

FLOW-THROUGH TYPE pH ORP SENSORS

Model: HC-8

CONTENTS

- Sensors Combined with a KCl Supply Type Electrode - p1
- Combination Sensor with KCl Non-supply Type Electrode - p9
- Auxiliary Equipment - p10
- Typical Installation of Flow-Through Sensor - p12

These sensors consist of an electrode and its holder. They are used for pH/ORP measurement in a closed loop lines under process pressure; e.g., pipes or tightly closed tanks. Electrodes in this series are classified into two types; the KCl supply type and the KCl non-supply type. Two types of sensor are available; the case (chamber) type mounted on a bypass line with a flange and the direct insertion type connected to a pipe or tank wall via screw threads or a flange. Refer to separate specification sheets for immersion type sensors, cleaner-equipped sensors, and sensors for fermentation.

Sensors Combined with a KCl Supply Type Electrode

Wide range of flow-through type pH/ORP sensors with various materials and connections combined with various KCl supply type electrodes are available to cope with various measurement conditions. For stable exudation of the electrolyte (KCl) out of the electrode, the inner pressure of the sensor has to be kept higher than the process pressure by 30~50kPa. An instrument air supply is required to provide this inner pressure.

SENSOR FOR GENERAL PURPOSES

Resin (standard: PP) holders with KCl reservoir, covering a wide range of applications, from drinking water, waste water, effluent treatment plants through to flue-gas desulfurization plants. Select the appropriate model suitable for your measurement and installation requirements.



NHC-883



NHC-882



HC-812



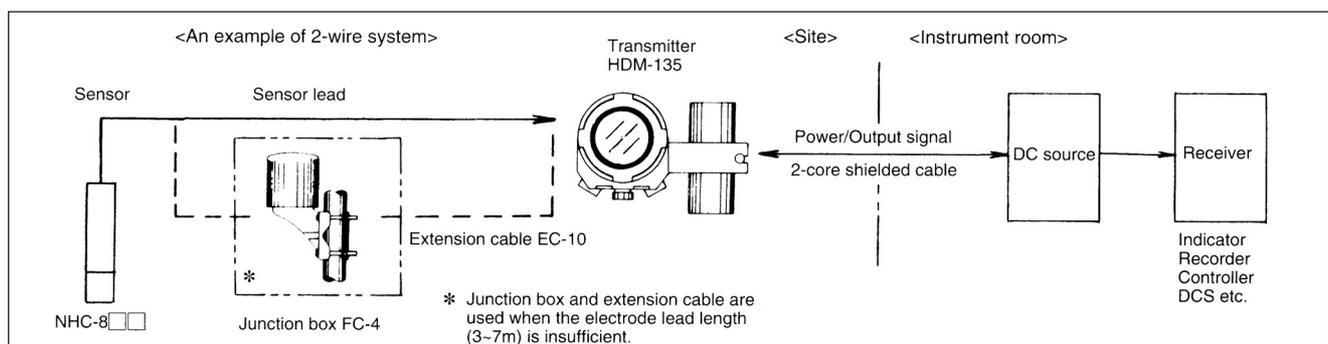
HC-880

Model	Connection method	Materials of wetted parts	Pressure range	Temperature range	Applicable electrode		Weight
					pH	ORP	
HC-880	Inline, screw (M60, P2) or flange (50A JIS 10K FF)	PP FPM	0~0.15MPa	-5~80°C	5610	2610	1kg
NHC-882	Flange (25A JIS 10K FF) or threads (Rc1/2) with resin case	PP FPM	0~0.15MPa	-5~80°C	5610	2610	2kg
NHC-892	Flange (25A JIS 10K FF) or threads (Rc1/2) with resin case	PP FPM	Atmospheric pressure (Sampling type)	-5~80°C	5600	2600	2kg
NHC-883	Flange (25A JIS 10K RF) or threads (Rc1/2) with stainless steel case	PP FPM SUS316	0~0.3MPa	-5~80°C	5610	2610	5kg
NHC-893	Flange (25A JIS 10K RF) or threads (Rc1/2) with stainless steel case	PP FPM SUS316	Atmospheric pressure (Sampling type)	-5~80°C	5600	2600	5kg

* KCl reservoir is available as an option.

* Refer to the product code of each model for detailed specification and options.

SYSTEM CONFIGURATION



SENSORS FOR SPECIAL APPLICATIONS

Sensors for high temperature and high pressure service, consisting of a stainless steel holder and an electrode with integrated KCl reservoir (*: Teflon), for process online measurement and control

in food processing, chemical and pharmaceutical plants. Select the model suitable to the measurement and installation requirements.

Model	Connection method	Materials of wetted parts	Pressure range	Temperature range	Applicable electrode		Weight
					pH	ORP	
HC-811	Inline, threads	SUS316, FPM	0~0.45MPa	-5~95°C	5500	2500	2kg
HC-812	Inline, flange	SUS316, FPM	0~0.45MPa	-5~95°C	5500	2500	3kg
NHC-813	Flange or threads, with stainless steel case	SUS316, FPM	0~0.45MPa	-5~95°C	5500	2500	6kg
HC-815	Inline, threads, retractable	SUS316, FPM	0~0.35MPa	-5~95°C	5509	6483	3kg
*HC-852	Inline, flange (Teflon)	PTFE, Kalrez	0~0.35MPa	-5~95°C	5502	-	2kg
*HC-853	Flange, with Teflon lining case	PTFE, FEP, Kalrez	0~0.35MPa	-5~95°C	5502	-	18kg
HC-64	Small flow rate type (connection: Rc ¹ / ₄) sensor combined with a discrete electrode, for pH measurement and control of boiler water and pure water. Applicable electrodes: MG511, 4164, 6149						

- Refer to the product code of each model for detailed specifications and options.

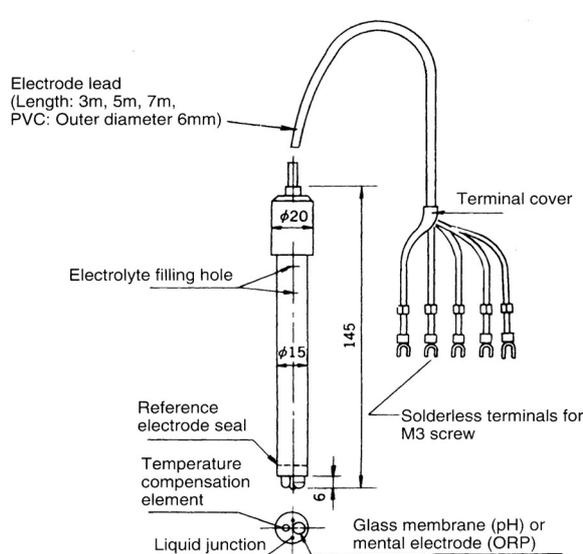
PH ELECTRODE SPECIFICATIONS

The latest electrodes, employing the newly developed glass membrane with excellent linearity to suppress $AgCl$ exudation from the liquid junction of the reference electrode (the non-leak $AgCl$ inner electrode). They are capable of providing stable and continuous performance under various measurement conditions such as high temperature, low pH solution, solution containing reducing agents etc. The type that

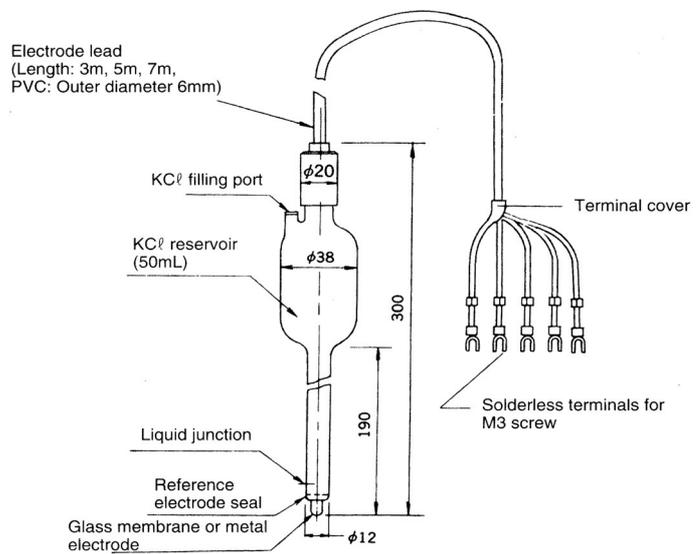
employs hydrofluoric acid resistant glass membrane for measuring hydrofluoric acid solution, and the type resistant to organic solvents with the use of Kalrez or Perfluoro (fluoro-rubber, new material) are also available as standard options. The electrolyte for electrodes in the following table is 3M- KCl solution.

Model	Electrolyte exudation method	Type of glass membrane	pH measurement range	Service temperature range	Reference electrode seal	Lead wire insulation	Applicable electrode holder
EL5610-□F	Pressurized type	Standard membrane	0~14pH	-5~70°C	FPM	Heat resistant PVC	NHC-882
EL5611-□F	Pressurized type	Standard membrane	0~14pH	-5~95°C	FPM	Silicone	NHC-883
EL5612-□F	Pressurized type	Standard membrane	0~14pH	-5~70°C	Perfluoro-rubber	Heat resistant PVC	NHC-883
EL5613-□F	Pressurized type	Standard membrane	0~14pH	-5~95°C	Perfluoro-rubber	Silicone	HC-853
EL5615-□F	Pressurized type	Hydrofluoric acid resistant membrane	2~11pH	-5~50°C	FPM	Heat resistant PVC	NHC-882
EL5600-□F	Non-pressurized type	Standard membrane	0~14pH	-5~70°C	FPM	Heat resistant PVC	NHC-892
EL5601-□F	Non-pressurized type	Standard membrane	0~14pH	-5~95°C	FPM	Silicone	NHC-893
EL5605-□F	Non-pressurized type	Hydrofluoric acid resistant membrane	2~11pH	-5~50°C	FPM	Heat resistant PVC	NHC-892
EL5500-□F	Pressurized type	Standard membrane	0~14pH	-5~95°C	FPM	Heat resistant PVC	NHC-813
EL5502-□F	Pressurized type	Standard membrane	0~14pH	-5~95°C	® Kalrez rubber	Heat resistant PVC	HC-853
EL5509-□F	Pressurized type	Standard membrane	0~14pH	-5~95°C	FPM	Heat resistant PVC	HC-815

□ Electrode lead length



Dimensions of Models 56□□, and 26□□



Dimensions of Models 55□□, and 25□□

ORP ELECTRODE SPECIFICATIONS

The sensing tip of the ORP electrode is made of platinum (Pt), or gold alloy. The platinum electrode is used in ORP measurement and control in most plants processes, while the alloy electrode is used in that of metal plating waste liquid processing. Models 26 □ □, and 25 □ □ in

the following table with a temperature sensor (T) automatically compensate the outputs to the temperature at the check with standard solution. The construction of each reference electrode is same as the above pH electrodes, and its electrolyte is 3M-KCl solution.

Model	Electrode combination	Electrolyte exudation method	Service temperature range	Seal material of reference electrode	Lead wire insulation	Applicable holder
EL2610-□F	Pt+R+T	Pressurized type	-5~70°C	FPM	Heat resistant PVC	NHC-882
EL2615-□F	M+R+T	Pressurized type	-5~70°C	FPM	Heat resistant PVC	NHC-882
EL2600-□F	Pt+R+T	Non-pressurized type	-5~70°C	FPM	Heat resistant PVC	NHC-892
EL2605-□F	M+R+T	Non-pressurized type	-5~70°C	FPM	Heat resistant PVC	NHC-892
EL6486-□F	Pt+R	Pressurized type	-5~95°C	FPM	Heat resistant PVC	NHC-813
EL6487-□F	M+R	Pressurized type	-5~95°C	FPM	Heat resistant PVC	NHC-813
EL2500-□F	Pt+R+T	Pressurized type	-5~95°C	FPM	Heat resistant PVC	NHC-813
EL2505-□F	M+R+T	Pressurized type	-5~95°C	FPM	Heat resistant PVC	NHC-813

Electrode lead length

REMARKS ON PH/ORP ELECTRODES

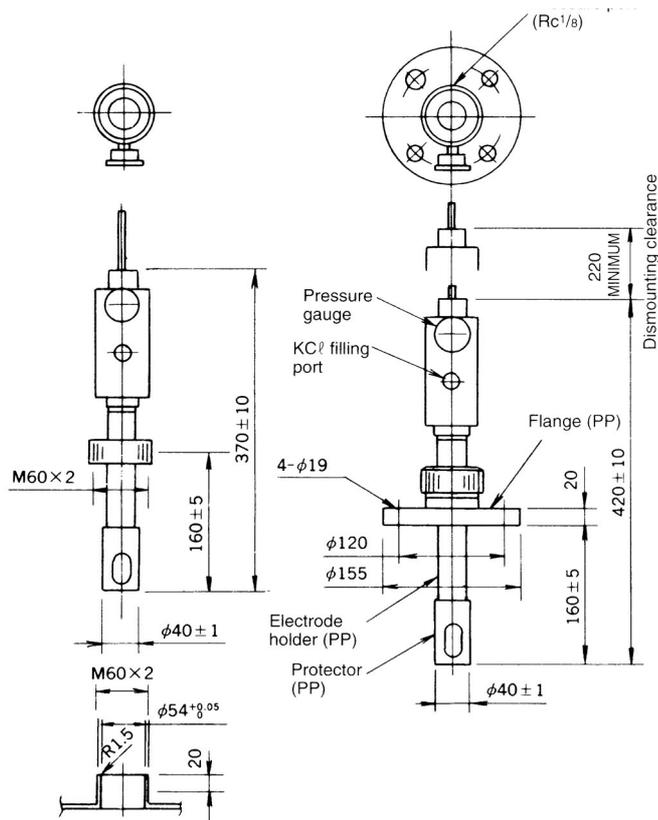
- The consumption of KCl solution is 1~3mL/d under normal conditions for electrode with the holder or non-Pressurized type electrode.
- The pH electrode with a glass membrane resistant to hydrofluoric acid can be used in a Hydrofluoric acid solution up to 1000ppm under temperature range of -5~50°C.
- The pH electrode with a standard glass membrane may quickly deteriorate under high temperature (about 50°C) and high alkalinity (above pH 13) conditions. Contact DKK-TOA in such a case.

DIMENSIONS AND PRODUCT CODE OF GENERAL PURPOSE HOLDERS

HC-880

<Thread or flange mount type, made of PP, service pressure range 0~0.15 (0.3) MPa>

unit: mm



Reference to Mounting

HC880-1-□□□□□□□□□□

1	Major wetted material
2	Polypropylene (PP), Viton (FPM)
	Clear PVC, Viton (FPM)
A	Pressure resistance
	0.15MPa (1.5kgf/cm ²)
B	0.3MPa (3kgf/cm ²)
	Pipe connection
0	M60 P2 Capnut
1	50A JIS 10K FF Flange
2	2" ANSI 150LB FF Flange
	Insertion length
A	160mm (Standard)
B	260mm
	Electrolyte pressurization
0	No pressurization (Head pressure)
A	For instrument air: connection Rc1/8 (PT1/8)
B	Tube for instrument air (ø6mm, 10m) with Rc1/4 joints
C	Manual pressurizing pump (supplied with a check valve attached in the holder)
	Electrolyte (KCl) reservoir
0	Nil
1	Equipped
	Applicable electrode
A	Standard (One in the following table)
	Markings
0	Standard
1	English

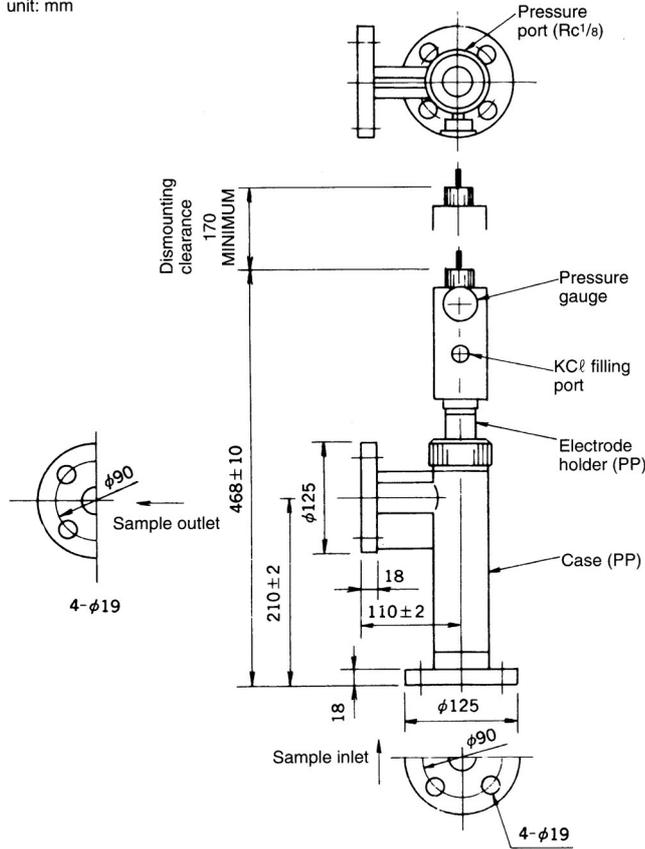
Standard Applicable Electrode

Specification	[Air pressurization type]	[Non-pressurized type]
pH General	EL5610-1-□F□	EL5600-1-□F□
High temperature resistant	EL5611-0-□F□	EL5601-1-□F□
Hydrofluoric acid resistant	EL5615-1-□F□	EL5605-1-□F□
General (for combination with differential amplifier)	EL5710-0-□F□	EL5700-0-□F□
General (TC=350Ω)	EL6395-1-□F□	EL6462-1-□F□
ORP General(Pt)	EL6397-0-□F□	EL6491-0-□F□
General (M)	EL6398-0-□F□	EL6497-0-□F□
General (with temperature sensor)	EL2610-0-□F□	EL2600-0-□F□

NHC-882

<Flange of PP case or thread connection, service pressure range 0~0.15 (0.3) MPa>

unit: mm



NHC882-1

- Major wetted materials
- 1 Polypropylene (PP), Viton (FPM)
- 2 PVC, Viton (FPM)
- 9 Custom spec.
- Pressure resistance
- A 0.15MPa (1.5kgf/cm²)
- B 0.3MPa (3kgf/cm²)
- Z Custom spec.
- Pipe connection
- 1 25A JIS 10K FF
- 2 40A JIS 10K FF
- 3 Rc¹/₂
- 4 1" ANSI 150LB FF
- 5 1" JPI 150LB FF
- 9 Custom spec.
- Electrolyte pressurization
- A For instrument air: connection Rc¹/₈ (PT¹/₈)
- B Tube for instrument air (ø6mm, 10m) with Rc¹/₄ joints
- C Manual pressurization pump (supplied), with a check valve attached in the holder
- Z Custom spec.
- Electrolyte (KCℓ) reservoir
- 0 Nil
- 1 Equipped
- 9 Custom spec.
- Applicable electrode
- A Standard (One in the following table)
- Z Custom spec.
- Markings
- 0 Standard
- 1 English
- 9 Custom spec.

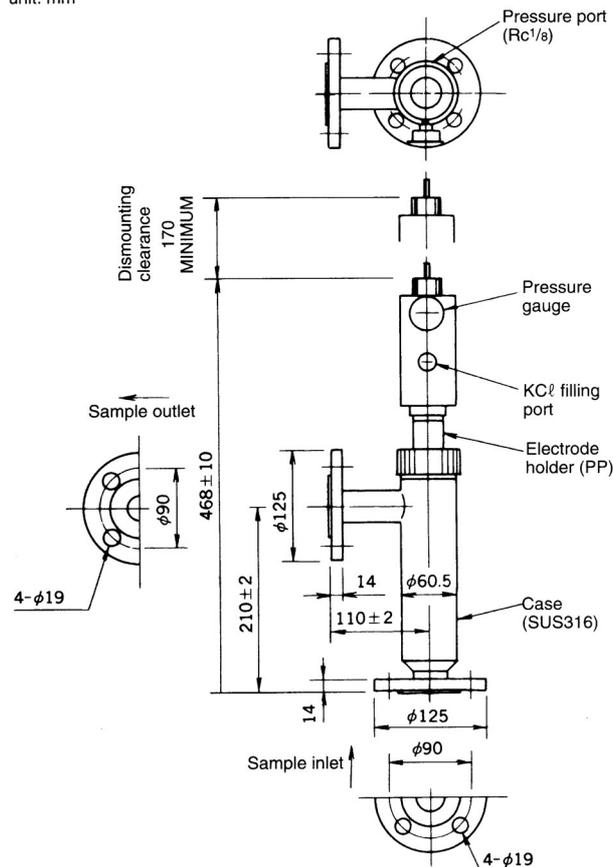
Standard Applicable Electrodes

Specification	Produce code
pH General	EL5610-1-□F□
High temperature resistant	EL5611-0-□F□
Hydrofluoric acid resistant	EL5615-1-□F□
General (for combination with differential amplifier)	EL5710-0-□F□
General (TC=350Ω)	EL6395-1-□F□
ORP General(Pt)	EL6397-0-□F□
General (M)	EL6398-0-□F□
General (with temperature sensor)	EL2610-0-□F□

NHC-883

<Threads or Flange connection type, with stainless steel case, service pressure range 0~0.15 (0.3) MPa>

unit: mm



NHC-883-1

- Major wetted materials (holder/case)
- 1 Polypropylene (PP)/SUS316
- 2 Polypropylene (PP)/SUS316L
- 3 PVDF/SUS316
- 4 PVDF/SUS316L
- 9 Custom spec.
- Rubber wetted materials
- 1 Viton (FPM)
- 9 Custom spec.
- Pressure resistance
- A 0.15MPa (1.5kgf/cm²)
- B 0.3MPa (3kgf/cm²)
- Z Custom spec.
- Pipe connection
- 1 25A JIS 10K RF
- 2 40A JIS 10K RF
- 3 Rc¹/₂
- 4 1" ANSI 150LB RF
- 5 1" JIP 150LB RF
- 9 Custom spec.
- Electrolyte pressurization
- A For instrument air: connection Rc¹/₈ (PT¹/₈)
- B Tube for instrument air (ø6mm, 10m) with Rc¹/₄ joints
- C Manual pressurization pump (supplied), with a check valve attached in the holder
- Z Custom spec.
- Electrolyte (KCℓ) reservoir
- 0 Nil
- 1 Equipped
- 9 Custom spec.
- Applicable electrode
- A Standard (One in the following table)
- Z Custom spec.
- Markings
- 0 Standard
- 1 English
- 9 Custom spec.

Standard Applicable Electrodes

Specification	Produce code
pH General	EL5610-1-□F□
High temperature resistant	EL5611-0-□F□
Chemical resistant	EL5612-0-□F□
General (for combination with differential amplifier)	EL5710-0-□F□
General (TC=350Ω)	EL6395-1-□F□
ORP General(Pt)	EL6397-0-□F□
General (M)	EL6398-0-□F□
General (with temperature sensor)	EL2610-0-□F□

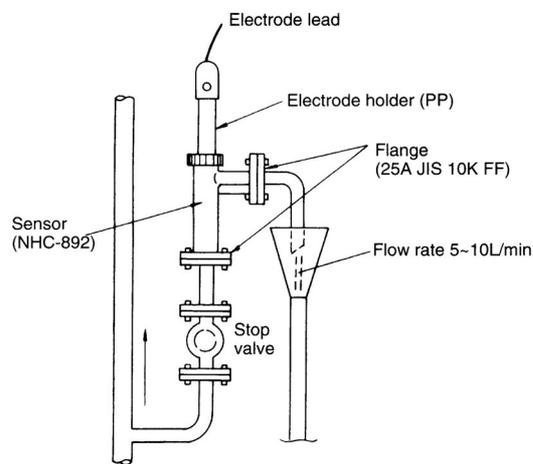
SENSOR WITHOUT PRESSURIZATION

Model NHC-892 (with PP case)
NHC-893 (with SUS stainless steel case)

When the sample outlet of the case is open to the atmosphere and an overflow type cell is used, sensors NHC-892 and 893, without pressurization can be used. The pipe on the outlet side should be as short as possible, and consideration should be taken so that a maximum flow rate of 10L/min is allowed.

Applicable Electrode

Specification	Produce code
pH General High temperature resistant Hydrofluoric acid resistant	EL5600-1-□ F□
	EL5601-1-□ F□
	EL5605-1-□ F□
General (for combination with differential amplifier) General (TC=350Ω)	EL5700-0-□ F
	EL6462-1-□ F□
ORP General(Pt) General (M) General (with temperature sensor)	EL6491-0-□ F
	EL6497-0-□ F
	EL2600-0-□ F

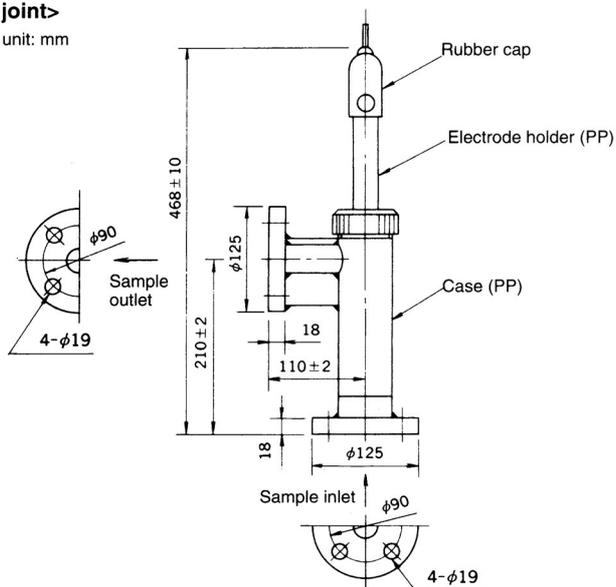


Installation practice

Dimensions of NHC-892

<Pipe connection standard: 25A JIS 10K FF or Rc1/2 thread joint>

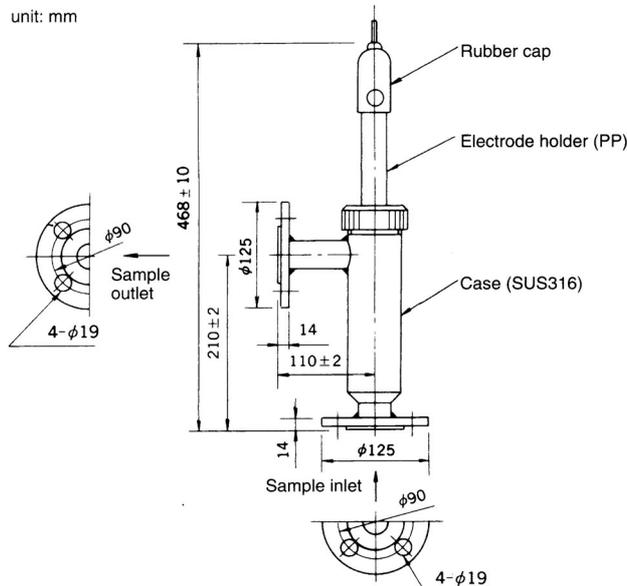
unit: mm



Dimensions of NHC893

<Pipe connection: 25A JIS 10K RF or Rc1/2 thread joint>

unit: mm

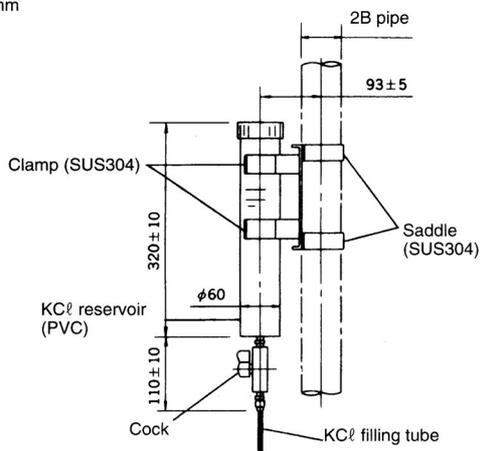


KCℓ RESERVOIR

The KCℓ reservoir for the general use sensor, used to reduce the supply frequency of electrolyte (extending the service period up to 2~3 months). The head pressure type and forced pressurization type are available. The tank capacities for both types are approximately 600mL.

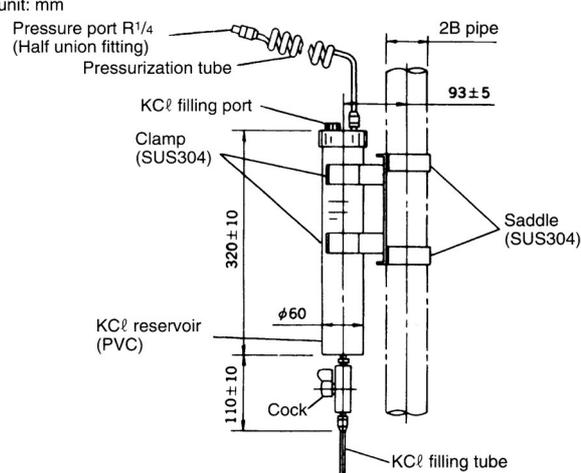
● Head Pressure Type

unit: mm



● Instrument Air Pressurization type

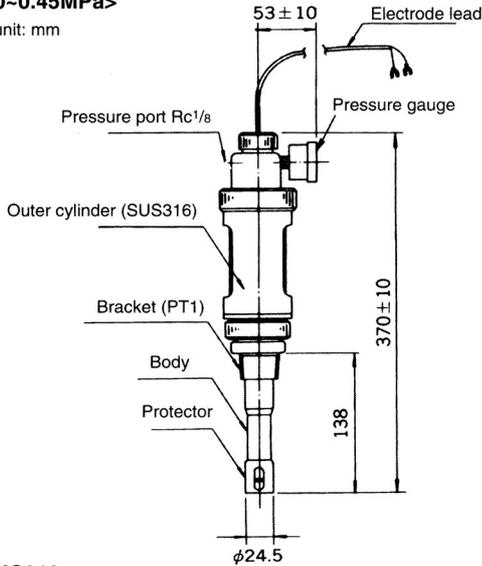
unit: mm



DIMENSIONS AND PRODUCT CODE OF HIGH TEMPERATURE AND HIGH PRESSURE MODELS

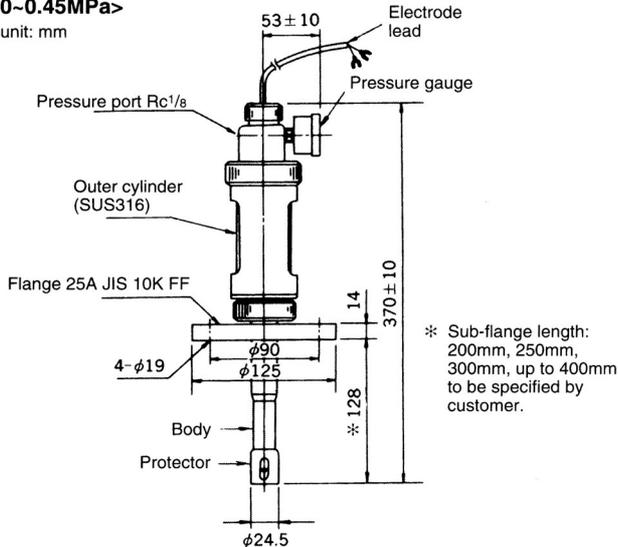
HC-811
<Thread connection, SUS316, service pressure range 0~0.45MPa>

unit: mm



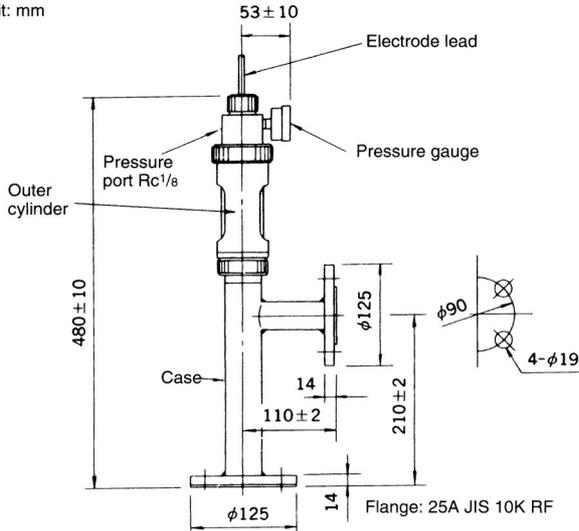
HC812
<Flange connection, SUS316, service pressure range 0~0.45MPa>

unit: mm



NHC-813
<Flange connection with stainless steel case, SUS316, service pressure range 0~0.45 MPa>

unit: mm



- HC811-1**
- 1 Major wetted materials
 - 2 SUS316, FPM
 - 9 SUS316L, FPM
 - 9 Custom spec.
 - Pressure gauge
 - 1 0~0.4MPa
 - 2 0~0.2MPa
 - 3 0~0.7MPa (Sample pressure, up to 0.45MPa)
 - 9 Custom spec.
 - Pipe connection
 - 1 R1 (PT1) thread
 - 9 Custom spec.
 - Electrolyte pressurization
 - B For instrument air; connection Rc1/8 (PT1/8)
 - C For instrument air; connection Rc1/4 (PT1/4)
 - E Tube for instrument air (ø6mm, 10m) with R1/4 joint
 - A Manual pressurization pump (supplied) with a check valve attached in the holder.
 - Z Custom spec.
 - Markings
 - 0 Standard
 - 1 English
 - 9 Custom spec.

- HC812-1**
- 1 Major wetted materials
 - 2 SUS316, FPM
 - 9 SUS316L, FPM
 - 9 Custom spec.
 - Pressure gauge
 - 1 0~0.4MPa
 - 2 0~0.2MPa
 - 3 0~0.7MPa (Sample pressure, up to 0.45MPa)
 - 9 Custom spec.
 - Pipe connection
 - 2 25A JIS 10K FF
 - 4 40A JIS 10K FF
 - 6 1" ANSI 150LB FF
 - 9 Custom spec.
 - Electrolyte pressurization
 - B For instrument air; connection Rc1/8 (PT1/8)
 - C For instrument air; connection Rc1/4 (PT1/4)
 - E Tube for instrument air (ø6mm, 10m) with Rc1/4 joint
 - A Manual pressurization pump (supplied) with a check valve attached in the holder)
 - Z Custom spec.
 - Markings
 - 0 Standard
 - 1 English
 - 9 Custom spec.

- NHC813-1**
- 1 Major wetted materials
 - 2 SUS316, FPM
 - 9 SUS316L, FPM
 - 9 Custom spec.
 - Pressure gauge
 - 1 0~0.4MPa
 - 2 0~0.2MPa
 - 3 0~0.7MPa (Sample pressure, up to 0.45MPa)
 - 9 Custom spec.
 - Pipe connection
 - 1 25A JIS 10K RF
 - 2 25A JIS 10K FF
 - 3 40A JIS 10K RF
 - 4 40A JIS 10K FF
 - 5 1" ANSI 150LB RF
 - 6 1" JPI 150LB RF
 - 7 Rc1/2
 - 9 Custom spec.
 - Electrolyte pressurization
 - B For instrument air; connection Rc1/8 (PT1/8)
 - C For instrument air; connection Rc1/4 (PT1/4)
 - E Tube for instrument air (ø6mm, 10m) with Rc1/4 joint
 - A Manual pressurization pump (supplied) with a check valve attached in the holder)
 - Z Custom spec.
 - Markings
 - 0 Standard
 - 1 English
 - 9 Custom spec.

Applicable Electrodes

Specification	Produce code
pH General (TC=10kΩ)	EL5500-1- <input type="checkbox"/> F
General (TC=350Ω)	EL6451-1- <input type="checkbox"/> F
Chemical resistant (TC=10kΩ)	EL5502-1- <input type="checkbox"/> F
ORP General (Pt, with temperature sensor)	EL2500-0- <input type="checkbox"/> F
General (Pt)	EL6486-0- <input type="checkbox"/> F

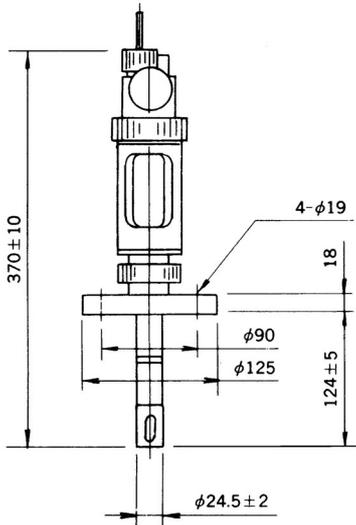
CHEMICAL RESISTANT SENSORS

These pH/ORP sensors, made of Teflon®, are resistant to the sample which contains chemicals such as organic solvents. Seal packings and O-rings are made of Kalrez rubber or Perfluoro rubber highly resistant to chemicals and solvents. Model HC-852, tank or pipe insertion type (flange connection), and Model HC-853, case type with FEP lining (flange connection) are available.

Model: HC-852

Flange: 25A JIS 10K FF

unit: mm

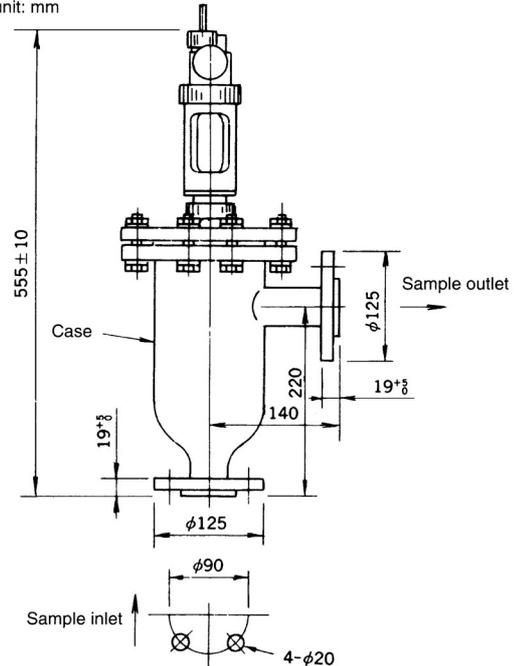


Connection		25A JIS 10K RF
Wetted materials	Holder	Teflon (PTFE or PFA)
	Case	FCD40, FED lining
	Seal rubber	® Kalrez or Perfluoro
Sample	Pressure	0~0.35MPa
	Temperature	-5~95°C
	Flow rate	5~10L/min
Weight		Approx. 18kg
Applicable electrode	pH	Model EL5502 or EL5612
	ORP	Model EL6386

Model: HC-853

Flange: 25A JIS 10K RF

unit: mm

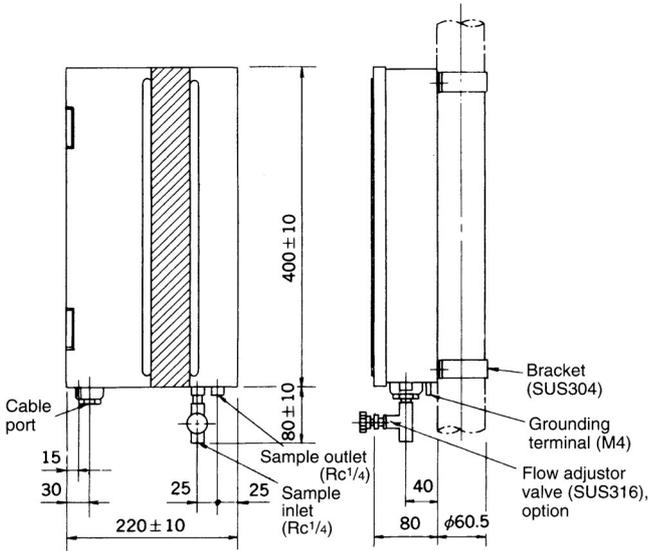


pH SENSOR FOR MEASURING BOILER WATER AND PURE WATER

Model: HC-64

The sensor suitable for pH measurement of low ion water (pure water) and boiler water. Consider to operate the analyzer system with a fixed sample flow rate of 50~100mL/min, and the outlet should be open to the atmosphere.

unit: mm



Product code

HC-64-1

1	Major wetted materials
9	Clear acryl
	Custom spec.
	Pipe connection
1	Rc ¹ / ₄ (Standard)
2	NPT ¹ / ₄
9	Custom spec.
	Flow adjustor valve (SUS316)
0	Nil
1	Equipped
9	Custom spec.
	Case construction
A	Sprayproof (Standard, equivalent to IP43)
B	Sprayproof & dustproof (Equivalent to IP54)
Z	Custom spec.
	Mounting
0	Wall mount
1	Pole mount
9	Custom spec.
	Color
0	Metalic silver, blue
9	Custom spec.
	Markings
0	Standard
1	English
9	Custom spec.

Place a separate order for electrodes.

Applicable electrodes (Lead wire: 2m)

Specification	Produce code
Glass electrode	ELMG511-1-HF
Reference electrode	EL4164-0-HF
Temperature compensation electrode (TC: 10kΩ) or	EL6149-0-HF
Temperature compensation electrode (TC: 350Ω)	EL6003-1-HF
Double temperature compensation electrode (TC: 350Ω, 6.5kΩ)	EL6084-0-HF

RETRACTABLE ELECTRODE HOLDER

Model: HC-815

Direct insertion type holder for mounting on the pipe and the tank. It can be detached with the process pressure being applied, and thus, the electrode maintenance can be done even during operation.

Connection		M42x2
Wetted parts material	Holder	SUS316
	Holder guide	SUS316
	Packing	FPM
Sample	Pressure	0~0.35MPa
	Temperature	-5~95°C
	Flow speed	2m/s or less
Weight		3kg
Combination electrode	pH	Model 5509
	ORP (pt)	Model 6483

Method of Drawing out

While pulling up the stopper knob, 1) draw up the electrode holder to the lock position. While pulling the lock pin. 2) turn the lock pin fastening screw, 3) to draw off the electrode holder.

pH MEASURING EQUIPMENT WITH POLE STAND MOUNT

Model: PAC-8

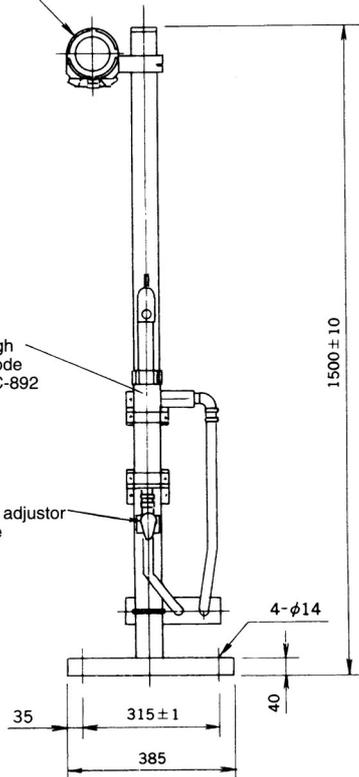
The pH measuring system, consisting of the field installed type pH analyzer transmitter (HDM) and the flow through type sensor NHC-892 mounted on a pole stanchion. As this model contains the built in sample pipe and the flow adjustor valve, it is very easily installed. The connection size is Rc1/2 for sample connection port and Rc1 (open to the atmosphere) for the outlet. Refer to NHC-892 for detailed specifications.

unit: mm

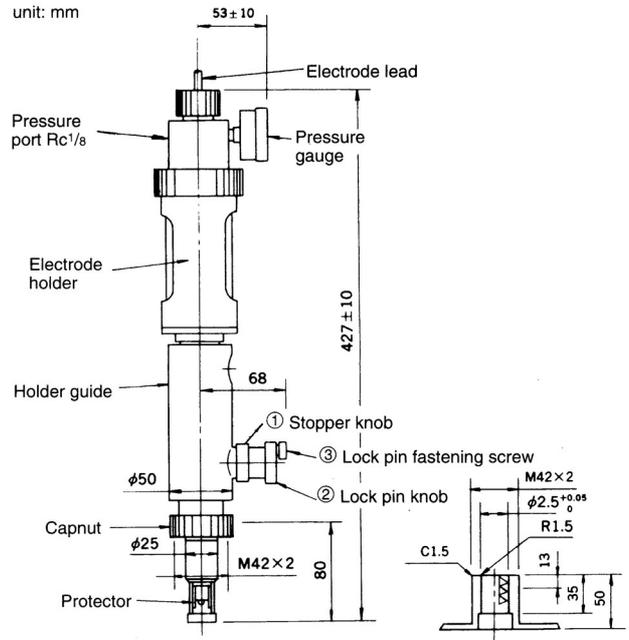
Transmitter of pH analyzer

Flow through type electrode holder NHC-892

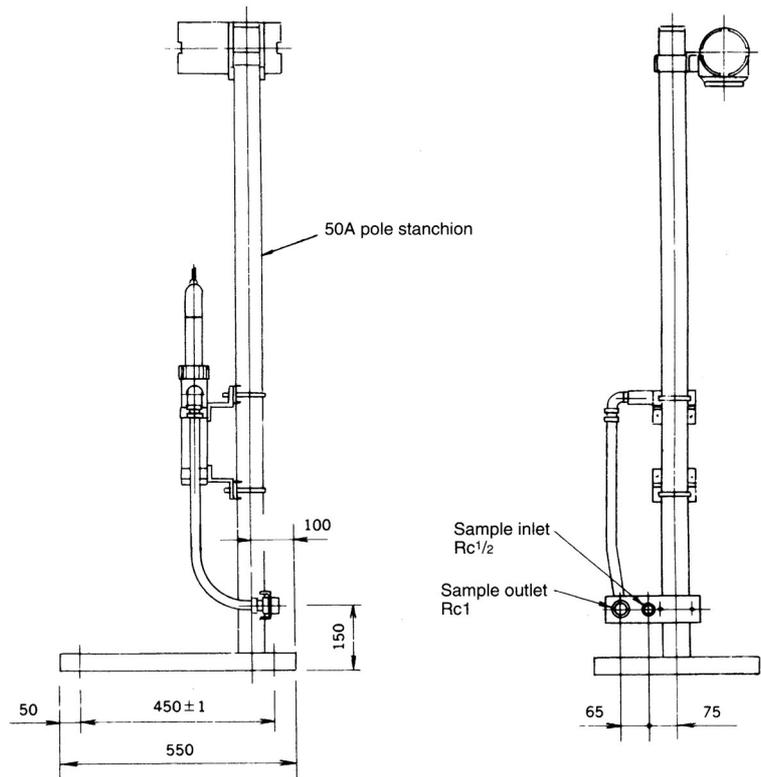
Flow adjustor valve



unit: mm



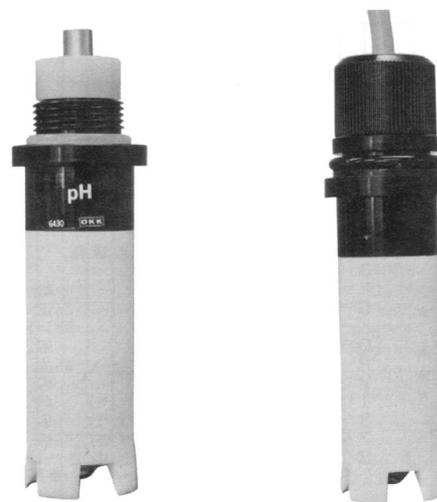
Reference for Holder Mounting



Combination Sensor with KCl Non-supply Type Electrode

The KCl no-supply (NOS) type pH/ORP electrode seals in the electrolyte KCl at the Teflon junction and eliminates the need to replenish electrolyte solution. In addition, this electrode also immune to external pressure. Thus the flow-through type sensor is capable of measuring the sample of a process pressure up to 0.5MPa without pressurizing the holder. However it is not suitable for a sample temperature above 50°C, low ion water (below city water level), heavily contaminated water (mixture with oil etc.), and the process line under sub-atmospheric pressure. When any of the conditions described above are present we recommend the use of the "KCl supply type" electrodes.

Two types, the leadless type and the lead type, are available. The former contains a preamplifier and a replaceable battery. It converts the output impedance and provides an output signal compensated at the temperature 25°C by 2-wire system. This provides a noise resistant feature.



Leadless Type 6430L

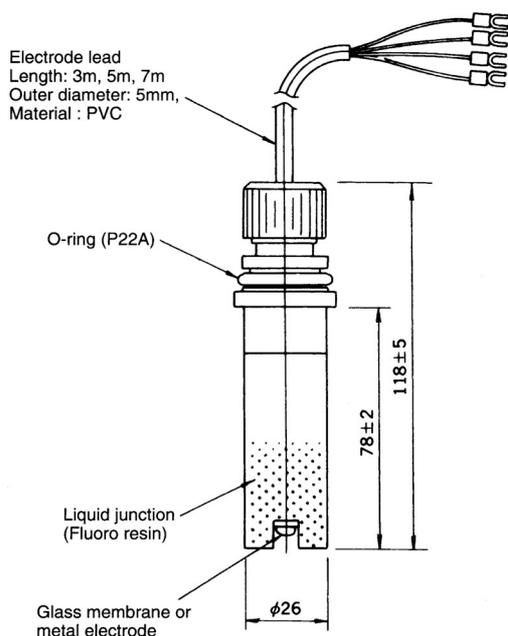
Lead Type 5910

STANDARD SPECIFICATIONS

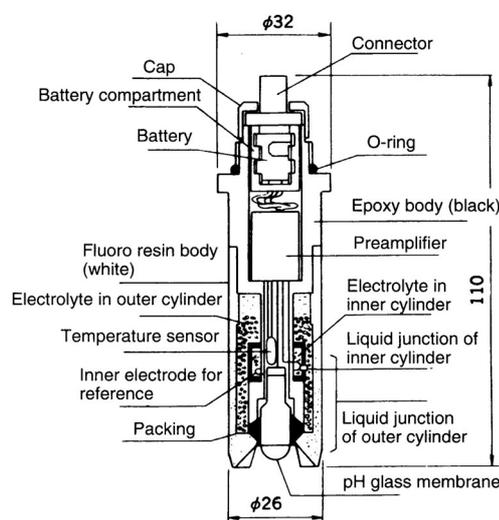
- Sample Conditions** : Pressure; 0~0.5MPa, Temperature; Refer to the table below, Flow speed; Not more than 2m/s
- Wetted Parts Material** : Epoxy resin & fluororesin
- Inner Electrode** : Ag-AgCl

Classification	pH electrode				ORP electrode	
	Lead type		Leadless type with built-in amplifier and battery		Lead type	Leadless type
Electrode model	5910	5915	6430L	6431L	2910	6407L
Measurement range	2~12pH	2~10pH	2~12pH	2~12pH	±2000mV	±2000mV
Sample temperature	-5~50°C	-5~50°C	-5~50°C	40~70°C	-5~50°C	-5~50°C
Sensing tip	Glass membrane	Hydrofluoric acid resistant glass membrane	Glass membrane	Glass membrane	Platinum	Platinum
Temperature compensation resistor	10KΩ at 25°C	10KΩ at 25°C	*		10KΩ at 25°C	-
Applicable electrode	HC-N82 (SUS316) HC-N86 (PP)		HC-982 (SUS316) HC-986 (PP)		HC-N82 HC-N86	HC-982 HC-986

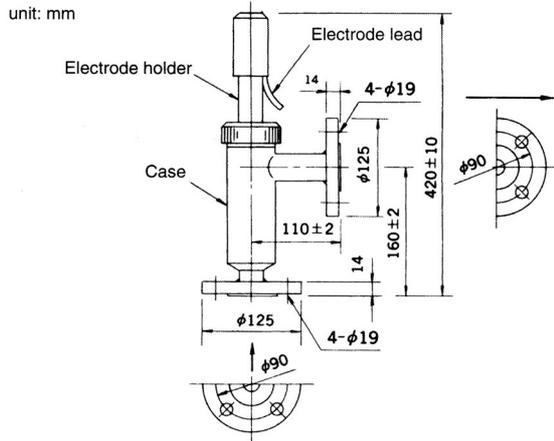
*: Output signal is compensated at temperature 25°C by built-in temperature sensor and preamplifier.



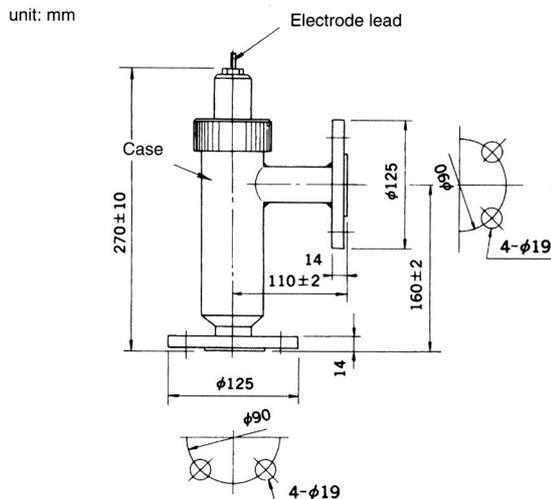
Lead Type Electrode



Construction Leadless Type Electrode with Built-in Amplifier



Wetted parts material : HC-N82 HC-N86
 : SUS316 PP
 Flange : 25A JIS 10K RF 25A JIS 10K FF



Wetted parts material : HC-892 HC-896
 : SUS316 PP
 Flange : 25A JIS 10K RF 25A JIS 10K FF

Auxiliary Equipment

Junction Box

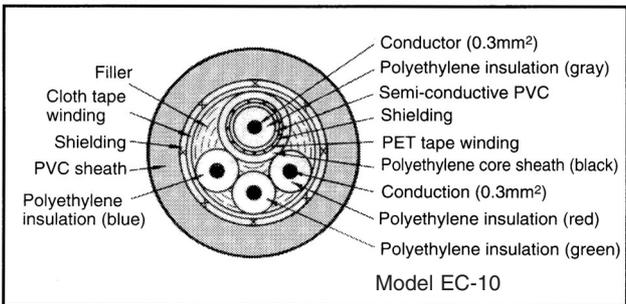
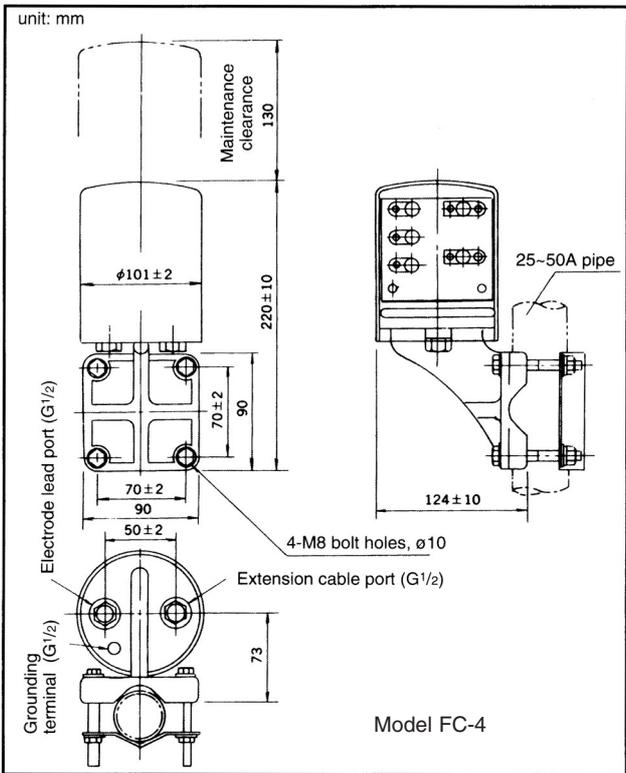
When the transmitter is installed remotely to the sensor (mainly for panel mounted transmitters) and the standard electrode lead length is too short, a junction box is required.

Model : FC-4
Construction : Field installation, spray proof (JIS CO920)
Mounting : 25 ~ 50A Pipe, wall or panel mount
Material : ABS resin
Finish : Matted chromium plating, metallic silver
Weight : Approx. 0.9kg
Applicable extension cable : EC-10

Extension Cable

The extension cable is a special cable specifically manufactured for use with pH analysers. It is used for connection between transmitter and junction box. Maximum cable length is 100m. The cable must not be spliced.

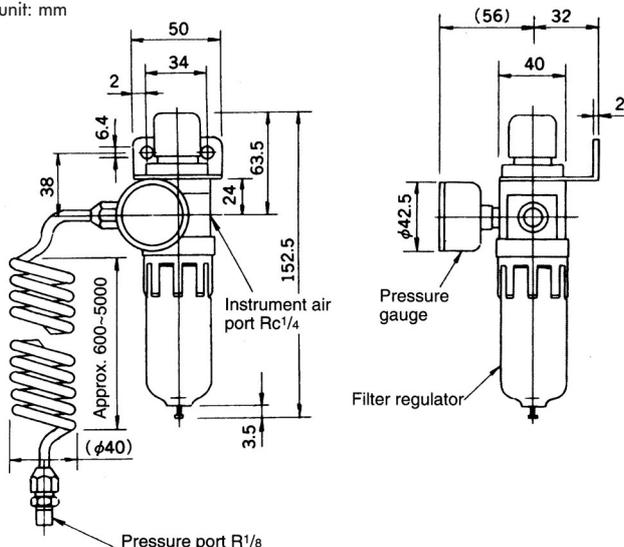
Model	EC-10
Overall diameter	8mm
Insulation	Polyethylene and PVC
Sheath	PVC
Insulation resistance between core conductors	At least 10 ⁵ MΩ/100m
Standard length	5m, 10~100m
Weight	Approx. 0.5kg/5m



AIR SET PAS-10

The air set, used when the KCl⁻ supply type pressurized holder is pressurized with instrument air. A spiral tube convenient for holder attaching/detaching is connected to the pressure regulator valve equipped with the filter set at outlet pressure 0 ~ 0.3MPa.

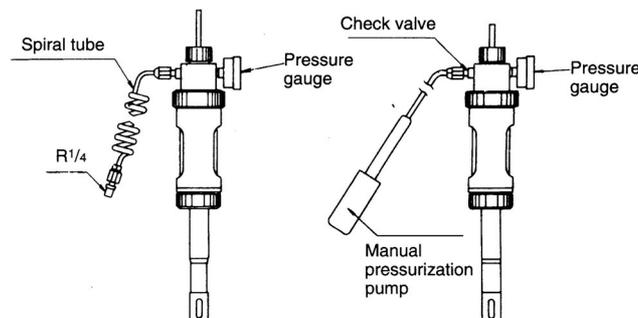
unit: mm



PRESSURE PORT, OPTION

A spiral nylon tube convenient in handling is optionally available. It expands from 50cm up to 5m. When the instrument air equipment is unavailable, we are ready to supply the check valve and the manual pressure pump. When these valves and the pumps are used, periodical manual ressurization is required.

unit: mm



PH STANDARD SOLUTIONS

DKK-TOA offers various pH standard solutions (500mL) and powder reagents (for 500mL). DKK-TOA's class 2 pH standard solutions (Mfr: Kanto Chemical Co., Inc.) are traceable to National standards and have been accepted by public authorities.

Class 2 pH Standard Solution

Name	pH value at 25°C and criteria	Capacity	Parts code
Phthalate pH standard solution, class 2	4.01±0.015	500mL	143F087
Phosphate pH standard equimolal solution, class 2	6.86±0.015	500mL	143F088

pH Standard Solution

Name	pH value at 25°C	Accuracy	Capacity	Parts cord
Oxalate pH standard solution	1.68	±0.02	500mL	143F063
0.01M oxalate pH standard solution	2.15	±0.02	500mL	143F091
Phthalate pH standard solution	4.01	±0.02	500mL	143F055
Phosphate pH standard equimolal solution	6.86	±0.02	500mL	143F056
Tetraborate pH standard solution	9.18	±0.02	500mL	143F057
Carbonate pH standard solution	10.01	±0.02	500mL	143F064

Powder Reagent for pH Standard Solution

Name	pH value (25°C)	Capacity	Parts code
Powder reagent for oxalate pH standard solution	1.68	5 bags, each for 500mL	143F065
Powder reagent for 0.01M oxalate pH standard solution	2.15	5 bags, each for 500mL	143F090
Powder reagent for phthalate pH standard solution	4.01	5 bags, each for 500mL	143F060
Powder reagent for phosphate pH standard equimolal solution	6.86	5 bags, each for 500mL	143F061
Powder reagent for tetraborate pH standard solution	9.18	5 bags, each for 500mL	143F062
Powder reagent for carbonate pH standard solution	10.01	5 bags, each for 500mL	143F066

ORP STANDARD SOLUTION

The ORP standard solution is a mixture of phthalate pH standard solution and Quinhydrone. The phthalate pH standard solution is saturated with Quinhydrone before use.

Name	Capacity	Parts code
ORP standard solution (pH4.01 solution + Quinhydrone)	For 500mL	143F058
Powder reagent for ORP standard solution (pH4.01 powder and Quinhydrone)	5 bags, each for 500mL solution.	143F089
Powder Quinhydrone for ORP standard solution (Quinhydrone, only)	5 bags, each for 500mL solution.	143F059

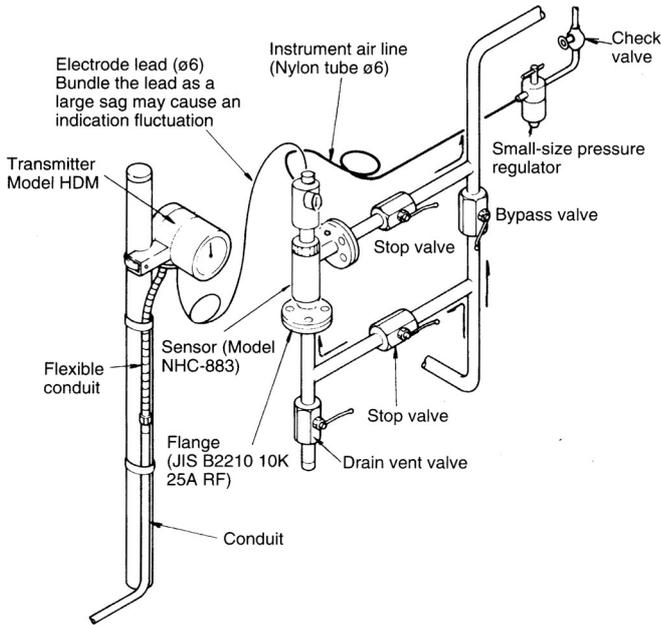
ELECTROLYTE FOR ELECTRODE

The electrolyte for KCl⁻ supply type electrode. Liquid electrolyte is supplied in a polyethylene bottle with a nozzle.

Name	Applicable electrode	Capacity	Parts code
3MKCl solution	Non-leak AgCl inner electrode type	500mL	143A252
KCl for non-leak AgCl electrode inner solution	Non-leak AgCl inner electrode type	1 bag, for 500mL solution	143A253

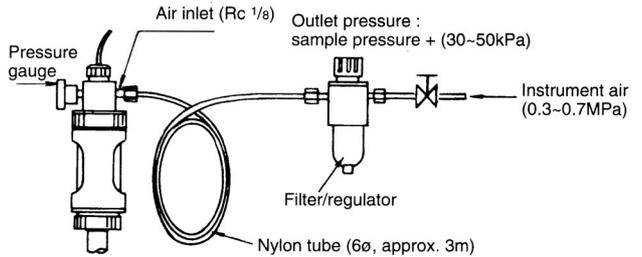
Typical Installation of Flow-Through Sensor

<For Flow-through Type pH/ORP Measurement System>



<Example of Pressurization Using Instrument Air>

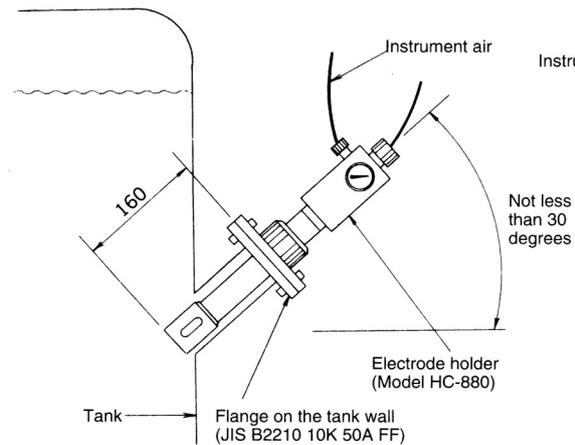
The pressure port for electrolyte of each sensor is connected to the instrument air supply with Rc (PT) 1/8 threads. Make connections as below with a small-size pressure regulator, check valve, and nylon tube.



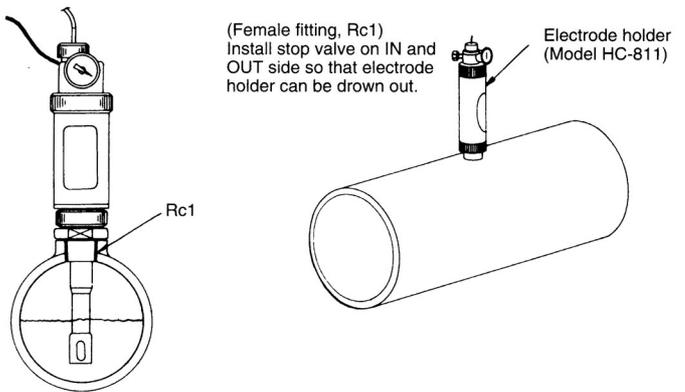
Maintenance works like as electrode cleaning and calibration will be required for pH analyzers. Mount the sensor on the bypass line equipped with a stop valve so that the electrode holder can be safely drawn out at any time. Use a flexible tube for connecting the instrument air.

<Mounting Method on the Side Wall of the Tank>

unit: mm



<Mounting Method on the Pipe>



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CAUTION

Do not operate products before consulting instruction manual.