

Cable length
01 : 1m (standard)
02 : 2m
05 : 5m
10 : 10m

Cables / wires

Red	Power supply +
White	Output
Black	Common

Pressure-Output characteristic



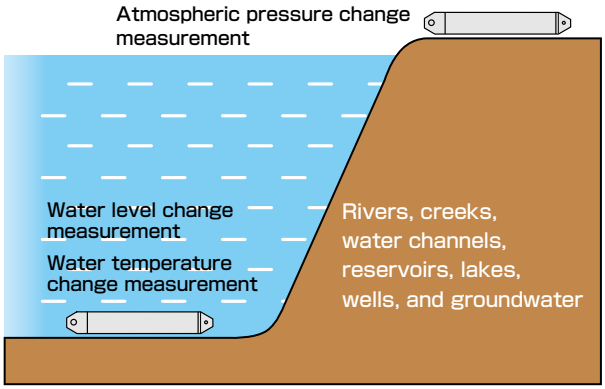
WLG



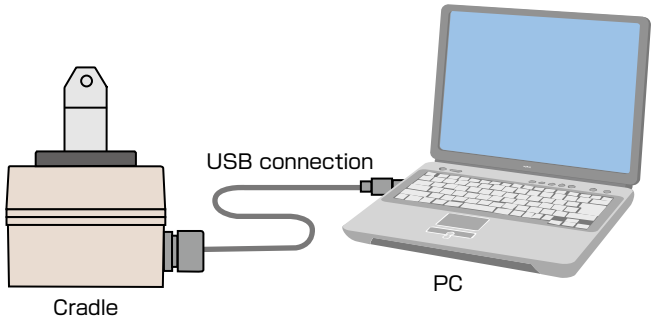
Features **1.No cables** **2.No need to atmospheric relief**

- Water level meter integrated with a built-in data logger
- Lightweight and compact with an environmentally robust casing made of stainless steel
- A desired model can be selected from a range of 2 m to 50 m for highly accuracy measurement.
- The built-in battery ensures long-term measurement for approx. three years and can be replaced with a new one (the replacement work to be done by the manufacturer).
- Atmospheric correction is performed after measurement is made with an atmospheric measurement sensor.
- The measurement data can be retrieved easily simply by inserting the meter into the cradle (to be purchased separately).

System example



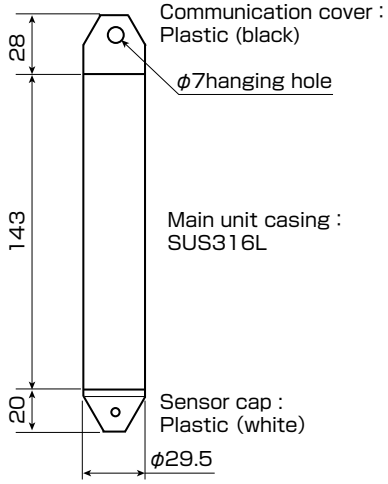
The water level meter for water level change measurement (WLG series) is immersed in water, and the atmospheric pressure meter for atmospheric pressure change measurement (WLG-00M) is installed on the ground.



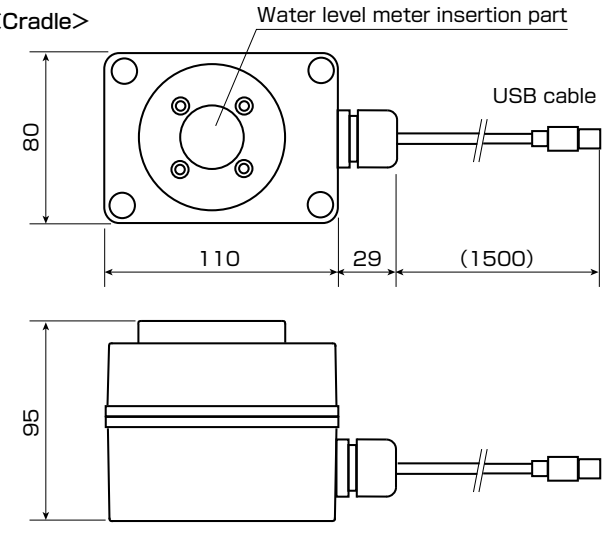
After the measurement, insert the water level meter into the cradle connected to the PC and load the data to the PC. Accurate water level data is calculated by subtracting the changes in the atmospheric pressure.

Dimensions (Units : mm)

<Water level meter / atmospheric pressure meter>



<Cradle>



Specifications

Model	WLG					
	-02M	-05M	-10M	-20M	-30M	-50M
Measurement range (kPa abs)	0 to 2m (120)	0 to 5m (150)	0 to 10m (200)	0 to 20m (300)	0 to 30m (400)	0 to 50m (600)
Resolution (Pa)	0.1mm (1)	0.2mm (1.6)	0.3mm (2.6)	0.5mm (4.5)	0.7mm (6.5)	1.1mm (10.3)
Pressure type	Absolute pressure					
Overpressure	200% of the rated pressure					
Wetted part material	Diaphragm : SUS316L Pressure port : SUS316L O-ring : Fluororubber Communication part : Polycarbonate					
Number of channels	2 (Water level / water temperature)					
Water level Precision (linearity)	± 0.3% F.S. (± 0.2% F.S.)					
Water level Temperature characteristics	Zero temperature characteristics: : ± 0.01% F.S. (Compensated temperature range 0 to 40℃)					
Water temperature Measurement range	− 20 to 50℃					
Water temperature Resolution	0.125℃					
Water temperature Response speed	5 minute					
Number of data records	32,000 data					
Measurement interval	1 minute, 2 minute, 3 minute, 5 minute, 10 minute, 20 minute, 30 minute, 1 hour, 2 hour, 3 hour, 5 hour, 6 hour, 10 hour, 12 hour					
Power supply	Built-in lithium battery (Replaceable at our company Factory)					
power life	Approximately 3 years (Sampling time of 1 minute)					
Operating temperature range	− 20 to 50℃ (no freezing allowed)					
Altitude range	Up to an altitude of 3000 m					
Weight	approx 390g					
Data retrieval method	Connect the meter to the cradle, and retrieve data using software.					

Atmospheric pressure meter specifications

Model	WLG-00M
Rated pressure	69 to 103kPa
Pressure type	Absolute pressure
Resolution	0.1 mm 0.7Pa

Cradle specifications

Model	WLG-CD-01
Communication method	Water level meter : Infrared communication PC : RS 232C communication
Operating temperature range	5 to 35℃
Structure	Drip-proof structure
Weight	approx 480g

Software (accompanying CD)

Model	WLG-PG-10
Measurement start and stop	Settings to start and stop the water level meter
Point 1 setting	20 single-byte alphanumeric characters
Point 2 setting	Select underwater or atmosphere.
Interval setting	Measurement interval time setting
Data retrieval	Store the water level, atmospheric pressure, and temperature in CSV format.
Communication setting	Set the communication method (manual or automatic).
Time setting	Set the internal time of the water level meter.
Reference atmospheric pressure correction	Atmospheric pressure meter-based correction function
Supported OS	Windows Vista、7、8、8.1

Option

Hanging wire	Model : W-WIRE-□□m Material : Stainless steel ϕ 1.5 mm

Model

< Water level meter >

W	L	G	-	0	5	M

Type: WLG

Measurement range:
00 : For measuring atmospheric pressure
02 : 2m
05 : 5m
10 : 10m
20 : 20m
30 : 30m
50 : 50m

Pressure unit: **M** : m

< Cradle >

WLG-CD-01

High-accuracy water level measurement system with a low voltage sensor and logger

Features

Usable for water level observation and water volume research. No power required. Low-voltage model ideal for IoT as well. (The sensor or logger can be purchased separately.)

- The level memory series is a water level measurement system consisting of an immersion-type water level meter and a data logger.
- The battery-powered sensor allows long-term measurement.
- Highly accuracy water level measurement can be made with ease.
- An appropriate sensor can be selected according to the measurement environment and budget.

Level memory series (water level measurement) specification comparison table

Features		4-channel type	one-channel logger	Seawater resistant pure titanium
Product name		**Level Memory 4CH**	**Level Memory MW2**	**Level Memory ZW2**
Published page		P.72	P.73	P.74
Water level sensor	Measurement range	1, 2, 3, 4, 5, 10, 20, 30, 40 50, 100m (for each channel)	1-m to 50-m meters are supported.	1-m to 50-m meters are supported.
	Applicable sensor	HM-230 series	HM-280 series	HM-680 series
	Output	1-3VDC	1-5VDC	1-5VDC
	Power supply	6 to 12VDC	8 to 12VDC	8 to 12VDC
	Accuracy	± 0.3% F.S. or less	± 0.3% F.S. or less	± 0.3% F.S. or less
Data logger	Model	AQ-5000	LM-2	LM-2
	Number of input channels	4CH	1CH	1CH
	Power supply	AA alkaline battery: 4	AA alkaline battery: 1 9-V alkaline battery: 2	AA alkaline battery: 1 9-V alkaline battery: 2
	Data collection method	Data is retrieved via USB memory. The backup function is supported.	A data collector (to be purchased separately) is used. ・Communication adapter LR5091 ・Data collector LR5092	A data collector (to be purchased separately) is used. ・Communication adapter LR5091 ・Data collector LR5092
Main uses		Wells, groundwater, rivers, dams, lakes, reservoirs, etc.	Wells, groundwater, rivers, dams, lakes, reservoirs, etc.	Seawater, brackish water areas, wells, groundwater, rivers, dams, lakes, reservoirs, etc.

Features		low-cost type	For paddy fields and irrigation channels
Product name		**Level Memory AW2**	**Level Memory PW**
Published page		P.75	P.76
Water level sensor	Measurement range	1-m to 10-m meters are supported.	1-m meter (1 type only)
	Applicable sensor	HM-980 series	PPV series
	Output	1-5VDC	1-5VDC
	Power supply	8 to 12VDC	8 to 12VDC
	Accuracy	± 0.3% F.S. or less	± 0.3% F.S. or less
Data logger	Model	LM-2	LM-2
	Number of input channels	1CH	1CH
	Power supply	AA alkaline battery: 1 9-V alkaline battery: 2	AA alkaline battery: 1 9-V alkaline battery: 2
	Data collection method	A data collector (to be purchased separately) is used. ・Communication adapter LR5091 ・Data collector LR5092	A data collector (to be purchased separately) is used. ・Communication adapter LR5091 ・Data collector LR5092
Main uses		Wells, groundwater, brook, lakes, reservoirs, paddy fields, irrigation channels, etc.	paddy fields, irrigation channels, etc.

Level Memory 4CH



Features **1.Immersion-type** **2.4-channel type**

- System consisting of an immersion-type water level meter and a 4-channel data logger. Text data is transferred to a PC via USB memory.
- Atmospheric correction is not required because atmospheric pressure is released via the vent filter of the waterproof casing housing the water level meter cable and logger.
- A desired model can be selected from a range of 2 m to 50 m for highly accuracy measurement.
- The measurement data is displayed in meters with a direct reading method. It is possible to set the display and measurement of the water level from the datum line.
- Exchangeable AA batteries enable long-term measurement.
- The backup function is supported.

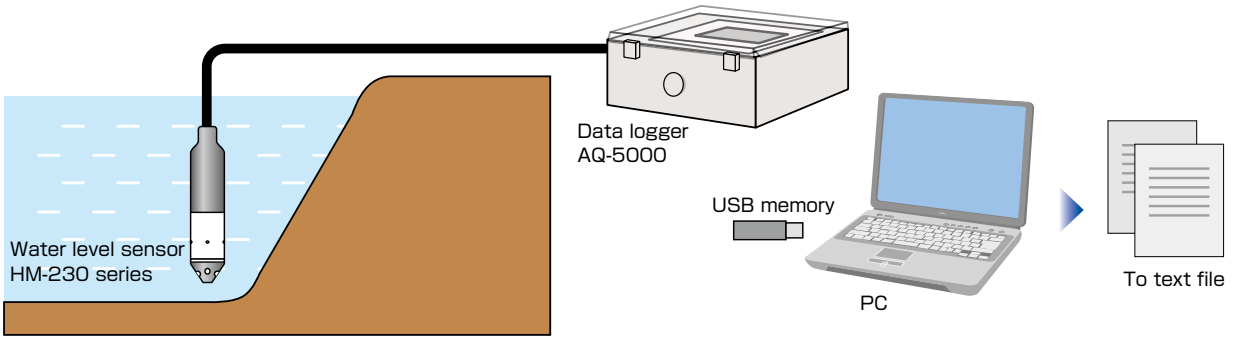
Specifications

Water level meters	2m instrument	0 to 2m　Model : HM-230-02-30-CN
	5m instrument	0 to 5m　Model : HM-230-05-30-CN
	10m instrument	0 to 10m　Model : HM-230-10-30-CN
	20m instrument	0 to 20m　Model : HM-230-20-30-CN
	30m instrument	0 to 30m　Model : HM-230-30-30-CN
	50m instrument	0 to 50m　Model : HM-230-50-50-CN
	Cable length	30m (standard) ; extensible up to 200 m
	Materials	Main unit : SUS316、Fluororubber、POM　Cable : Polyurethane
	Electrical characteristics	Power supply : 6 to 12V　Output : 1 - 3V
	Linearity	± 0.2%F.S.
	Temperature characteristics	Zero temperature characteristics : ± 0.01%F.S. (− 2 to 30℃)
	External dimensions	Main unit : ϕ 29.5 × 190　Weight : Approx 300g　Cable : ϕ 8　Weight : Approx 65g/m
Data loggers	Model	AQ-5000
	Number of input channels	4 external input channels (water level × 4)
	Measurement mode	Relative water level、temperature inside the main unit
	Measurement performance	Less than 10-m meter　Resolution : 1mm　10-m meter or more　Resolution : 1cm
	Measurement interval	1 to 60 minutes (to be set in 1-minute steps)
	Recording mode	The instantaneous value is recorded.
	Recording count	1 channel: 57,600　2 channels: 47,100　3 channels: 39,800　4 channels: 34,500
	Record retention time	2 start operations (from start to stop)
	Preheating function	1 to 30 seconds (to be set in 1-second steps)
	Scale setting	1, 2, 3, 4, 5, 10, 20, 30, 40, 50, 100m (for each channel))
	Automatic measurement start function	Measurement can be started automatically by setting the hour and minute.
	Temperature measurement	Temperature inside the logger　Resolution: 0.125℃
	Display	16-digit or 2-digit backlit LCD
	Output adjustment function	Zero point adjustment　± 50% of the full scale value
	Case	Waterproof plastic casing IP66　135 (W) × 86 (H) × 190 (D) mm　Weight: Approx. 1 kg
	Atmospheric relief	Vent filter
Power supply		AA alkaline battery: 4　6 ± 0.4VDC
Operating temperature		− 20 to 70℃ (no freezing allowed)
Data retrieval		USB memory
Accessories		Waterproof connector cap: 4　AA alkaline battery: 4　USB memory: 1

Uses

- Long-term water level observation for wells and groundwater
- Water level observation for rivers
- Water level observation for dams, lakes, and reservoirs

System example



Level Memory **MW2**



Features　Immersion-type

- System consisting of an immersion-type water level meter and a 1-channel data logger. Data is transferred to a PC using a data collector.
- Atmospheric correction is not required because atmospheric pressure is released via the vent filter of the waterproof casing housing the water level meter cable and logger.
- Can be selected from a range of 2 m, 5 m, 10 m, 30 m, and 50 m.
- Lightweight, compact, and environmentally robust for high-accuracy measurement
- Exchangeable batteries enable long-term measurement.
- Ideal for water level and volume research for small hydroelectric power plants

Specifications

Water level meters	2m instrument	0 to 2m　Model : HM-280-02-30-CN
	5m instrument	0 to 5m　Model : HM-280-05-30-CN
	10m instrument	0 to 10m　Model : HM-280-10-30-CN
	30m instrument	0 to 30m　Model : HM-280-30-30-CN
	50m instrument	0 to 50m　Model : HM-280-50-50-CN
	Cable length	30m (standard) ; extensible up to 200 m
	Materials	Main unit : SUS316、Fluororubber、POM　Cable : Polyurethane
	Electrical characteristics	Power supply : 8 to 12V　Output : 1 - 5V
	Accuracy (linearity)	± 0.3%F.S. (± 0.2%F.S.)
	Temperature characteristics	Zero temperature characteristics : ± 0.01%F.S. (− 2 to 30℃)
	External dimensions	Main unit : ϕ 29.5 × 190　Weight : Approx 300g　Cable : ϕ 8　Weight : Approx 65g/m
Data loggers	Model	LM-2
	Number of input channels	1 channel
	Measurement performance	Resolution : mm/cm　1/1000 of the input voltage (standard)
	Measurement interval	1 to 30 seconds　1 to 60 minutes
	Recording mode	The instantaneous value is recorded / statistics recording (Instantaneous, maximum, minimum, and average for each interval)
	Recording count	Instantaneous value : 60,000 times　Statistics : 15,000 times
	Record retention time	2 start operations (from start to stop)
	Preheating function	OFF / 0.5 / 1 / 2 / 5 / 10 / 30 / 60 seconds setting
	Measurement start/stop function	Immediate / setting the reserved time
	Display	LCD　measured value (Voltage)、record state、Interval、battery level、number of recorded data etc.
	Output adjustment function	Zero point adjustment with multi-turn trimmer
	Case	Waterproof plastic casing IP66　78 (W) × 126 (H) × 75 (D) mm　Weight : Approx. 500g
	Atmospheric relief	Vent filter
Power supply	For water level gauge : 006P Type 9-V alkaline battery: 2　Life expectancy: approximately 6 months　Logger : AA alkaline battery: 1	
Operating temperature	− 20 to 70℃ (no freezing allowed)	
Data retrieval	Infrared optical communication, communication adapter LR5091, and data collector LR5092 are used.	

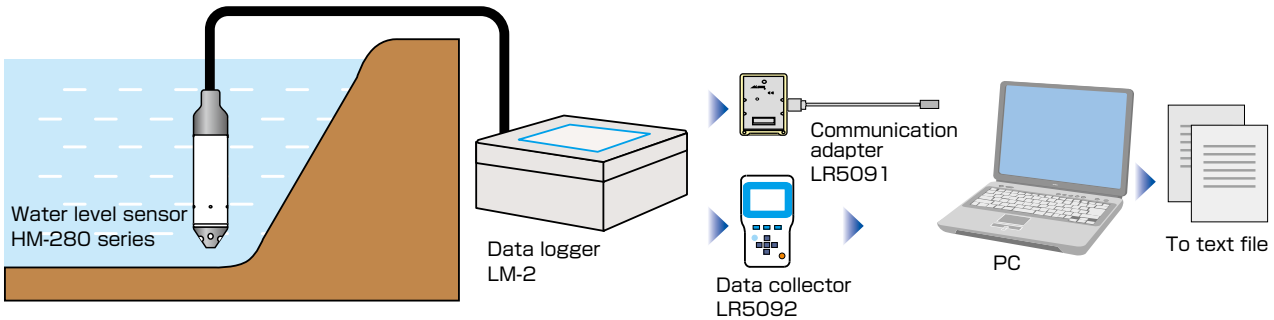
A data collector (to be purchased separately)

LR5091	Connect the data collector to both the data logger and PC to transfer data.　83 (W) × 61 (H) × 19 (D) mm　Weight : 43g
LR5092	Save the data of the data logger to the internal memory or SD card, and transfer the data to the PC using the SD card. AA alkaline battery: 2　91 (W) × 141 (H) × 31 (D) mm　Weight : 215g Functions: Graph display, data list, data processing, scaling, printing, etc.
Accessories	USB cable (1m)、LR5000 Utilities (CD-R)
Supported OS	Windows XP (SP2 or more)　Vista (SP1 or more)、7

Uses

- Long-term water level observation for wells and groundwater
- Water level observation for rivers
- Water level observation for dams, lakes, and reservoirs

System example



Level Memory ZW2



Features **1.**Immersion-type **2.**Titanium

- System consisting of an immersion-type water level meter and a 1-channel data logger. Data is transferred to a PC using a data collector.
- Atmospheric correction is not required because atmospheric pressure is released via the vent filter of the waterproof casing housing the water level meter cable and logger.
- Can be selected from a range of 2 m, 5 m, 10 m, 30 m, and 50 m.
- Lightweight, compact, and environmentally robust for high-accuracy measurement
- Exchangeable batteries enable long-term measurement.
- Ideal for water level observation for seawater and brackish water areas

Specifications

Water level meters	2m instrument	0 to 2m　Model : HM-680-02-30-CN
	5m instrument	0 to 5m　Model : HM-680-05-30-CN
	10m instrument	0 to 10m　Model : HM-680-10-30-CN
	30m instrument	0 to 30m　Model : HM-680-30-30-CN
	50m instrument	0 to 50m　Model : HM-680-50-50-CN
	Cable length	30m (standard) ; extensible up to 200 m
	Materials	Main unit : Titanium、Fluororubber、POM　Cable : Polyurethane
	Electrical characteristic	Power supply : 8 to 12V　Output : 1 - 5V
	Accuracy (linearity)	± 0.3%F.S. (± 0.2%F.S.)
	Temperature characteristic	Zero temperature characteristics : ± 0.01%F.S. (− 2 to 30℃)
	External dimensions	Main unit : ϕ 29.5 × 190　Weight : Approx 200g　Cable : ϕ 8　Weight : Approx 65g/m
Data loggers	Model	LM-2
	Number of input channels	1 channel
	Measurement performance	Resolution : mm/cm　1/1000 of the input voltage (standard)
	Measurement interval	1 to 30 seconds　1 to 60 minutes
	Recording mode	The instantaneous value is recorded ／ statistics recording (Instantaneous, maximum, minimum, and average for each interval)
	Recording count	Instantaneous value : 60,000 times　Statistics : 15,000 times
	Record retention time	2 start operations (from start to stop)
	Preheating function	OFF ／ 0.5 ／ 1 ／ 2 ／ 5 ／ 10 ／ 30 ／ 60 seconds setting
	Measurement start/stop function	Immediate ／ setting the reserved time
	Display	LCD　measured value (Voltage)、record state、Interval、battery level、number of recorded data etc.
	Output adjustment function	Zero point adjustment with multi-turn trimmer
	Case	Waterproof plastic casing IP66　78 (W) × 126 (H) × 75 (D) mm　Weight : Approx. 500g
	Atmospheric relief	Vent filter
Power supply	For water level gauge : 006P Type 9-V alkaline battery: 2　Life expectancy: approximately 6 months　Logger : AA alkaline battery: 1	
Operating temperature	− 20 to 70℃ (no freezing allowed)	
Data retrieval	Infrared optical communication, communication adapter LR5091, and data collector LR5092 are used.	

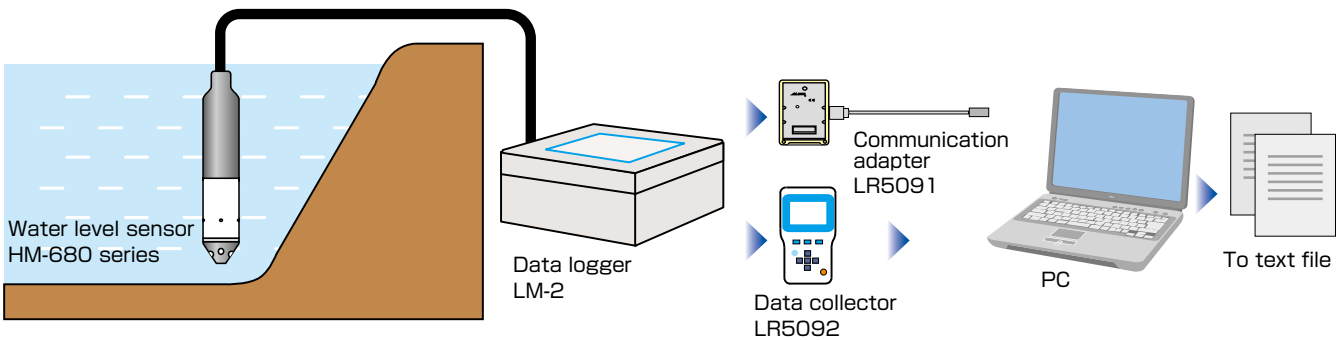
A data collector (to be purchased separately)

LR5091	Connect the data collector to both the data logger and PC to transfer data.　83 (W) × 61 (H) × 19 (D) mm　Weight : 43g
LR5092	Save the data of the data logger to the internal memory or SD card, and transfer the data to the PC using the SD card. AA alkaline battery: 2　91 (W) × 141 (H) × 31 (D) mm　Weight : 215g Functions: Graph display, data list, data processing, scaling, printing, etc.
Accessories	USB cable (1m)、LR5000 Utilities (CD-R)
Supported OS	Windows XP (SP2 or more)　Vista (SP1 or more)、7

Uses

- Tidal level observation for seawater
- Water level observation for brackish water areas near river mouths
- Long-term water level observation for wells and groundwater
- Water level observation for rivers
- Water level observation for dams, lakes, and reservoirs

System example



Level Memory **AW2**



Features **1.**Immersion-type **2.**Low-cost

- System consisting of an immersion-type water level meter and a 1-channel data logger. Data is transferred to a PC using a data collector.
- Atmospheric correction is not required because atmospheric pressure is released via the vent filter of the waterproof casing housing the water level meter cable and logger.
- Can be selected from a range of 2 m, 5 m, 10 m, 30 m, and 50 m.
- Lightweight, compact, and environmentally robust for high-precision measurement
- Exchangeable batteries enable long-term measurement.
- Ideal for water level and volume research for small hydroelectric power plants

Specifications

Water level meters	2m instrument	0 to 2m　Model : HM-980-02-10-CN
	5m instrument	0 to 5m　Model : HM-980-05-10-CN
	10m instrument	0 to 10m　Model : HM-980-10-10-CN
	Cable length	10m (standard) ; extensible up to 200 m
	Materials	Main unit : SUS316、Fluororubber、POM　Cable : Vinyl
	Electrical characteristic	Power supply : 8 to 12V　Output : 1 - 5V
	Accuracy (linearity)	± 0.3%F.S. (± 0.2%F.S.)
	Temperature characteristic	Zero temperature characteristics : ± 0.015%F.S. (− 2 to 30℃)
	External dimensions	Main unit : ϕ 29.5 × 190　Weight : Approx 220g　Cable : ϕ 7　Weight : Approx 65g/m
Data loggers	Model	LM-2
	Number of input channels	1 channel
	Measurement performance	Resolution : mm/cm　1/1000 of the input voltage (standard)
	Measurement interval	1 to 30 seconds　1 to 60 minutes
	Recording mode	The instantaneous value is recorded / statistics recording (Instantaneous, maximum, minimum, and average for each interval)
	Recording count	Instantaneous value : 60,000 times　Statistics : 15,000 times
	Record retention time	2 start operations (from start to stop)
	Preheating function	OFF / 0.5 / 1 / 2 / 5 / 10 / 30 / 60 seconds setting
	Measurement start/stop function	Immediate / setting the reserved time
	Display	LCD　measured value (Voltage)、record state、Interval、battery level、number of recorded data etc.
	Output adjustment function	Zero point adjustment with multi-turn trimmer
	Case	Waterproof plastic casing IP66　78 (W) × 126 (H) × 75 (D) mm　Weight : Approx. 500g
	Atmospheric relief	Vent filter
Power supply	For water level gauge : 006P Type 9-V alkaline battery: 2　Life expectancy: approximately 6 months　Logger : AA alkaline battery: 1	
Operating temperature	− 20 to 70℃ (no freezing allowed)	
Data retrieval	Infrared optical communication, communication adapter LR5091, and data collector LR5092 are used.	

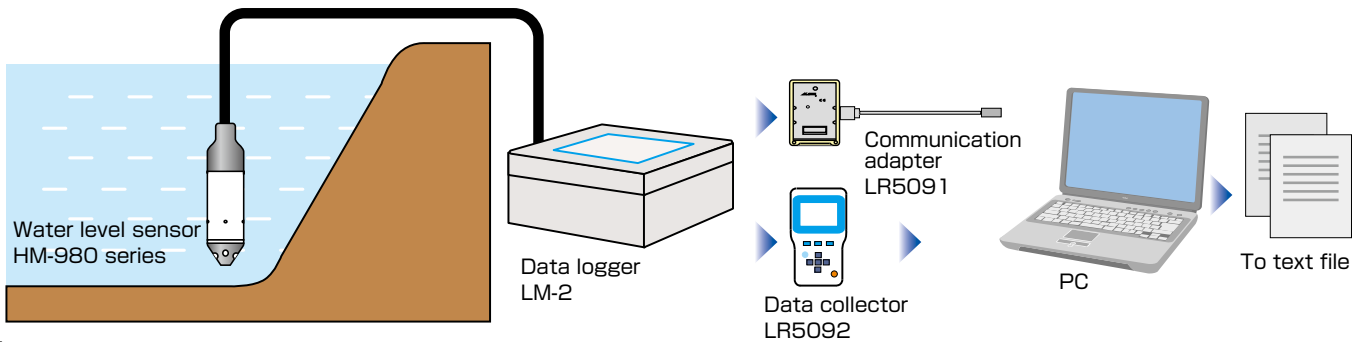
A data collector (to be purchased separately)

LR5091	Connect the data collector to both the data logger and PC to transfer data.　83 (W) × 61 (H) × 19 (D) mm　Weight : 43g
LR5092	Save the data of the data logger to the internal memory or SD card, and transfer the data to the PC using the SD card. AA alkaline battery: 2　91 (W) × 141 (H) × 31 (D) mm　Weight : 215g Functions: Graph display, data list, data processing, scaling, printing, etc.
Accessories	USB cable (1m)、LR5000 Utilities (CD-R)
Supported OS	Windows XP (SP2 or more)　Vista (SP1 or more)、7

Uses

- Long-term water level observation for wells and groundwater
- Water level observation for brook
- Water level observation for lakes, and reservoirs
- Water level observation for irrigation channels
- Water level observation for paddy fields

System example



Level Memory PW



Features **1.**Immersion-type **2.**For paddy fields and irrigation channels

- System consisting of an immersion-type water level meter and a 1-channel data logger. Data is transferred to a PC using a data collector.
- Atmospheric correction is not required because atmospheric pressure is released via the vent filter of the waterproof casing housing the water level meter cable and logger.
- Lightweight, compact, and environmentally robust for high-accuracy measurement
- Exchangeable batteries enable long-term measurement.
- Ideal for water level observation for paddy fields and irrigation channels

Specifications

Water level meters	Model	PPV-010KP-01-CN
	Rated pressure	1mH_2O (10kPa)
	Overpressure	2mH_2O (20kPa)
	Cable length	1m (standard) extensible
	Materials	Diaphragm : SUS316L O-ring : Fluororubber Cable : Vinyl Cap, case, and connector : Plastic Shrinkable tube: Polyolefin
	Electrical characteristic	Power supply : 8～15V Output : 1 - 5V
	Accuracy (linearity)	± 0.3%F.S. (± 0.2%F.S.)
	Temperature characteristic	Zero temperature characteristics : ± 0.01%F.S. (0～60℃)
	Weight	Main unit : Approx 130g Cable : Approx 65g/m
Data loggers	Model	LM-2
	Number of input channels	1 channel
	Measurement performance	Resolution : mm/cm 1/1000 of the input voltage (standard)
	Measurement interval	1 to 30 seconds 1 to 60 minutes
	Recording mode	The instantaneous value is recorded / statistics recording (Instantaneous, maximum, minimum, and average for each interval)
	Recording count	Instantaneous value : 60,000 times Statistics : 15,000 times (Instantaneous, Maximum, Minimum, Average)
	Record retention time	2 start operations (from start to stop)
	Preheating function	OFF / 0.5 / 1 / 2 / 5 / 10 / 30 / 60 seconds setting
	Measurement start/stop function	Immediate / setting the reserved time
	Display	LCD measured value (Voltage)、record state、Interval、battery level、number of recorded data etc.
	Output adjustment function	Zero point adjustment with multi-turn trimmer
	Case	Waterproof plastic casing IP66 78 (W) × 126 (H) × 75 (D) mm Weight : Approx. 500g
	Atmospheric relief	Vent filter
Power supply	For water level gauge : 006P Type 9-V alkaline battery: 2 Life expectancy: approximately 6 months Logger : AA alkaline battery: 1	
Operating temperature	− 20 to 70℃ (no freezing allowed)	
Data retrieval	Infrared optical communication, communication adapter LR5091, and data collector LR5092 are used.	

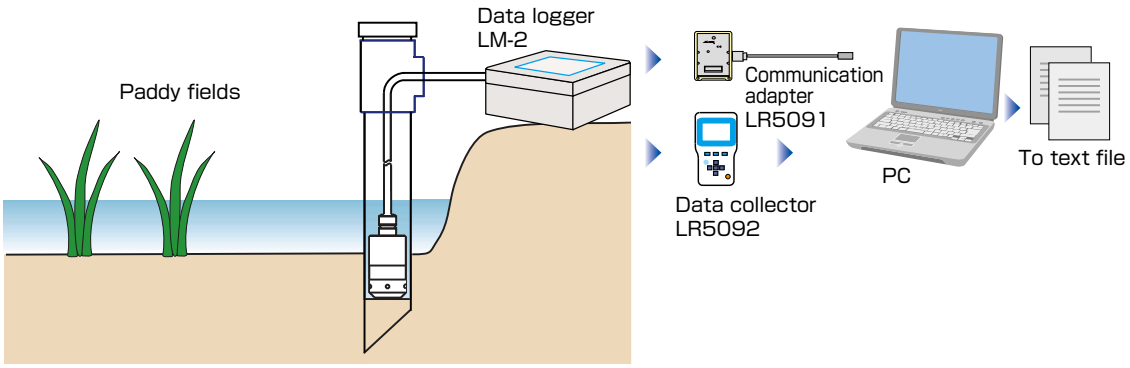
A data collector (to be purchased separately)

LR5091	Connect the data collector to both the data logger and PC to transfer data. 83 (W) × 61 (H) × 19 (D) mm Weight : 43g
LR5092	Save the data of the data logger to the internal memory or SD card, and transfer the data to the PC using the SD card. AA alkaline battery: 2 91 (W) × 141 (H) × 31 (D) mm Weight : 215g Functions: Graph display, data list, data processing, scaling, printing, etc.
Accessories	USB cable (1m)、LR5000 Utilities (CD-R)
Supported OS	Windows XP (SP2 or more) Vista (SP1 or more)、7

Uses

● Water level observation for irrigation channels ● Water level observation for paddy fields

System example



Level Control YJ



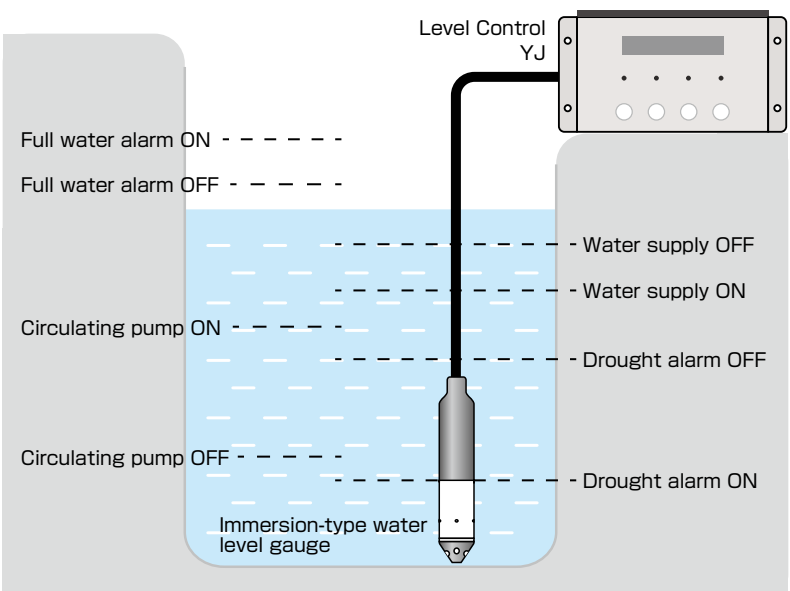
Features **1.Digital type** **2.Water level control**

- Controls the water level for a bath or tank when used with an immersion-type water level meter or water pressure sensor.
- Comparative output for 4 independent points (mechanical or semiconductor type); it is possible to set an ON/OFF value for each contact point.
- The comparative output value can be set both manually and automatically.
- Easy operation with a backlit LCD
- Display function for − 9.999 m to + 9.999 m
- The output status can be checked on the LED.
- The offset and scaling of the water level can be set arbitrarily in the field.

Controller specifications

Model	YJ-CB01_B-4	
	(P)	(R)
Output	PhotoMOS type (standard)	Mechanical relay type (option)
	PhotoMOS output= DC60V (AC 20V effective value) I = 300mA PhotoMOS ON resistance = 10 Ω or less	30 VDC 5 A (resistance load) 250 VAC 5 A (resistance load) ※Connect a contact protection element when using this type.
Setting range	0 to 9.999m	
Number of outputs	ON/OFF contact output setting for each of the 4 points	
Output polarity	This can be set for each NO/NC output.	
Current consumption	150mAor less	200mAor less
Power voltage	DC24V ± 10%	
Operating temperature range	0 to 50℃	
Operating ambient humidity	35 to 85% (no dew condensation allowed)	
Storage temperature	− 10 to 60℃	
Sensor input	DC4-20mA	
Water depth measurement range	2m (standard) ※ This can be changed using an option.	
Display part	16-digit 2-row backlit LCD water level display / setting display	
Display range	± 9.999m	
Operation display	4 red LED lamps; light when output is ON.	
A/D conversion method	14-bit successive approximation type	
Setting value memory	To be stored in EEPROM for approx. 10 years	
Scaling setting	Digital arithmetic operations based on offset and span settings	
Connection terminal	Terminal block for M3 screws	
Material	Main unit casing: Aluminum Terminal block cover: Acrylic	
External dimension	165 × 110 × 32.7mm (excluding protrusions) Mounting hole ϕ 3.5 × 4	
Weight	Approx. 385g	

Output operation example



Applicable sensor examples

Immersion-type Water Level Sensors 4-20mA Output type	
HM-300 series	·····See page 61.
HM-700 series (Titanium)	·····See page 64.
HM-920 series (Low cost)	·····See page 65.

Pressure Sensors 4-20mA Output type (20kPa)	
JW-7200 series (Waterproof Connector-type)	·····See page 48.
MTI series (Terminal Box-type)	·····See page 27.
CTI series (Connector-type)	·····See page 23.
ZTI series (Titanium)	·····See page 20.
YJI series (Bathtub mounting type)	····· Contact us.

Model

YJ-CB01_B-4 (P)

Output
P : PhotoMOS type (standard)
R : Mechanical relay type

AH-20 • AH-10

- Anchor used to fix an immersion-type water level sensor at the bottom of a river or tank
- An optional chain can be attached.

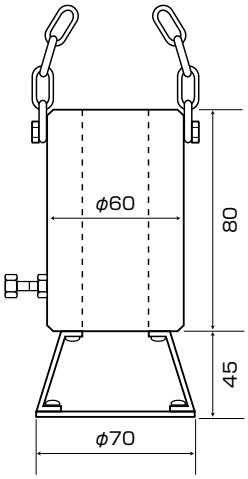
Anchor head

Model : AH-20

- Materials : SUS304
- Weight : 1.5kg



Dimensions (Units : mm)

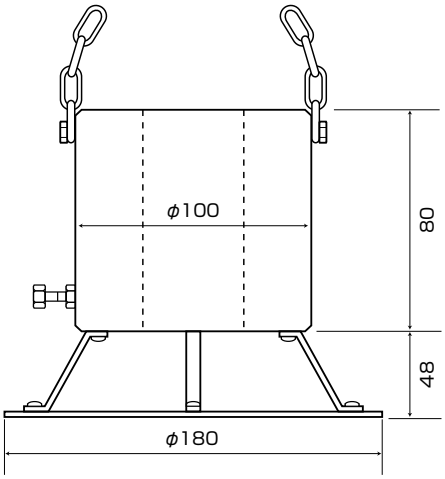


Model : AH-10

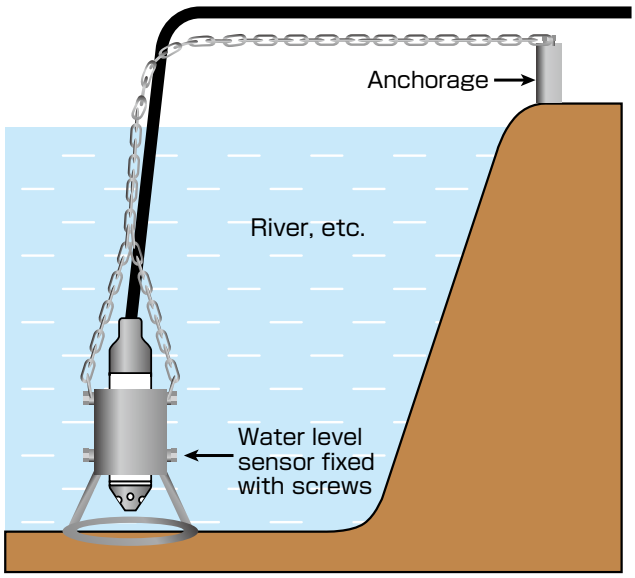
- Materials : SUS304
- Weight : 5kg



Dimensions (Units : mm)



Usage example



Applicable products	
HM-200/300 series	·····See page 61.
HM-600/700 series	·····See page 64.
HM-900/920 series	·····See page 65.
HM-8700/8600 series	·····See page 66.

Model

A H - 2 0 - 0 5

Weight
10 : 5kg
20 : 1.5kg

Chain Length
Space : None
02 : 2m
05 : 5m
10 : 10m

TKB-TS • TKB-HR-LV • TKB-HR-24 • TKB-MA

- This box has a plastic waterproof casing (IP66) and, when connected to an immersion-type water level meter, serves as a relay between the measuring and control devices of the control panel.
- Three types are available: terminal block connection, built-in arrester, and 4-20 mA meter display.
- The casing has a silica gel container built in it for dew condensation prevention.
- The waterproof casing has a vent filter for atmospheric relief, which enables atmospheric relief of the water level meter.
- Cabling can be performed easily using waterproof cable glands.



Terminal block specifications

Model	TKB-TS
Operating temperature range	− 20 to 60℃
Outer diameter of the cable used	ϕ 4 to 8
Number of cables connected	4 (4 pairs)
Connection method	Screw terminal block (M 3×8L)
Casing	Waterproof (IP66)　Material : Polycarbonate + ABS resin
External dimension／Weight	82 (W) × 162 (H) × 55 (D) mm　Approx. 380g
Cable gland	2 waterproof glands (IP68)　Main unit material : Polyamide
Vent filter	Main unit material : Polyamide　Filter : PTFE
Terminal block specifications	Ratings : 250V　15A　Insulation resistance: 500 VDC 200 M Ω or more

Arrester specifications

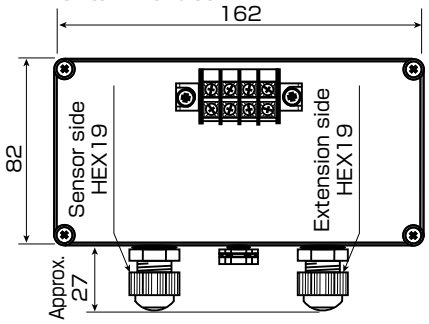
Model	Voltage type : TKB-HR-LV　Current type : TKB-HR-24
Operating temperature range	− 5 to 55℃
Outer diameter of the cable used	ϕ 4 to 8
Connection method	Screw terminal block (M 3×8L)
Casing	Waterproof (IP66)　Material : Polycarbonate + ABS resin
External dimension／Weight	127 (W) × 175 (H) × 100 (D) mm　Approx. 850g
Cable gland	2 waterproof glands (IP68)　Main unit material : Polyamide
Vent filter	Main unit material : Polyamide　Filter : PTFE
Arrester specifications	< Voltage type > Arrester model: : MDK-LV　Maximum operating voltage : 30V　Voltage protection level : 40V　Response time : 0.1 μ s Discharge capacity : 5000A (8/20 μ s)　Maximum load current : 100mA < Current type > Arrester model : MDK-24　Maximum operating voltage : 30V　Voltage protection level : 40V or less Response time : 0.1 μ s　Discharge capacity : 5000A (8/20 μ s)　Maximum load current : 100mA

Indicator specifications

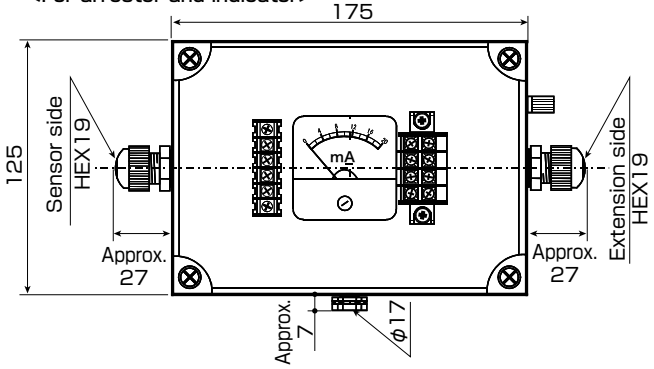
Model	TKB-MA
Operating temperature range	− 10 to 45℃
Outer diameter of the cable used	ϕ 4 to 8
Number of cables connected	4 (4 pairs)
Connection method	Screw terminal block (M 3×8L)
Casing	Waterproof (IP66)　Material : Polycarbonate + ABS resin
External dimension／Weight	127 (W) × 175 (H) × 100 (D) mm　Approx. 700g
Cable gland	2 waterproof glands (IP68)　Main unit material : Polyamide
Vent filter	Main unit material : Polyamide　Filter : PTFE
Terminal block specifications	Ratings : 600V　30A　Insulation resistance: 500 VDC 1000 M Ω or more
Indicator specifications	Scale: 0 to 20 mA　Minimum scale value: mA　Class: 2.5　Panel dimensions: 50 × 50 mm

Dimensions (Units : mm)

<For terminal block>



<For arrester and indicator>



SGP-100・SGP-50・SGT-20・SGT-10・AB-815

Silica gel moisture absorption

For atmospheric relief pipe connection

Model : **SGP-100**

- Silica gel volume : Approx. 65g
- ϕ 56 × 70 (excluding protrusions)
- Tube length : 50cm (standard)

Model : **SGP-50**

- Silica gel volume : Approx. 15g
- ϕ 25 × 150 (excluding protrusions)
- Tube length : 50cm (standard)



For relay box

Model : **SGT-20**

- Silica gel volume : Approx. 18g
- ϕ 25 × 130

Model : **SGT-10**

- Silica gel volume : Approx. 10g
- ϕ 25 × 70



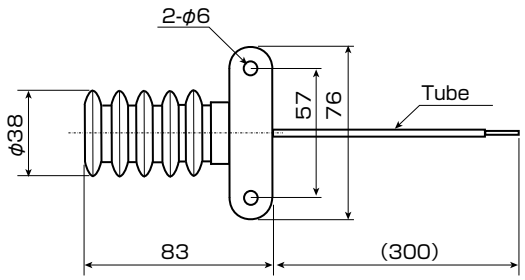
Aneroid bellows

Model : **AB-815**

This bellows is connected directly to the atmospheric relief pipe of an immersion-type water level meter. It blocks outside air to prevent dew condensation inside the water level meter due to humidity. If the periodical maintenance of the meter is impractical, install this aneroid bellows. While the atmospheric pressure can be corrected when measuring the water level, the bellows is not suitable if precision of ± 0.25% F.S. or higher is required.



Dimensions (Units : mm)



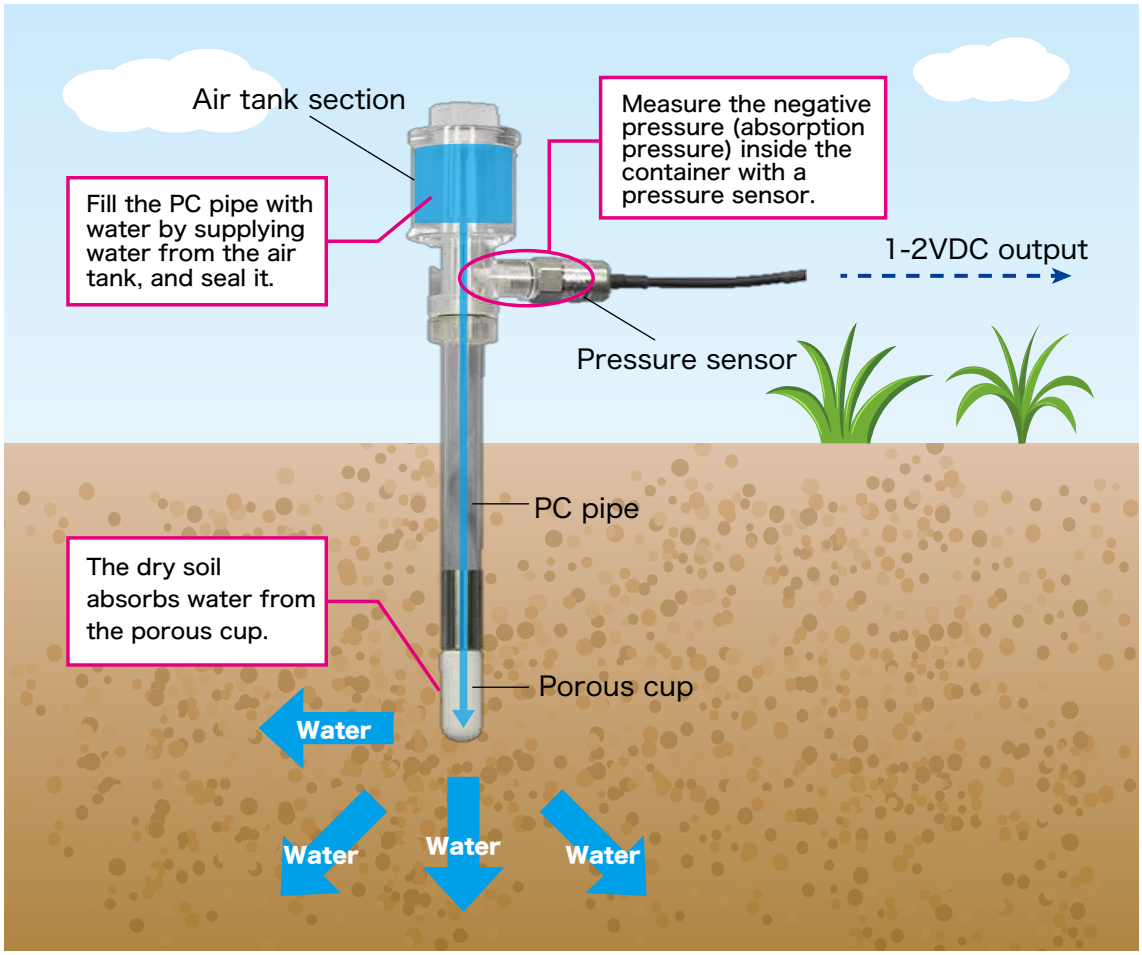
Soil moisture meters

Features

- Soil moisture meter using the tensiometer method
- Each part can be detached (air tank, pressure sensor, PC pipe, and porous cup).
- The sensor has high accuracy and high environmental resistance.
- Long-term observation is possible without the need for water supply.
- Compact size, lightweight, and high environmental resistance
- The pipe length can be specified, and an extension option is available.

Operating principle

With the tensiometer method, soil moisture is measured using the porous cup (unglazed cup) of a soil moisture meter buried in the ground. Bury the porous cup at the specified depth in the soil, fill the PC pipe with water, and seal it. If the surrounding soil is dry, the water in the container is absorbed in the soil from the porous cup and the pressure inside the container becomes negative. The water absorption power of the soil can be obtained by measuring this negative pressure (absorption pressure) with a pressure sensor.



Application

- Soil moisture observation for plant cultivation
- Soil moisture stability research in landslide-prone areas
- Soil moisture research for embankments
- Soil moisture observation for farm fields
- Soil moisture observation and irrigation control inside greenhouses by using the meter in combination with the irrigation controller SWC-20

Tensiometers HD-001



Features Tensiometer method

- Soil moisture meter using the tensiometer method
- The built-in air tank enables long-term measurement without the need for water supply.
- The individual parts, such as the tank, pipe, porous cup, and negative pressure sensor, can be detached.
- The negative pressure sensor has high accuracy and high environmental resistance.

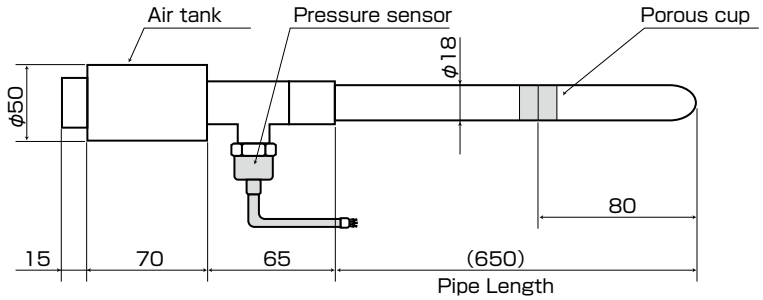
Specifications

Model	HD-001
Measurement system	Tensiometer method
Measurement range	0 to − 100kPa
Operating temperature range	0 to 60℃ (no freezing allowed)
Pipe length	standard : 650mm、120 to 4000mm selectable
Tank section	Material : Acrylic Capacity : Approx. 40cc
PC pipe	ϕ 18 Material : Polycarbonate Capacity : Approx. 100cc (650mm)
Porous cup	ϕ 18 Material : Alumina + Mullite
joint fitting	SUS304
O-ring material	Fluororubber
Pressure sensor	Pressure sensor of stainless structure
Pressure sensor Model	HTVN-100KP-10-V-G2-S6
Wetted part material	SUS316L、SUS316、O-ring : NBR、Fluororubber
Power supply	12 to 28VDC
Current consumption	6mA or less
Voltage output	1-2VDC (standard)
Accuracy (linearity)	± 0.5% F.S. or less (± 0.3% F.S. or less)
Temperature characteristics	± 0.05% F.S. ／℃ or less (0 to 60℃)
Cable	ϕ 6 vinyl : 10 m (standard) Shield + atmospheric relief pipe
Structure	IP65
Weight	Main unit : Approx. 80g Cable : Approx. 46g/m

Uses

- Soil moisture observation for plant cultivation
- Soil moisture stability research in landslide-prone areas
- Soil moisture research for embankments

Dimensions (Units : mm)



< Operating principle >

The HD-001 is a soil moisture meter that employs a measurement method called the tensiometer method. An unglazed porous cup is buried in the soil. If the surrounding soil is dry, the water in the container is absorbed into the outside from the porous cup and the pressure inside the container becomes negative. The method calculates the soil moisture volume from this negative pressure (absorption pressure).

Cables / wires

	HD-001
Red	Power supply +
White	Output
Black	Common
Atmospheric relief pipe	Yes

Model

H	D	-	0	0	1	-	0	6	5	0	-	1	0

Type

Pipe length
0200 : 200mm
0500 : 500mm
0650 : 650mm
1000 : 1000mm

Cable length
10 : 10m (standard)
20 : 20m
30 : 30m

Tensio Memory **4CH**



Features **1.**Tensiometer method **2.**4-channel type

- This product consists of a soil moisture meter and a 4-channel data logger. Data is transferred to a PC via USB memory.
- The pipe length can be specified freely according to the depth of the measurement point. The porous cup and other parts can be detached and replaced
- The built-in air tank enables long-term measurement without the need for water supply.
- As measurement data, either pF values or pressure values can be selected.
- Exchangeable AA batteries enable long-term measurement.
- The backup function is supported.

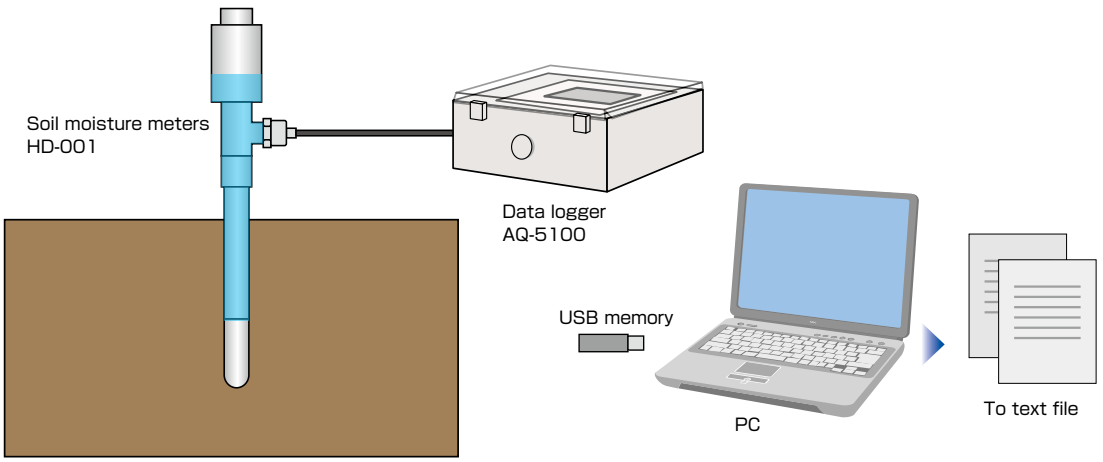
Specifications

Soil Moisture Meters	Model	HD-001-0650-10-CN
	Measurement system	Tensiometer method
	PC pipe	Polycarbonate φ 18 Pipe length : 650mm (standard) 120mm to 4000mm selectable
	Porous cup	Aluminum lite (ceramics)
	Pressure sensor	Model : HTVN-100KP-10-V-G2-S6-CN
	Pressure range	0 to − 100kPa Compound pressure (− 100 to + 100kPa) can also be selected
	Electrical specification	Power supply : 6 to 12V 出力 : 1-2V Accuracy ± 0.3% F.S.
	Cable length	10m (standard)
	Operating temperature range	0 to 60℃
Data Logger	Model	AQ-5100
	Number of input channels	4 external input channels Voltage input (1-2 V)
	Measurement mode	Pressure / temperature inside the main unit
	Measurement performance	Resolution : 0.1kPa
	Measurement interval	1 to 60 minutes (to be set in 1-minute steps)
	Recording mode	The instantaneous value is recorded.
	Recording count	1CH : 57,600 times 2CH : 47,100 times 3CH : 39,800 times 4CH : 34,500 times
	Record retention time	2 start operations (from start to stop)
	Preheating function	1 to 30 seconds (to be set in 1-second steps)
	Scale setting (for each channel)	+ 100.0kPa to + 900.0kPa (100kPa Step) + 1.000MPa to + 9.000MPa (1.000MPa Step) + 100.0kPa − 1020cmH_2O (For Soil moisture meters) 3.000PF (For Soil moisture meters)
	Automatic measurement start function	Measurement can be started automatically by setting the hour and minute.
	Temperature measurement	Temperature inside the logger Resolution: 0.125℃
	Display	16-digit or 2-digit backlit LCD Pressure display / pF value display
	Casing	Waterproof plastic casing IP65 135 (W) × 86 (H) × 190 (D) mm Weight : Approx. 1kg
	Atmospheric relief	Vent filter
Power supply	AA alkaline battery: 4 6 ± 0.4VDC	
Operating temperature	− 20 to 70℃ (no freezing allowed)	
Data retrieval	USB memory	
Accessories	Waterproof connector cap: 4 AA alkaline battery: 4 USB memory: 1	

Uses

- Soil moisture observation for farm fields
- Soil moisture observation in greenhouses
- Soil moisture observation for embankments
- Moisture volume observation for forests and slopes

System example



Tensio Memory **HD2**



Features **1.**1 channel **2.**Tensiometer method

- System consisting of a soil moisture meter and a 1-channel data logger. Data is transferred to a PC using a data collector.
- The built-in air tank enables long-term observation without the need for water supply.
- The tank, pressure sensor, pipe, porous cup, and other parts can be detached.
- Compact, lightweight, and environmentally robust for easy measurement
- Exchangeable batteries enable long-term measurement.
- The extension pipe of the soil moisture meter allows soil moisture to be measured at depths as deep as 4 meters.

Specifications

Soil Moisture Meters	Model	HD-001-0650-10-CN
	Measurement system	Tensiometer method
	PC pipe	Polycarbonate　ϕ 18　Pipe length : 650mm (standard)　120mm to 4000mm selectable
	Porous cup	Aluminum lite (ceramics)
	Pressure sensor	Model : HTVN-100KP-10-V-G2-S6-CN
	Pressure range	0 to − 100kPa　Compound pressure (− 100 to + 100kPa) can also be selected
	Electrical specification	Power supply : 6 to 12V　出力 : 1 - 2V　Accuracy ± 0.3% F.S.
	Cable length	10m (standard)
	Operating temperature range	0 to 60℃
Data Logger	Model	LM-2
	Number of input channels	1-channel
	Measurement performance	1/1000 of the input voltage (standard)
	Measurement interval	1 to 30 seconds　1 to 60 minutes
	Recording mode	The instantaneous value is recorded / statistics recording (Instantaneous, maximum, minimum, and average for each interval)
	Recording count	instantaneous value : 60,000 times　Statistics : 15,000 times
	Record retention time	2 starting operations (Once from start to stop)
	Preheating function	OFF / 0.5 / 1 / 2 / 5 / 10 / 30 / 60 seconds setting
	Measurement start/stop function	Setting the Immediate/Reserved Time
	Display	LCD　measurement value (Voltage)、record state、Interval、battery level、number of recorded data etc.
	Power adjustment function	Zero point adjustment with multi-turn trimmer
	Casing	Waterproof plastic casing　IP66　78 (W) × 126 (H) × 75 (D) mm　Weight : Approx. 500g
	Atmospheric relief	Vent filter
Power supply	For soil moisture meter : 006P Type 9-V alkaline battery: 2　Lifetime Approx. 6 Months　For Logger : AA alkaline battery: 1	
Operating temperature	− 20 to 70℃ (no freezing allowed)	
Data retrieval	Infrared optical communication, communication adapter LR5091, and data collector LR5092 are used.	

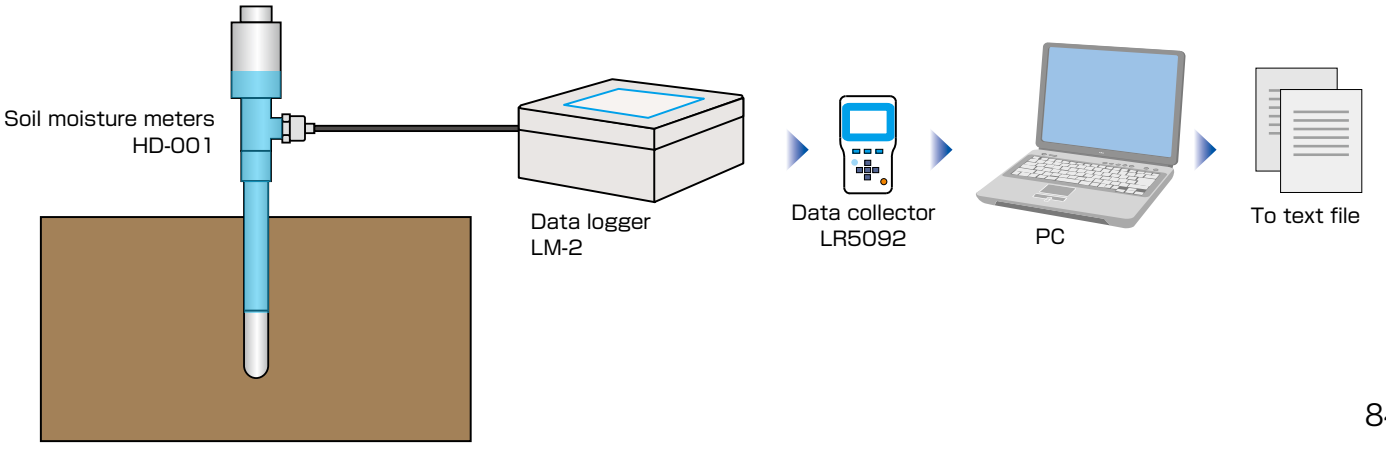
A data collector (to be purchased separately)

LR5091	Connect to both data logger and PC to transfer data.　83 (W) × 61 (H) × 19 (D) mm　Weight : 43g
LR5092	Data logger data is saved in internal memory or SD card and transferred to PC with SD card. AA alkaline battery: 2　91 (W) × 141 (H) × 31 (D) mm　Weight : 215g Function : graph display、Data list、Data processing、Scaling、Print etc.
Accessories	USB cable (1m)、LR5000 Utilities (CD-R)
Supported OS	Windows XP (SP2 or more)　Vista (SP1 or more)、7

Uses

- Soil moisture observation for farm fields
- Soil moisture observation in greenhouses
- Soil moisture observation for embankments
- Moisture volume observation for forests and slopes

System example



Tensio Control **SWC**



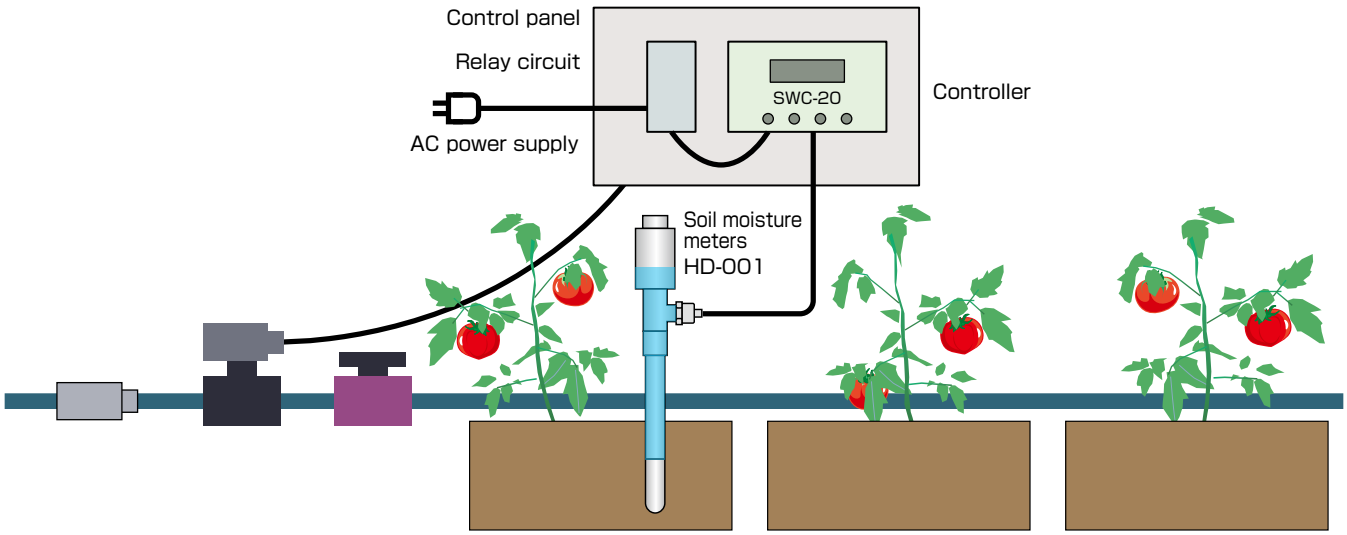
Features **1.**Tensiometer method **2.**Irrigation control

- When used in combination with the soil moisture meter of the tensiometer, this controller outputs the ON and OFF signals and achieves automatic irrigation by opening and closing the solenoid valve.
- Three measurement modes are available: irrigation control, level control, and pressure measurement.
- The watering time and pause time can be set.
- Easy operation with a backlit LCD
- Pressure can be displayed in three different units: pF, cmH20, and kPa
- The controller operates for a long time with exchangeable AA batteries, and the remaining battery capacity is displayed.
- Data can be transferred to the data logger and PC by outputting analog and timing signals.
- The controller is contained in a waterproof casing with a draw latch, and the measurement value display can be operated with an external switch.

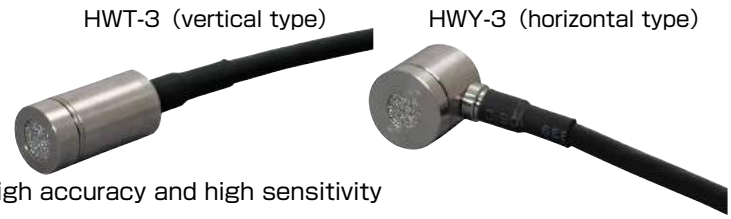
Controller specifications

Model	SWC-20
Display range	0.00 to 3.00pF　0 to 1019cm　0 to 100.0kPa
Display part	16-digit or 2-digit backlit LCD Go into sleep mode approximately one minute after the switch is no longer touched.
Input sensor	Tensiometer HD-001　1-2 VDC input
Power supply	AA alkaline battery: 4　Approx. DC6 ± 0.4V
Battery life	Approx.1 Year (In the display mode)
Sensor power supply	DC6 V ± 10%
Setting the monitoring time	Optional within 24 hours
Setting of water spray time	0 to 9999 sec
Setting the pause time	0 to 9999 sec
Display mode	measurement value display
Irrigation mode	If the measured value exceeds the target value within the time from the start time to the end time, the water sprinkling time relay is turned on. Then, the relay is turned off for the rest time. Repeat After.
Level mode	The relay output is ON/OFF according to the measured value and the target value regardless of the time.
Relay output	NO、NC 3 Terminal (latching relay) contact capacity : AC24V 0.5A、DC30V 1A
Analog output	0.5 to 3.0 VDC or 1 to 2 VDC Output impedance: 1 k Ω
Timing signal	Hi = 3.3V　Low = 0V　Output impedance = 1k Ω
Operating temperature range	0 to 50℃
Operating humidity range	35 to 85% (no dew condensation allowed)
Casing	Waterproof plastic casing IP66
External dimensions	135 (W) × 86 (H) × 190 (D) mm (excluding protrusions)
Weight	Approx. 690g

System example



HWT-3 • HWY-3



Features Ultra compact

- Ultra compact piezometer
- Ideal for small-scale model experiments
- Semiconductor pressure sensor element used for high accuracy and high sensitivity
- Range from 20 to 500 kPa
- Element output, 4-20 mADC output, and 1-5 VDC output are supported
- There are two types: vertical type (HWT) and horizontal type (HWY).
- Filtration accuracy can be selected (100, 40, 10, 5, or 2 μ)

Specifications

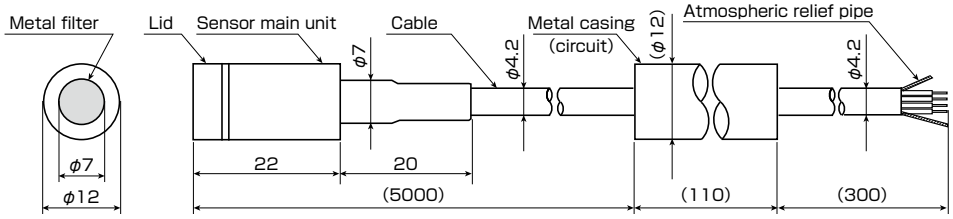
Model	Vertical type : HWT−3 • Horizontal type : HWY−3								
	HW□− 3E6 / 3E9			HW□− 3V0			HW□− 3A0		
	-020KP	-100KP	-500KP	-020KP	-100KP	-500KP	-020KP	-100KP	-500KP
Rated pressure	0 to 20kPa	0 to 100kPa	0 to 500kPa	0 to 20kPa	0 to 100kPa	0 to 500kPa	0 to 20kPa	0 to 100kPa	0 to 500kPa
Pressure type	Gauge pressure								
Overpressure	300% of the rated pressure			200% of the rated pressure			150% of the rated pressure		
Main unit material	SUS316L								
Filter material	Equivalent to SUS316								
Filtration accuracy	Select from 10、40、100 μ (options : 2 μ、5 μ)								
Sealing liquid	Silicone oil								
Power supply	3E6 : 6V 3E9 : 9V			12 to 24VDC					
Output	3E6 : 20 ± 5mV 3E9 : 40 ± 15mV	3E6 : 40 ± 15mV 3E9 : 80 ± 30mV		1 − 5VDC			4 − 20mADC		
Current consumption	2mA or less			6mA or less			—		
Load resistance	—			1k Ω or more			600 Ω or less		
Responsiveness	5msec or less								
Accuracy (linearity)	± 0.5% F.S. or less (± 0.3% F.S. or less)								
Temperature characteristics	± 0.05% F.S. ／℃ or less								
Compensated temperature range	0 to 40℃								
Operating temperature range	0 to 60℃ (no freezing allowed)								
Cable	φ 4.2 polyurethane sheath: 5 m (standard) Shield + atmospheric relief pipe								
Insulation resistance	100M Ω or more ／ 500VDC								
Weight	Approx. 160g (With 5m cable)								

Uses

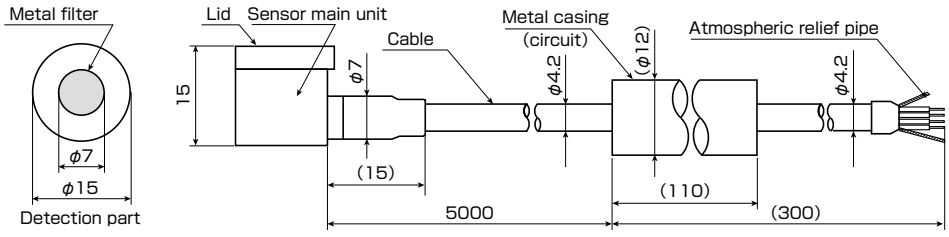
- Pore water pressure measurement in experiments for liquefaction measures
- Pore water pressure measurement in centrifugal tests for model ground
- Pore water pressure measurement for embankments and ground
- Pore water pressure measurement in housing-embedded soil and bedrock

Dimensions (Units : mm)

HWT-3 (vertical type)



HWY-3 (horizontal type)



Cables / wires

Cable color	3E	3V	3A
Red	Power supply +	Power supply +	Power supply +
White	Output +	Output	Power supply −
Black	Power supply −	Common	—
Green	Output −	—	—
Atmospheric relief pipe	Yes		

HW□-3 E6 E9 Element output
V0 1—5V Output
A0 4—20mA Output

Model

HW Y - 3E6 - 100 KP - 05 - 100

Type	Shape	Output mode	pressure range	pressure unit	Cable length	Filtration accuracy
T : vertical type	**Y** : horizontal type	**3E6** : Element 40 ± 15mV ※ **3E9** : Element 80 ± 30mV ※ **3V0** : Voltage output 1—5V **3A0** : Current output 4—20mA	※ 20 kPa element output **3E6** : 20 ± 5mV **3E9** : 40 ± 15mV	**KP** : kPa **MP** : MPa	**05** : 5m (standard) **10** : 10m **XX** : specified length	**002** : 2 μ (Option) **005** : 5 μ (Option) **010** : 10 μ **040** : 40 μ **100** : 100 μ

MM-2200 • MM-3300 • MM-6600 • MM-7700

Features

RoHS directive-compliant product



- When connected with a pressure sensor or immersion-type water level meter, this indicator can display the output value and is capable of comparative output and linear output.
- Waterproof structure in the front part of the panel: IP65
- Built-in sensor power supply
- 5-digit display
- Parameter setting on the front panel (scaling function)
- Attachment of a safety terminal cover
- 2-point relay contact output
- Linear output 1-5 V or 4-20 mA
- Ratio calculation output possible with 2 sensors connected

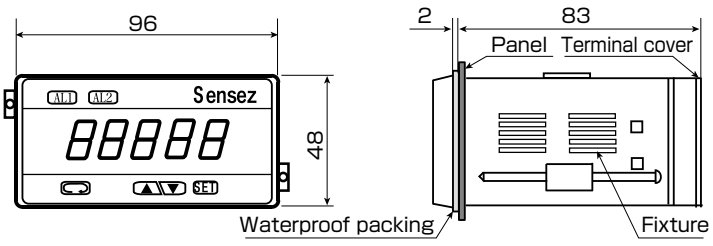
Model	MM-2200	MM-3300	MM-6600	MM-7700
Input	1-5V input	4-20mA input	1-5V　2 inputs A and B	Select A, B, or ratio.
Output	1-5V output	4-20mA output	Select A, B, or ratio.	Select A, B, or ratio.
Contact	2-point contact	2-point contact	2-point contact (Select A, B, or ratio.)	2-point contact (Select A, B, or ratio.)

2 inputs of MM-6600 and MM-7700 (sides A and B) Various ratios
Difference = A - B　Sum = A + B　Average = (A + B) ÷ 2　Absolute ratio (%) = B ÷ A × 100　Error ratio = (B - A) ÷ A × 100

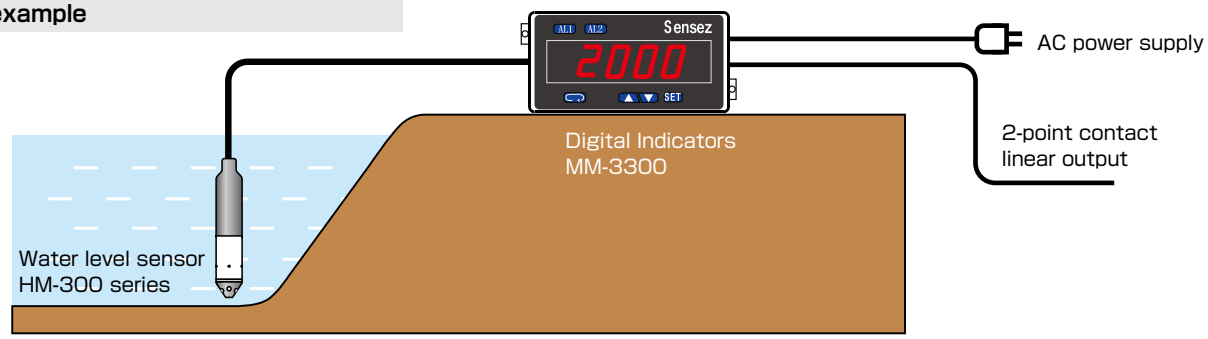
Controller specifications

Display part	5 digits (-19999 to 99999)　7-segment red LED
Decimal point display	0 ／ 0.0 ／ 0.00 ／ 0.000 ／ 0.0000
Scaling function	Digital arithmetic operations based on parameter settings
Power voltage	AC85V to AC264V　50/60Hz
Current consumption	Approx. 10VA
Operating temperature range	0 to 50℃ (no freezing allowed)
Operating humidity range	45 to 85% RH (no dew condensation allowed)
Protection structure	Front panel IP65
External dimension ／ Weight	96 (W) × 48 (H) × 92 (D) mm　DN size ／ Approx. 300g
Sensor power supply	MM-2200、MM-6600 : DC12V、MM-3300 : DC24V
Input signal	MM-2200 : 1-5V　MM-6600 : 1-5V × 2　MM-3300 : 4-20mA　MM-7700 : 4-20mA × 2
Input impedance	MM-2200、MM-6600 : 1M Ω　MM-3300、MM-7700 : 10 Ω
Input signal resolution	MM-2200、MM-3300 : 1/20000
Comparative output setting range	− 19999 to 99999　The upper and lower limits can be set freely.
Contact output	Relay 2 points (c contact)
Contact capacity	AC250V : 0.5A　AC125V : 1A　DC30V : 2A
Hysteresis setting	0 to 9999 digit
Linear output	MM-2200 : 1-5V　MM-3300 : 4-20mA MM-6600: Select side A, side B (1-5 V) or ratio.　MM-7700: Select side A, side B (4-20 mA), or ratio.
Load resistance	MM-2200、MM-6600 : 5k Ω or more　MM-3300、MM-7700 : 0 to 500 Ω
Conversion target	Sampling data or displayed value　Scaling is possible.
Linear output resolution	MM-2200、MM-3300 : 1/20000　MM-6600、MM-7700 : 12bit の 4/5

Dimensions (Units : mm)



Usage example



MONI-SIG1



- Compact, lightweight portable monitor sensor
- Ideal monitor for outdoor and indoor instrumentation signals
- This monitor supplies power to a sensor and can display 2-wire 4-20 mA and 3-wire voltage signals.
- When connected with a pressure sensor or water level sensor, the monitor converts the electric signals from the sensor to the unit of voltage or water level and displays them.
- As the display unit, Pa, kPa, MPa, or m can be selected.
- Negative pressure and compound pressure sensors are also supported.

Specifications

Model	MONI-SIG1	
Power supply	9-V alkaline battery (006P) :1	
Current consumption	Approx. 100 mA (when power on) Battery life: Approx. 3 hours	
Sensor supply power	Select from 24, 12, 5, and 3 VDC.	
Input specifications	Voltage: Select 1-2 V, 1-3 V, 1-5 V, 0-5 V, or 0-10 V. Current: 4-20 mA	
Display function	8-digit, 2-row backlit LCD	
Display scale	Voltage display	□□.□□□ V
	Current display	□□.□□□ mA
	Pressure display	± 9.999Pa to ± 999.9Pa (Arbitrary setting) ± 9.999kPa to ± 999.9kPa (Arbitrary setting) ± 9.999MPa to ± 99.99MPa (Arbitrary setting)
	Water level display	9.999m to 999.9m (Arbitrary setting)
Sensor connection connector	Terminal block 3P	
Operating temperature range	0 to 50℃	
External dimensions (Units : mm)	Main unit	76 (D) × 35 (H) × 135 (D) (excluding protrusions)
	Protective case	81 (D) × 40 (H) × 141 (D)
Weight	Approx. 330 g	
Accessories	Sensor connection cable and user's manual	

Uses

■ Pressure sensor

- Operation checker when a pressure sensor is installed
- Pressure sensor checking during maintenance
- Manometer when connected to a pressure sensor (to be purchased separately)

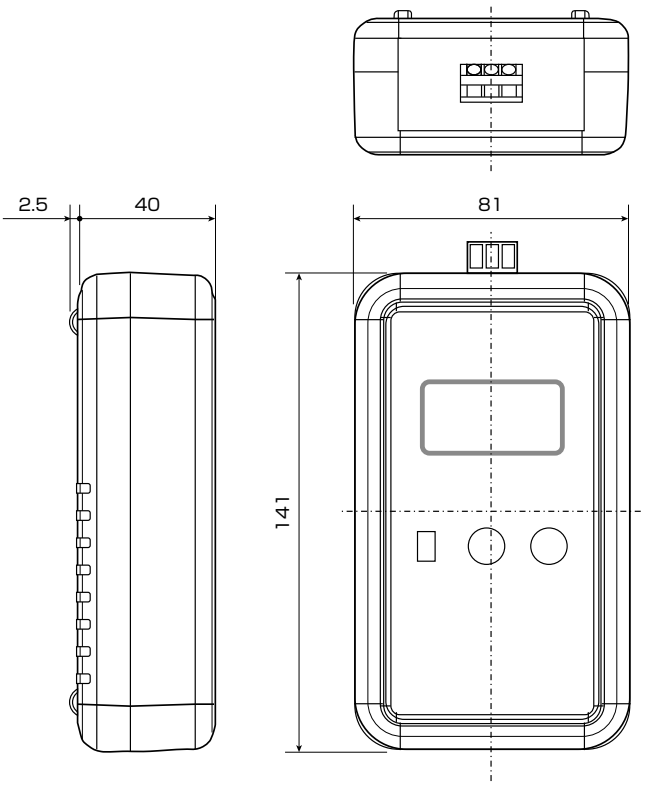
■ Water level sensor

- Operation checker when a water level sensor is installed
- Level monitor for water level measurement

■ Other

- 4-20 mA (2-wire) or voltage (3-wire) output monitor

Dimensions (Units : mm)



MDB



- Select analog 1 output, analog 2 output, or analog + communication output (RS485).
- 5-digit monitor for arbitrary scaling display
- RoHS directive-compliant product
- 2-wire 4-20 mA output type or 3-wire 1-5 V output type sensor distributor
- Withstand voltage 2000 VAC/minute
- The compact converter can be attached to and detached from the DIN rail through one-touch operation.

Model

M D B - ① ② ③ - ④ ⑤

① Power voltage

A	AC85V to 264V
D	DC11V to 30V

② Sensor supply power

1	DC24V/30mA
2	DC12V/50mA (standard)
3	DC5V/30mA

③ Input

1	1 – 5V (0 – 5V)
2	0 – 10V
3	0 – 1V
4	0 – 100mV
5	0 – 50mV
6	4 – 20mA (0 – 20mA)
7	0 – 200mA
8	0 – 100mA
9	0 – 10mA
0	0 – 2mA

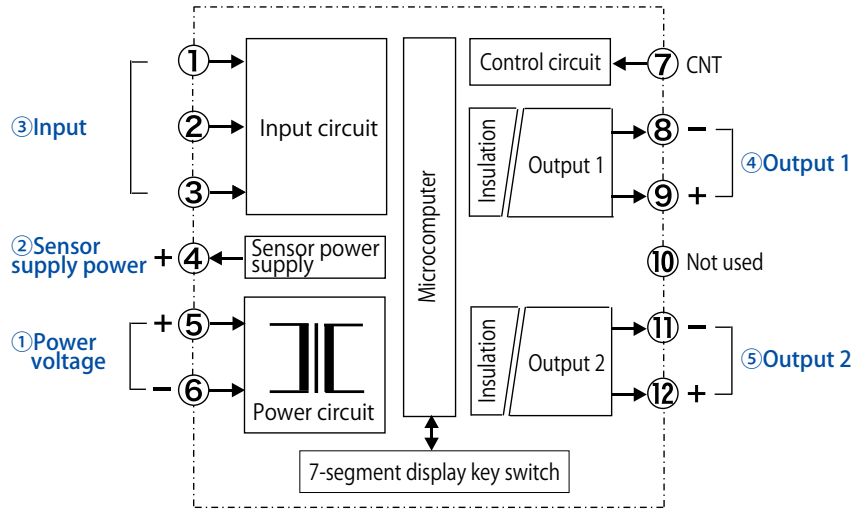
④ Output 1

1	1 – 5V
2	0 – 5V
3	0 – 10V
4	4 – 20mA
5	RS485

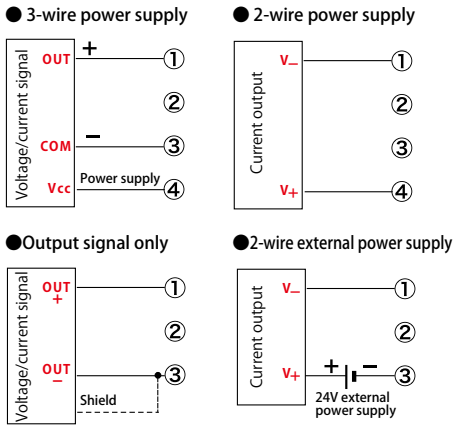
⑤ Output 2

—	None
1	1 – 5V
2	0 – 5V
3	0 – 10V
4	4 – 20mA

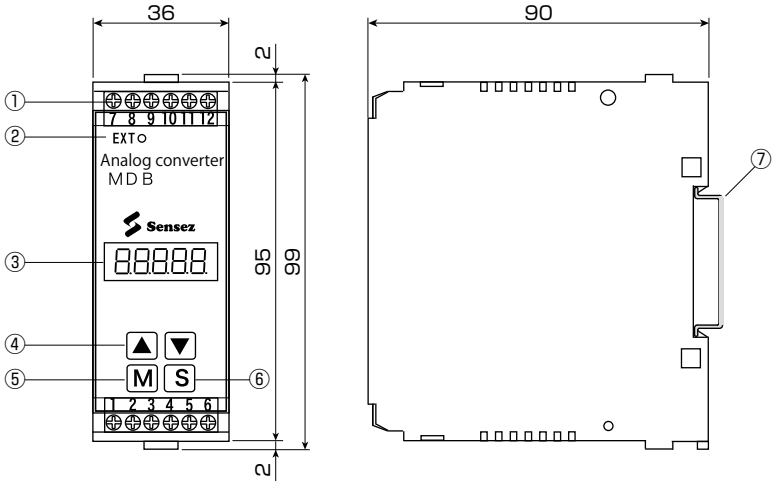
Block diagram / terminal connection diagram



Input signal wiring



Dimensions (Units : mm)



①	Terminal part	· Pitch : 5mm · Connected wire size: 26 to 14 AWG · Screw size : M2.5 · Tightening torque : 0.5Nm
②	EXT lamp	On when the CNT terminal is operating.
③	Display part	Setting or measurement value display
④	Up and down keys	Used for parameter settings.
⑤	Mode key	Used for parameter settings.
⑥	Set key	Used when setting parameters or switching the display.
⑦	DIN rail	35 mm wide

Specifications

Input method	Single-ended method	
Operation method	Δ - Σ conversion method	
Sampling rate	1 msec	
Display part	Display	7-segment red LED with decimal point display with zero suppression
	Character height	5.5mm
	Display range	5 digits (-19999 to 99999)
	Display period	0.1/0.2/0.5/1/2/3/4/5 seconds
Scaling function	Digital arithmetic operations based on parameter settings	
External control terminal	Negative logic input Minimum ON width: 30 msec Internal resistance: 1.5 k Ω	
⑦ CNT terminal	Hold function HOLD/MAX/MIN/P-P function selection	
Power voltage	AC power type	85 to 264 VAC Common to 50 and 60 Hz
	DC power type	11 to 30 VDC Ripple rate: Within 5%
Insulation resistance	Input - Output 1/2 - Power 100 M Ω /500 VDC	
Current consumption	Maximum: Approx. 6.5 VA (AC power) Maximum: Approx. 4.5 W (DC power)	
Withstand voltage	Input - Output 1/2 - Power 2000 VAC, 1 minute	
Noise resistance	AC power type	Between power terminals ± 2000 V
	DC power type	Between power terminals ± 1000V
	Square wave noise (pulse width: 1 μs rising: 1 ns)	
Operating temperature range	− 10 to 50℃ (no freezing allowed)	
Operating humidity range	25 to 85% RH (no dew condensation allowed)	
Protection structure	IP20	
External dimensions ／ weight	99 (H) × 36 (W) × 90 (D) mm Weight : Approx. 200g	

Linear output specifications

Insulation	Insulation of input signal, power, and output	
Output signal	1-5VDC	Load resistance 5 k Ω or more
	0-5VDC	
	0-10VDC	
	4-20mADC	Load resistance 500 Ω or less
Resolution	Approx. 1/40,000	
Conversion target	Sampling data or displayed value Scaling is possible.	
Response speed	5msec or less (0%→ 90%)	
Precision	± 0.15%FS (23 ± 5℃)	

Communication output specifications

Insulation	Insulation of input signal, power, and output
Communication method	2-wire half duplex, start/stop synchronization compliant with EIA RS-485
Communication protocol	Our dedicated protocol (transmission code: ASCII) or MODBUS-RTU
Transfer rate	1200/2400/4800/9600/19200/38400 bps
Communication content	Display value read, linear output, setting value read and rewrite, etc.

Input specifications

③ Type	Input signal	Input impedance	Instantaneous overload
1	1-5V (0-5V)	1M Ω	250V
2	0-10V		
3	0-1V	8M Ω or more	50V
4	0-100mV		
5	0-50mV		
6	4-20mA (0-20mA)	10 Ω	200mA
7	0-200mA	1 Ω	500mA
8	0-100mA	2 Ω	500mA
9	0-10mA	20 Ω	100mA
0	0-2mA	100 Ω	20mA

Resolution	Approx. 1/20000 to the input range	
Precision	DC voltage input	± 0.08%FS ± 1digit (23 ± 5℃)
	DC current input	± 0.1%FS ± 1digit (23 ± 5℃)

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