

SPECIFICATION SHEET



GSS/PSS/ASS Series Tip-Replaceable Immersion Detector for pH/ORP Electrodes

HC-G7/G9 Holder

GSS/PSS/ASS series product line is chip-replaceable type pH/ORP electrode used in the various process facilities such as water purification plants of drainage, sewage, human waste, and steel, chemical, semi-conductor plant.

The glass electrode tip or metal electrode tip can be easily replaced at the liquid junction potential part (contact) of reference electrode, having advanced term in economy and maintenance.

There are two types of KCI internal liquid for reference as refilled type and non-refilled type (diffusion type). The non-refilled type is mainly used for drainage treatment facilities to reduce the maintenance operation.

Refilled type enables more accurate measurement for process use. The electrode body is made of PPS plastic (LITE-ON), which provides excellent heat resistance, chemical resistance and pressure resistance.

In addition, various electrode holders and automatic cleaners are available to adapt to wide range of application.

Please refer to the "Process Instrument System Guide" in the separate Configuration Chart.



KCI nonrefilled type pH electrode
GSS-304B



Immersion Type holder
HC-G70



Throw-in Electrode Holder Immersion Detector with
HC-G95

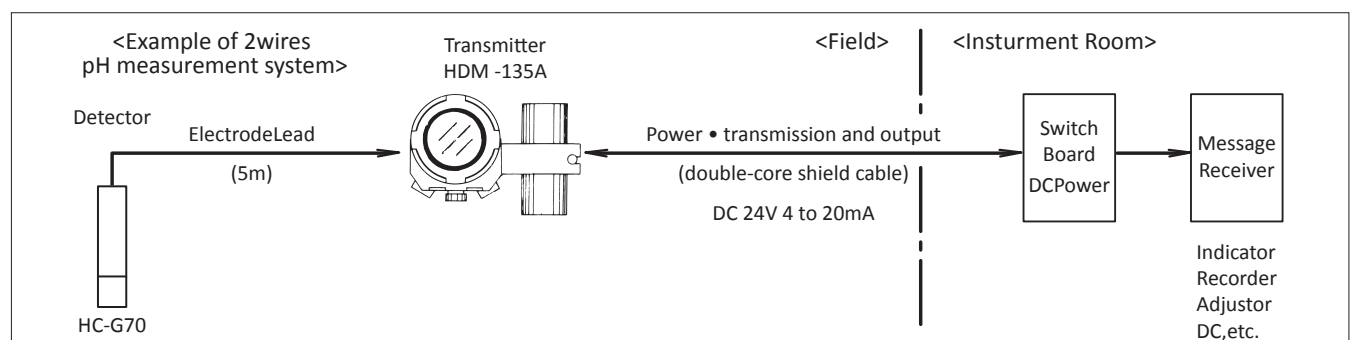


Ultrasonic Cleaner
UHC-G7D



Drop-in detector with pulsed
air jet cleaner
PHCG-95D

Configuration Diagram



■ Tip Replacement Type pH/ORP Electrode: GSS/PSS/ASS type

Category		Non-refilled (diffusion) type	KCl refilled type
pH	General	GSS-304B	GSS-314B
	Fluoric acid resistance	GSS-304F	GSS-314F
	High alkalinity	GSS-304A	GSS-314A
ORP	General (Pt)	PSS-304B	PSS-314B
	Sewage (night soil) treatment (Au)	ASS-304B	ASS-314B

General specification

Test range : pH ...0 to 14
 ORP ...-2000 to 2000mV

Materials of solution : pH ...glass, ceramic, titanium, PPS plastic, epoxy resin, fluororubber

contact parts : ORP ...gold (Au) or platinum (Pt), ceramic, titanium, PPS plastic, epoxy resin, fluororubber

Conductor : Material...heat-resistance PVC
 Outer diameter...φ7.5
 Length...5m or 10m

Temperature detecting element:
 Platinum thin film temperature sensor (Pt1000)

Mounting method : M30×2 thread, O-ring seal

Weight : About 570g (conductor 5m)
 About 1000g (conductor 10m)

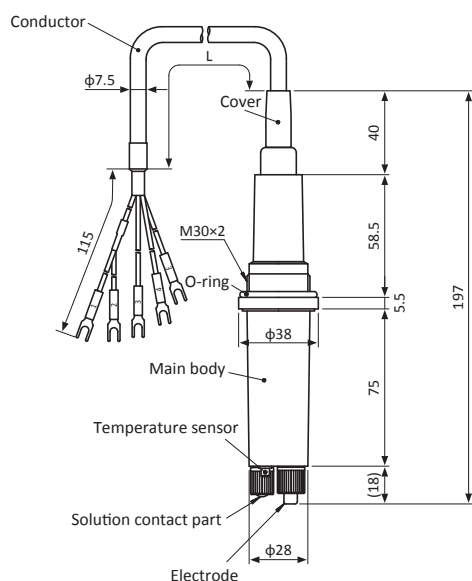
Sample water condition	Non-refilled (diffusion) type	Refilled type
Temperature	-5 to 80°C	-5 to 100°C
Pressure	0 to 0.5MPa	0 to 0.3MPa
Conductivity	100mS/m above (1000μS/cm above)	10mS/cm above (100μS/cm above)

Internal solution of reference electrode:
 Non-refilled (diffusion) type...saturated KCl gel
 Refilled type...3.3mol KCl solution

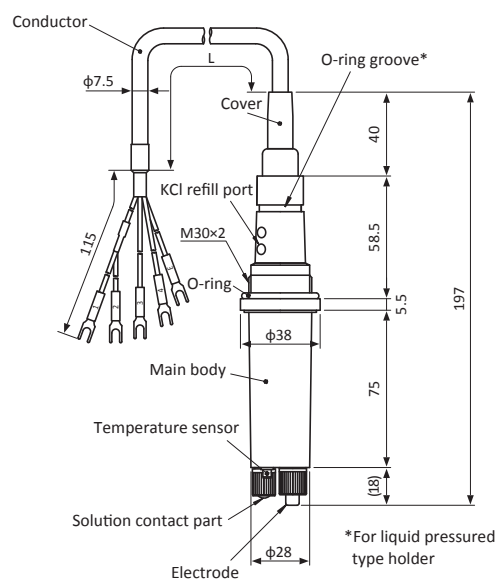
Dimensions

Unit : mm

● KCl non-refilled (diffusion) type

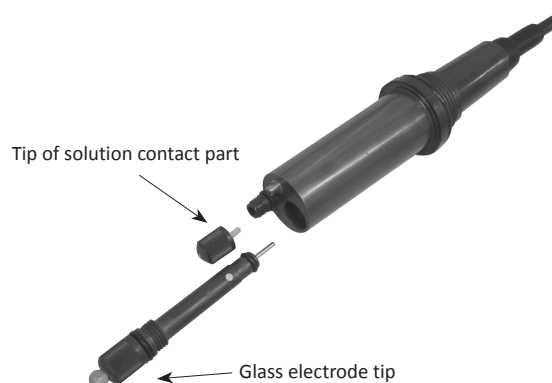


● KCl refilled type



Replacement tip·Spare goods

Product name	Model
Glass electrode tip	HGS-300
Fluoric acid resistance electrode tip	HGS-300F
Glass electrode tip for high alkalinity	HGS-300A
Platinum (Pt) electrode tip	HP-300
Gold (Au) electrode tip	HA-300
Tip of solution contact part (joint)	JC-300
Same above, type with large outflow volume	JC-300K
Internal solution of reference electrode RE-4 500mL inlet	143F234
Internal solution of reference electrode 500mL inlet	RE-4C
Powder for internal solution of reference electrode 123g	143A116
Saturated KCl- gel 100mL inlet	KCL-GEL



Advantages of electrode

● Replacement of glass (metal) electrode tip and solution contact part tip

When the glass (metal) electrode is deteriorated or damaged, and solution contact part of reference electrode is clogged, the electrode tip can be replaced respectively.

In addition to general glass film type (HGS-300 type), glass electrode tip is available in fluoric acid-resistant glass film type (HGS-300F) as well as (high) alkalinity-resistant glass type (HGS-300A). Metal electrode (ORP) tip includes platinum (Pt) type (HGS-300F) and gold (Au) type (HA-300).

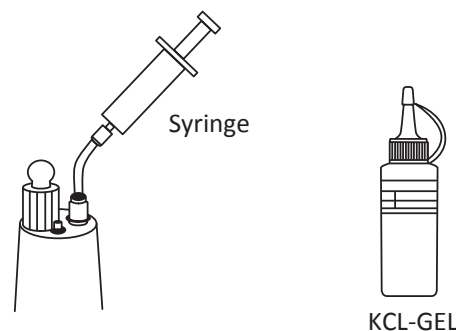
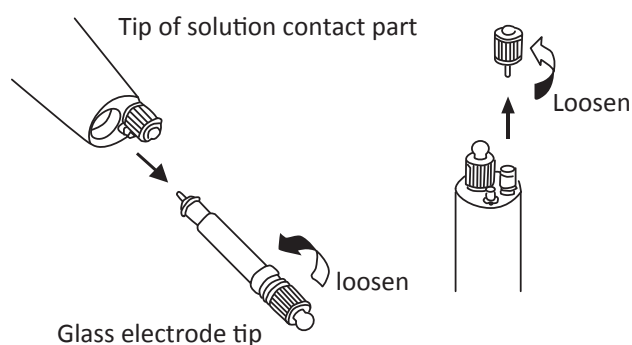
In addition, the solution contact part (junction) tip of reference electrode is available in both general tip (JC-300 type) and massive outflow type (for low conductivity) (JC-300K).

According to the properties and characteristic pH value of sample water to select the most suitable type.

● Replacement for saturated KCl gel of non-refilled GSS/PSS/ASS-304B

KCl internal liquid (saturated KCl gel) can be also replaced even for non-refilled electrode.

Remove the electrode tip of solution contact part, suck out the old KCl gel with the syringe, and slowly inject the 20ml fresh KCl gel into the syringe until it overflows while keeping electrode vertical. Attach a new solution contact tip to complete the procedure.



Product code

● General pH electrode

GSS304B-1-□□	
GSS314B-1-□□	
A	Electrode conductor length 1m
I	5m
Q	10m
Z	Special
T	Shape of connecting terminal Arrow-shape crimp terminal
Z	Special
0	Detecting each one None
1	Yes (with inspection seal)
2	Yes (with inspection seal, certificate)

● Glass electrode (tip)

HGS300-0-□□	
Y	Conductor-free structure Standard
0	Detecting each one No
1	Yes (with inspection seal)
2	Yes (with inspection seal, certificate)

Custom spec. code;
Numeric digit: 9
Alphabet: Z

● Fluoric acid/high alkalinity resistant pH electrode

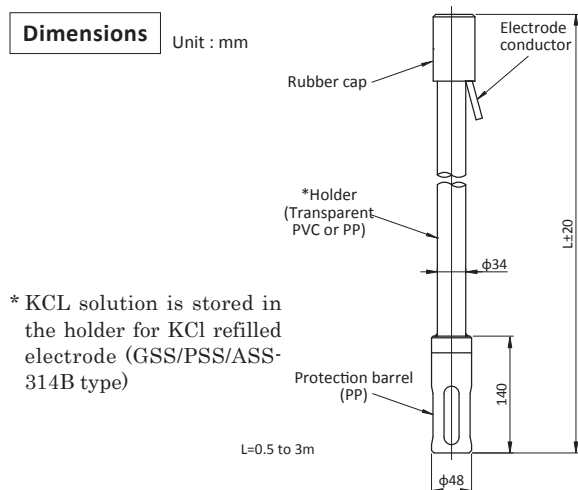
GSS304F-0-□□	
GSS314F-0-□□	
GSS304A-0-□□	
GSS314A-0-□□	
A	Electrode conductor length 1m
I	5m
Q	10m
Z	Special
T	Shape of connecting terminal Arrow-shape crimped terminal
Z	Special

● ORP electrode

PSS304B-1-□□	
PSS314B-1-□□	
ASS304B-1-□□	
ASS314B-1-□□	
A	Electrode conductor length 1m
I	5m
Q	10m
Z	Special
T	Shape of connecting terminal Arrow-shape crimped terminal
Z	Special

■ Resin immersion holder: HC-G70

1. The resin (transparent PVC or PP) immersion holder is available to be combined with GSS/PSS/ASS tip replacement electrode, either KCl non-refilled type or KCl refilled type electrode is available.
2. Sample water conditions
 Temperature: Less than 60°C (PP material is 80°C)
 Pressure: Atmospheric pressure
 Conductivity:
 KCl non-refilled type
 ...100mS/m (1000μS/cm) above
 KCl refilled type ...10mS/m (100μS/cm) above
3. Specify one of the following holder mounting bracket if it's required.
 Mounting bracket: ZC-2 (maximum holder length: 2.0m), or ZC-1 and support tool ZN-7
 Loose fringe: ZFL-3 or ZFL-4 type
4. Order separately in case you need to add a cleaner such as ultrasonic, water jet, solution jet, pulsed air jet, etc.



Holder Internal KCl Storage and Structure

The immersion type of HC-G70, equipped with KCl refilled electrode (GSS/PSS/ASS-314B type) is available to store large volume of KCl (3.3mol/L) internal liquid in the holder.

(In case, 1m -length holder per about 450mL storage)

KCl internal liquid can be easily refilled by removing the rubber cap at the top of the holder and the atmospheric pressure is kept inside of the holder by reattaching the rubber cap.

(The holder is not sealed internally, and KCl flows out stably).

In addition, PVC holder is transparent, so the storage volume is easily observed.

(Refer to the chart on the right to check the storage volume and refill)

The electrode is screwed into the holder with o-ring sealed. A protection barrel is also fixed on the holder

Product code

HCG70-2-□□□□□

1	Holder length *1
2	0.5m
3	1.0m
4	1.5m
5	2.0m
6	2.5m
	3.0m
A	Holder material *2
B	Transparent chloroethylene (PVC3)
	Translucent polypropylene (PP)
0	KCl 500mL attached *3
1	None
2	one 500 mL attached
3	two 500 mL attached
	three 500mL attached
0	Holder guide test *4
1	None
	Attached SUS316
A	Protection barrel shape
B	For general application
C	For ultrasonic cleaner (UHC)
D	For solution cleaner (RHC)
	For pulse air-injection cleaning machine (PHCG)
1	Marking status*3
2	Standard - Japanese
	Specified - English

Custom spec. code; A
 Numeric digit: 9
 Alphabet: Z

*1. The length beyond this point is not manufactured in principle.
 Due to poor maintenance, drop-in model of HC-G95 is recommended for above 3m.

*2. Two types of materials are available: The transparent PVC with excellent weather resistance and the translucent PP with excellent heat and chemical resistance.

*3. In case of KCl refilled electrode is combined, 500mL KCl is required per 1m-length holder at the start-up.
 A specification is that KCl of 3.3 molar 143F234 of solutions is attached for domestic use and 123g (Code No.143A116) for overseas use.

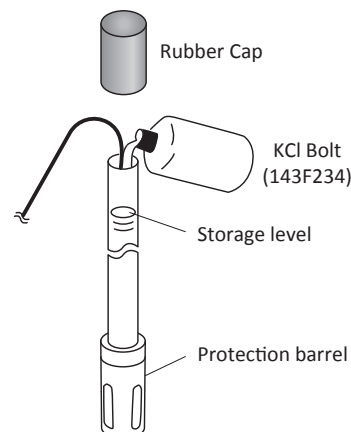
*4. Select "with" when combined with the holder support tool ZN 7 or UHC/RHC cleaner.

The combination electrodes are shown in the table below.

Please specify one of them below.

Classification	KCl non-refilled type	KCl refilled type
pH General use	GSS-304B	GSS-314B
Fluoric acid resistance	GSS-304F	GSS-314F
High alkalinity	GSS-304A	GSS-314A
ORP General (Pt)	PSS-304B	PSS-314B
Sewage (Night Soil) (Au)	ASS-304B	ASS-314B

preventing electrode from any damage. The maintenance operation such as electrode cleaning and tip replacement can be easily performed by removing the protection barrel.

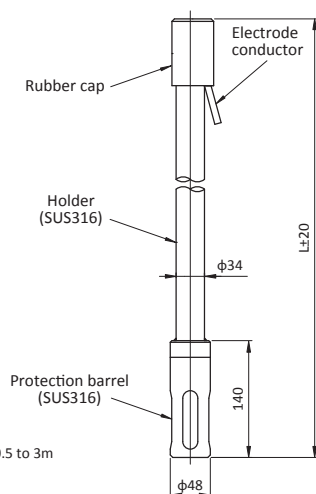


■ Stainless steel immersion holder: HC-G72 type

1. GSS/PSS/ASS tip replacement KCl non-refilled electrode is assembled in the stainless steel immersion holder.
2. Sample water conditions
Temperature: 80°C below (including electrode)
Pressure: barometric pressure
Conductivity: 100mS/m (1000µS/cm) above
3. Please select holder mounting bracket below if needed.
Mounting bracket: ZC-2 type (maximum holder length: 2.0m), or ZC-1 type and support tool ZN-7 type
Loose flange: ZFL-3 type, or ZFL-4 type
4. Please order attached ultrasonic, water spray, solution spray devices and pulse air-injection cleaner additionally if needed

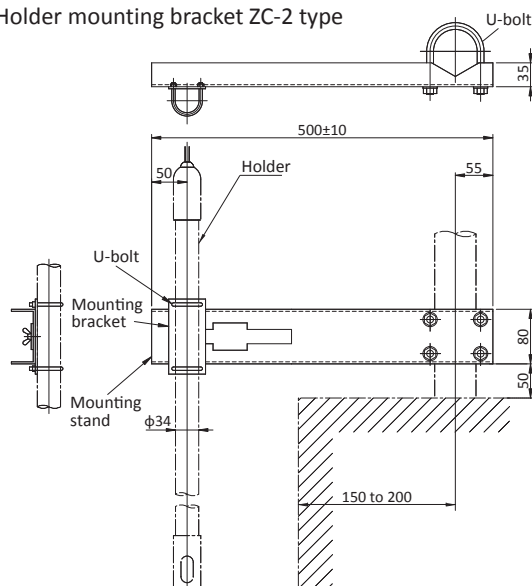
Dimensions

Unit : mm



■ Immersion holder mounting bracket

- Holder mounting bracket ZC-2 type



Product code

HCG72-0-□□□□

Holder length * ¹	
1	0.5m
2	1.0m
3	1.5m
4	2.0m
5	2.5m
6	3.0m
9	Special
Holder material	
A	SUS316
B	SUS316L
Z	Special
Holder guide test * ²	
0	None
1	Attached SUS316/SUS316L
9	Special
Marking status	
1	Standard - Japanese
2	Designated - English

*1. The length beyond the cleaning solution is not generated in principle.

*2. When the holder support tool ZN-7 type is assembled with UHC/RHC type cleaner, please select the “attachment”.

The combined electrode is as shown in the table below.
Please specify one of them.

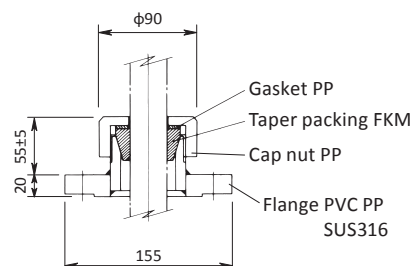
Classification		KCL non-refilled type
pH	General	GSS-304B
	Fluoric acid resistance	GSS-304F
	High alkalinity	GSS-304A
ORP	General (Pt)	PSS-304B
	Sewage (night soil) treatment (Au)	ASS-304B

- Holder mounting flange (Loose flange)

The Holder immersion depth can be changed.

Model	Material	Flange specification
ZFL-3	PVC or PP	50A JIS 10K FF
ZFL-4	SUS316	50A JIS 10K RF

* Max. nominal diameter can reach 200A, and JIS 5K, ANSI, JPI can be also produced.



■ Drop-in type (throw-in type) detector: HC-G95

1. GSS/PSS/ASS tip replacement KCl non-refilled electrode is assembled in the drop-in type (throw-in type) type detector. The protection tube (conduit) is made of 50A SUS304 or PVC material.

PVC material strength is weaker, so SUS304 material is recommended when the flow rate of aeration tank is very fast. (0.5m/sec above).

2. Sample water conditions

Temperature: 60°C Pressure: barometric pressure

Conductivity: 100mS/m (1000μS/cm) above

3. The combined electrode shown in the table below.

Please specify one of them.

Combined electrode	Classification		KCL nonrefilled type
	pH	General	GSS304B-1-□T□
	ORP	General (Pt)	PSS304B-1-□T
		Sewage (night soil treatment (Au))	ASS304B-1-□T

4. Please select any protection tube mounting bracket below if you need.

50A tube mounting ...ZSSC-20 type

Flange mounting (SUS Loos sealed type) ...

ZFK-2 (S) recommended specification: 100A

JIS10K FF SUS304.

5. Please order attached ultrasonic, water spray, solution spray devices and pulse air-injection cleaner specially if you need.

Product code

HC	G95	-1	□	□	□	□		
			A					Electrode holder material
								Rigid chloroethylene (PVC)
								Protection tube (50A conduit)*1
								None: drop-in type (throw-in type)
								PVC material
								SUS304 material
								Length of protection tube (50A conduit)*2
								Non-conforming (no protection tube)
								2m
								3m
								4m
								4m (two pieces separated type)
								5m (two pieces separated type)
								6m (two pieces separated type)
								With rubber stopper for protection tube or not*3
								Non-attached (No protection tube)
								Attached
								Notation
								A Standad - Japanese
								B Specified - English

*1. If there is no protection tube (conduit), it will become drop-in type (throw-in type).

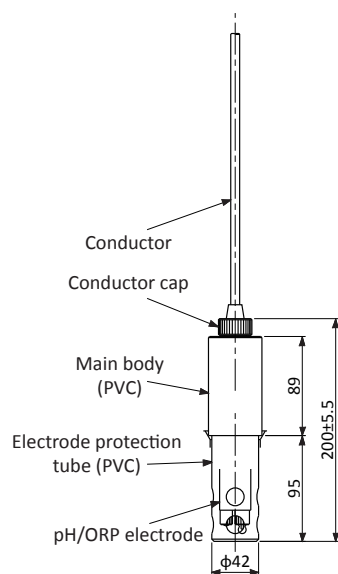
*2. If the protection tube length exceeds 4m, SUS304 material will be two pieces separated flange type, and PVC material will be two pieces separated socket (attached) type.

*3. This is the odor-resistance rubber stopper for the protection tube fixed with loose flange, etc. in the sealed tank.

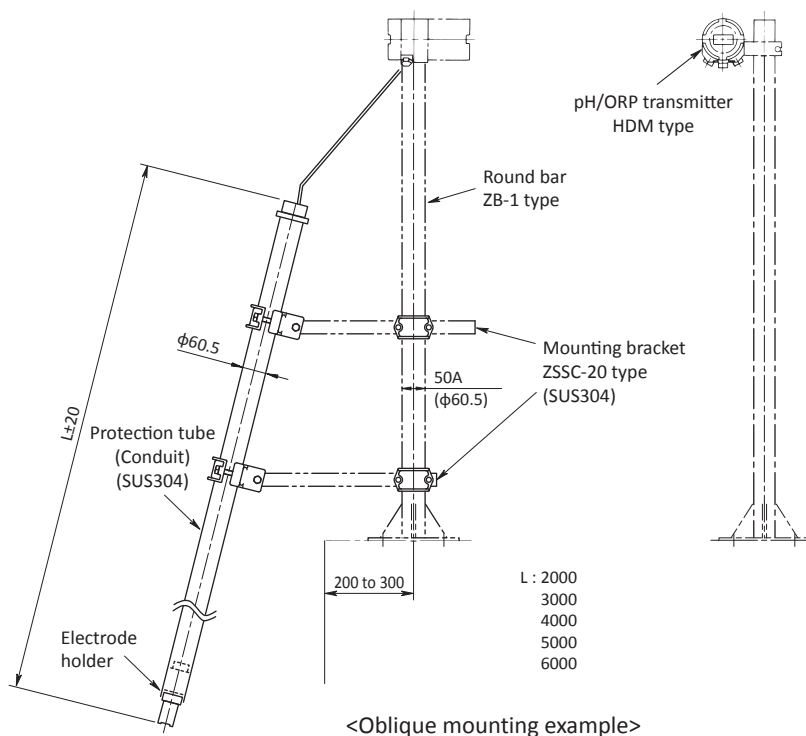
Dimensions

Unit : mm

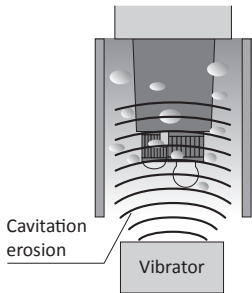
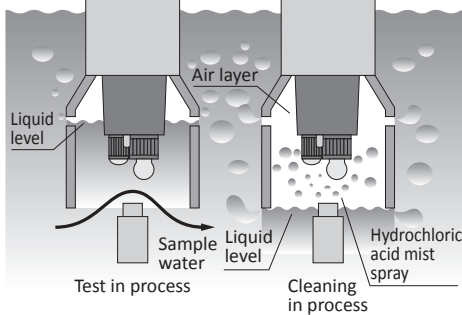
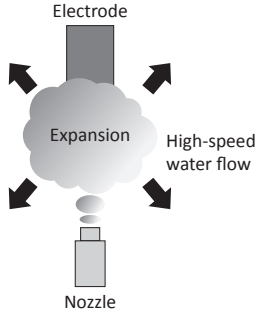
● Drop-in type (throw-in type)



● Drop-in type for aeration tank



■ Detector with automatic cleaning function: cleaning method

Ultrasonic cleaning: UHC-7D type	Chemical cleaning: RHC-7C/7EC type	Pulse air-injection cleaning: PHCG-7D/95D type
 <p>By efficiently irradiating ultrasonic waves to the sensitive area, the cavitation effect provides a cleaning effect. The cleaning effect is also improved by the burst oscillation method.</p>	 <p>Large amount of air and solution (generally 5% hydrochloric acid) is sprayed from the nozzle according to a certain period. The crystalline pollution attached at the electrode sensor part is removed through chemical reaction and dissolution.</p>	 <p>Contamination is removed by the highspeed water flow generated when compressed air (0.2MPa) from the jet nozzle expands in the water.</p>

■ Immersion detector with ultrasonic cleaning function: UHC-G7D type

1. Immersion detector with ultrasonic cleaning, combined with tip-replaceable GSS/PSS/ASS-304B and 314B electrodes.

2. Please order the electrode separately.

Both pH and ORP electrodes are available for KCl non-refilled and KCl-refilled type.

Please order the required internal liquid of reference electrode for KCl refilled type (500mL, No.143F234)

Classification	KCL non-refilled (diffusion) type	KCL refilled type
pH General	GSS-304B	GSS-314B
Fluoric acid resistance	GSS-304F	GSS-314F
High alkalinity	GSS-304A	GSS-314A
ORP General (Pt)	PSS-304B	PSS-314B
Sewage (night soil) treatment (Au)	ASS-304B	ASS-314B

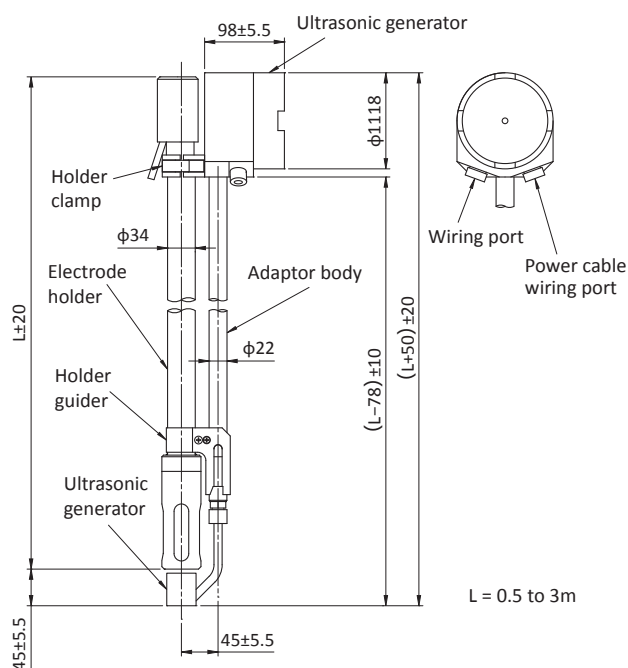
3. Please select one of the protection tube mounting bracket below if needed.

Mounting bracket: ZC-1 type or ZC-1 type

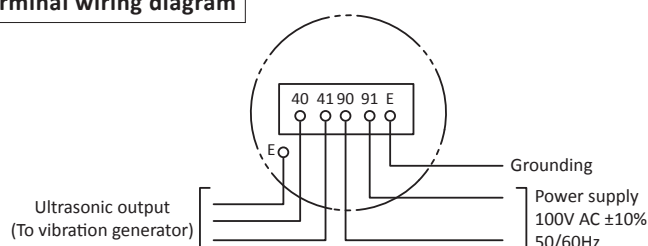
Mounting flange: ZFK-1 type (Max. length of detector: 1.5m) or ZFK-2 type

Dimensions

Unit : mm



Terminal wiring diagram



Product code

UHC7D-0-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Oscillator form
A						In one unit (Standard)
B						Separate type * ¹
						Wet material in cleaning part
1						SUS316 (Standard)
2						Vibrator Titanium, Support Tube PP * ²
3						Vibrator Titanium, Support Tube SUS316L
						Combination holder * ³
0						Holder not required
1						PP holder
2						Transparent PVC holder
						Combination holder length * ⁴ ← Depend on the detector length
1						0.5m
2						1.0m
3						1.5m
4						2.0m
5						2.5m
6						3.0m
						Surface finishing (Coating)* ⁵
A						Standard coating
B						Heavy-duty corrosion-resistant coating
						Built-in arrester* ⁶
0						No
1						Yes
						Notation form
0						Standandard
1						English

Custom spec. code;
Numeric digit: 9
Alphabet: Z

*1. When the oscillator is separated, the cable (OD $\varnothing 12$) 6m from the oscillator to detector is attached.
(Holder length needed is included)

*2. Titanium vibrator and PP support tube are limited to the oscillator separated type, and the combination holder's maximum length is in 2m.

*3. Combination Holder is the HC-G70 type for GSS Electrode, but a protection tube is used for UHC.

*4. Length production limits of the combination holder is 3m for PP material and 4m for transparent PVC material. Requirement for over 4m length to be handled by the drop-in type of the customized product.

*5. The Typical Oscillator coating is in melamine-resin undercoat and overcoat, with average film thickness of 30μ or more, and the glossiness of G40. Heavy anti-corrosive coatings are epoxy resin undercoatings and medium coatings, polyurethane resin over coatings, film thicknesses of 100μ or more, and glossiness of G80.

*6. Attach a ceramic surge arrester (simplified) to Power supply line.

Note

1. This is a model change from the UHC-7CG model, which can be combined with GSS/PSS/ASS type tip-changing electrodes. The ultrasonic oscillation method is burst oscillation.
2. Power supply is the free Power supply of AC100 to 240V.
3. The sample water maximum Temperature is 60°C.

Both pH and ORP electrodes are available in KCl non-refilled and KCl refilled types as shown in the table below.

In the case of the KCl refilled type, 500mL of KCl per meter of holder length is required at start-up.

FA specification is that KCl of 3.3 molar 143F234 of solutions is attached for domestic use and 143A116 (KCl powder reagent) is the required.

KCl is not required for KCl non-refilled type.

Classification		KCl Non-refilled	KCl refilled
pH	General purpose	GSS304B-1-□T□	GSS314B-1-□T□
	For high alkalinity	GSS304A-0-□T	GSS314A-0-□T
ORP	General purpose (Pt)	PSS304B-1-□T	PSS314B-1-□T
	Sewage (Night soil)(Au)	ASS304B-1-□T	ASS314B-1-□T

5. The potential of the ORP electrode may vary depending on the Pt/Au material.
6. The ultrasonic cleaner to refresh the electrode-sensitive part may cause the indication unstable depending on the sample water in the case of the ORP electrode.
Especially in the case of ORP control in sewage and human waste treatment, this may cause problems, so pulsed air jet cleaning (PHCG-7D type) is recommended.
7. If a detector mounting device is required, arrange one of the following separately.
Metal fitting: Model ZC-1 or ZC-2
Flange: Model ZFK-1 (detector length up to 1.5m) or Model ZFK-2

■ Immersion Detector with Chemical Solution Cleaning: RHC-7C/7EC

1. This is a chemical cleaner that combines the HDM-13□A transducer with the tip-replaceable GSS/PSS/ASS-3□4B.

In case using with HBM-10□B/16 transducer, in which the control unit is not required, you need to order the model of RHC-7EC separately.

2. Electrode must be ordered separately.

Both pH Electrode and ORP electrode are available with type of KCl non-refilled and KCl refilled.

For KCl refilled type, the inner solution volume requirement use Inner (cord No.143F234 per 500mL), what is ordered separately.

Classification	KCL non-refilled (diffusion) type	KCL refilled type
pH General	GSS-304B	GSS-314B
Fluoric acid resistance	GSS-304F	GSS-314F
High alkalinity	GSS-304A	GSS-314A
ORP General (Pt)	PSS-304B	PSS-314B
Sewage (night soil) treatment (Au)	ASS-304B	ASS-314B

3. Sample water condition

Temperature: 60°C max. (80°C for PP)

Pressure: Atmospheric release

4. If Detector mounting equipment is required, ask for one of the following:

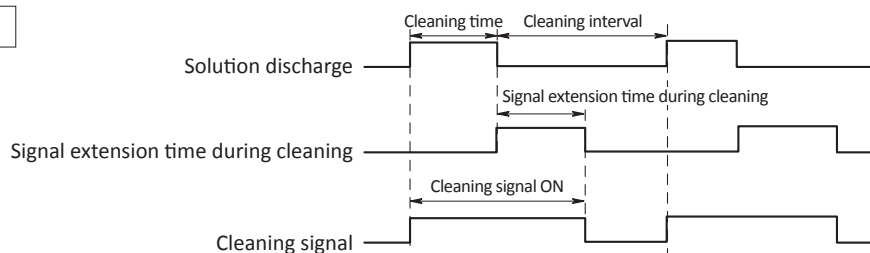
Mounting Bracket: ZC-Type 1 or ZC-Type 2

Mounting Flange: ZFK-1 type (up to Detector length 1.5m) or ZFK-type 2

5. As a Special Specifications, it's available to add Water Jet Cleaner (water ← hydrochloric acid ← water wash).

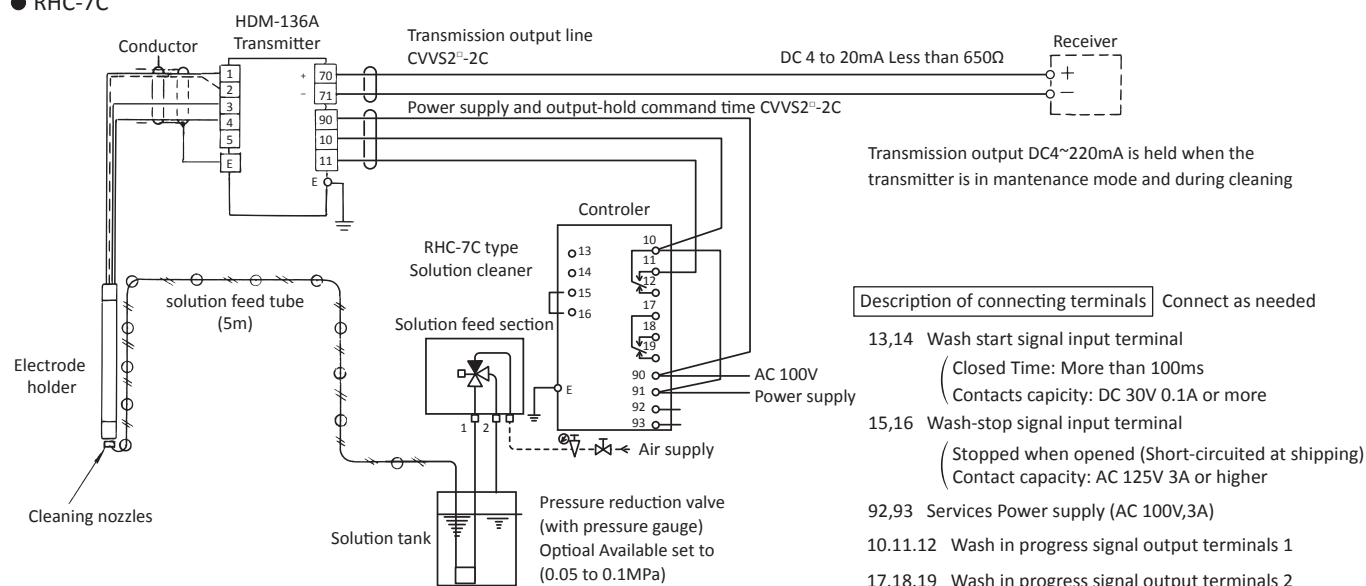
6. In case to incorporate with ORP Electrode, hydrochloric acid is not available to be used as a cleaning solution. Use 5 to 10% nitric acid (HNO₃) as the cleaning solution (due to the potential generated fluctuations occurred from detection Electrode oxidation).

Time Chart

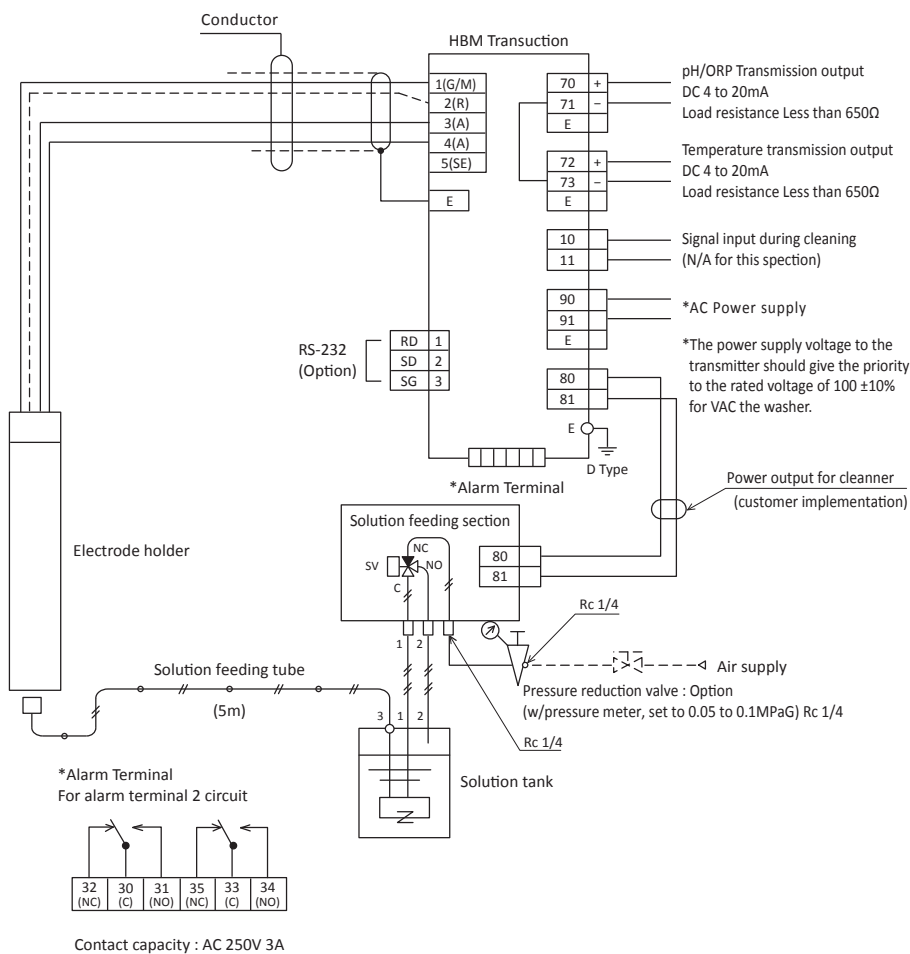


System Wiring and Flow Diagram

● RHC-7C



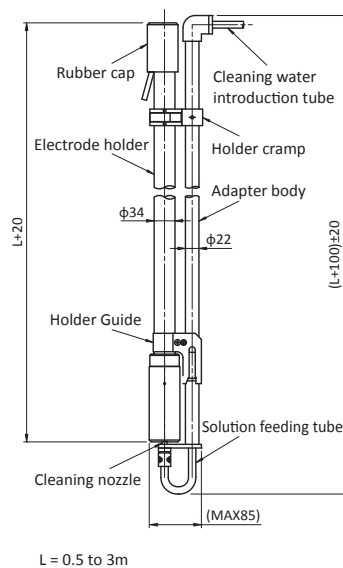
● RHC-7EC



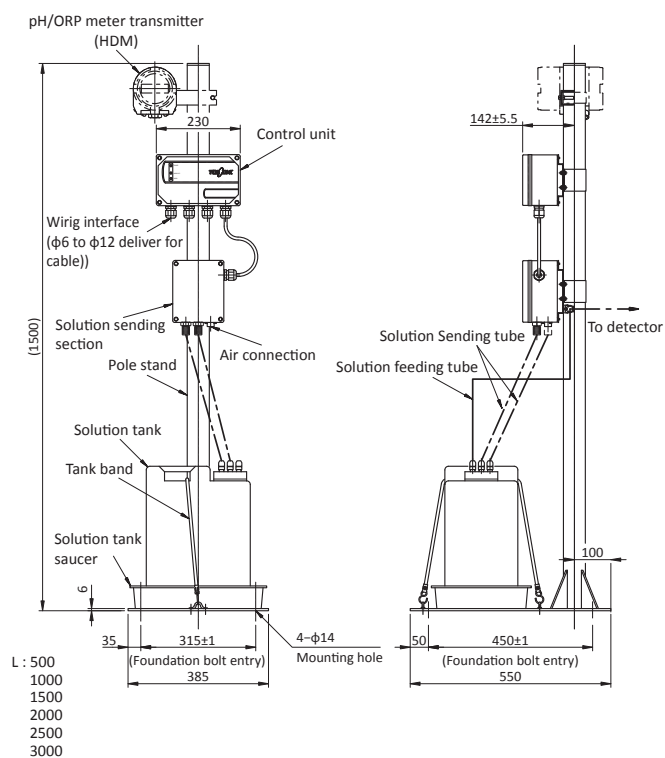
Dimensions

Unit : mm

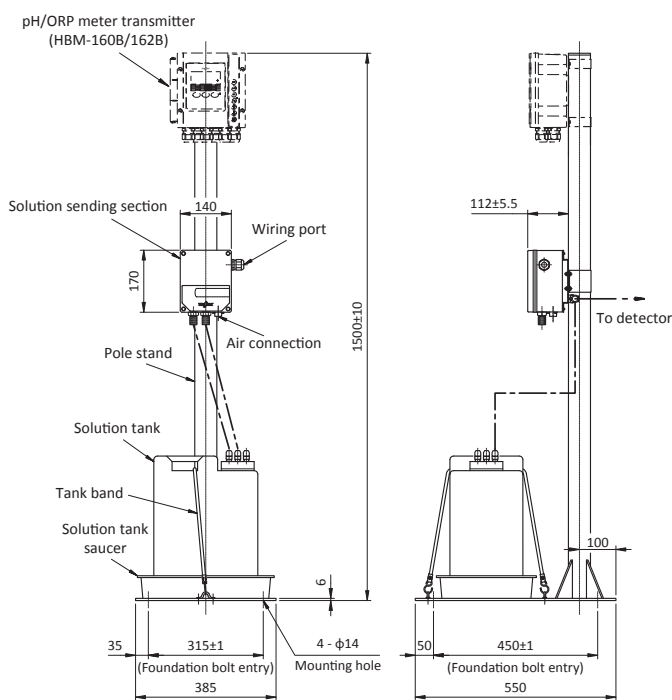
- Detector (In common)



● RHC-7C



- RHC-7EC (w/o controller)



The model name is RHC-7C/RHC-7EC, but the product code is RHC7CG-0-/RHC7ECG-0-

- *1. If Power supply is over 100V, use a step-down transformer separately (ZP-30 type: 35VA order and installed (Separately))
- *2. If all wet parts are made of PP, the holder length is in 2m the longest.
- *3. The combination holder is HC-G70 type for GSS Electrode, but the protection cylinder is special. There are two types of materials, one is transparent PVC with excellent weather resistance, and another one is translucent PP with excellent heat/chemical resistance.
- *4. For outdoor installation, a light-shielding cover is required to prevent deterioration of the solution tank from ultraviolet rays (sunlight).

- *1. This is the power supply voltage supplied as a control signal from the transmitter to be combined.
If the supply voltage is over 100V, a step-down transformer (Model ZP-30: 35VA) is required (Ordered and attached separately)
- *2. If all wet parts are made of PP, the holder length is in 2m the longest.
- *3. The combination holder is HC-G70 type for GSS Electrode, but the protection cylinder is special. There are two types of materials, one is transparent PVC with excellent weather resistance, and another one is translucent PP with excellent heat/chemical resistance.
- *4. For outdoor installation, a light-shielding cover is required to prevent deterioration of the solution tank from ultraviolet rays (sunlight).

■ Immersion detector with pulsed air jet cleaner: PHCG-7D

Drop-in type detector with pulsed air jet cleaner: PHCG-95D

1. This is an immersion Detector with pulsed air jet cleaner that combines with tip replaceable GSS/PSS/ASS-304B · 314B type electrodes.

It is mainly suitable for sewage treatment or wastewater treatment plants.

2. There are three types of cleaning control methods as shown in Type A/B/C, which can be selected depending on with or without air is supplied and the combination transmitter. Select Type C if air cannot be supplied.
3. Electrode must be ordered separately. (See the right table)

Both pH Electrode · ORP Electrode are available in KCl nonrefilled and KCl refilled type replenishment. For KCl refilled type, need to order inner solution for reference electrode separately. (cord No.143F234 with 500mL)

Classification	KCl non-refilled (diffusion) type	KCl refilled type
pH General	GSS-304B	GSS-314B
Fluoric acid resistance	GSS-304F	GSS-314F
High alkalinity	GSS-304A	GSS-314A
ORP General (Pt)	PSS-304B	PSS-314B
Sewage (night soil) treatment (Au)	ASS-304B	ASS-314B

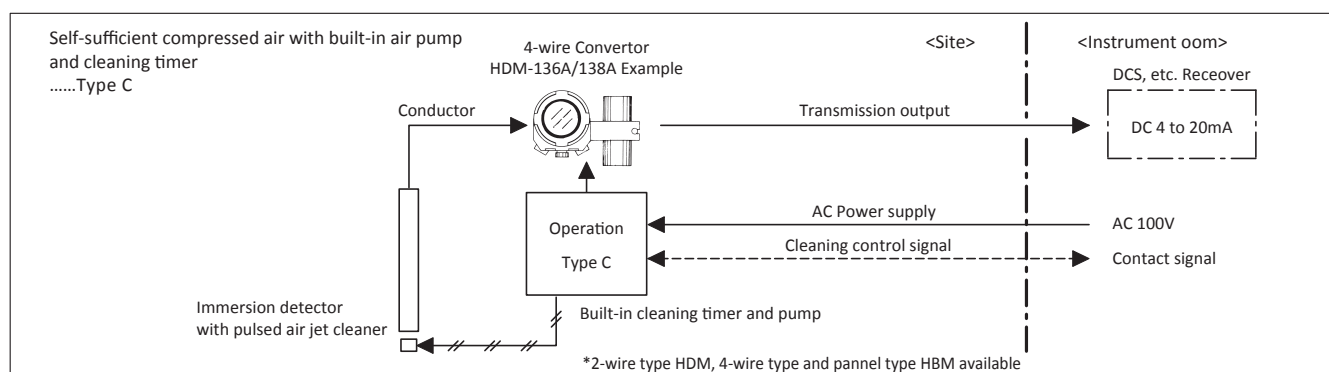
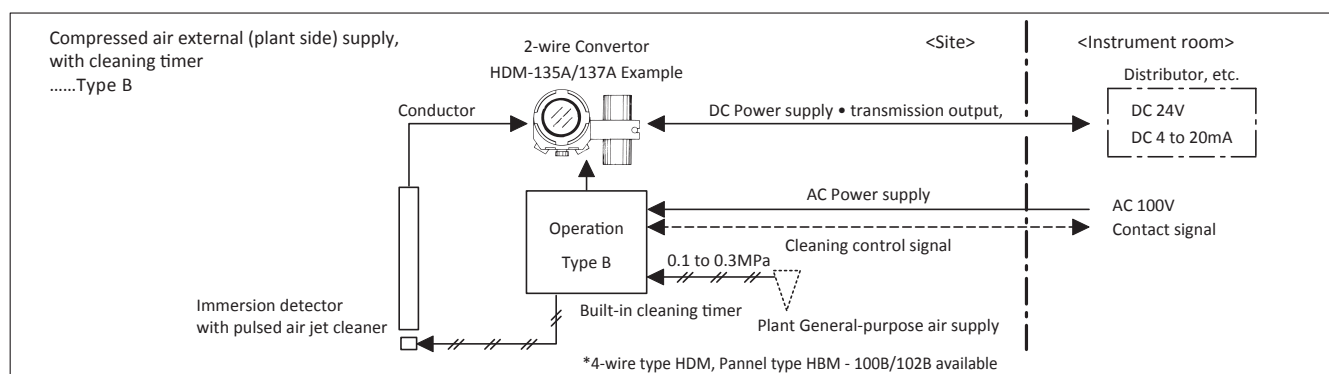
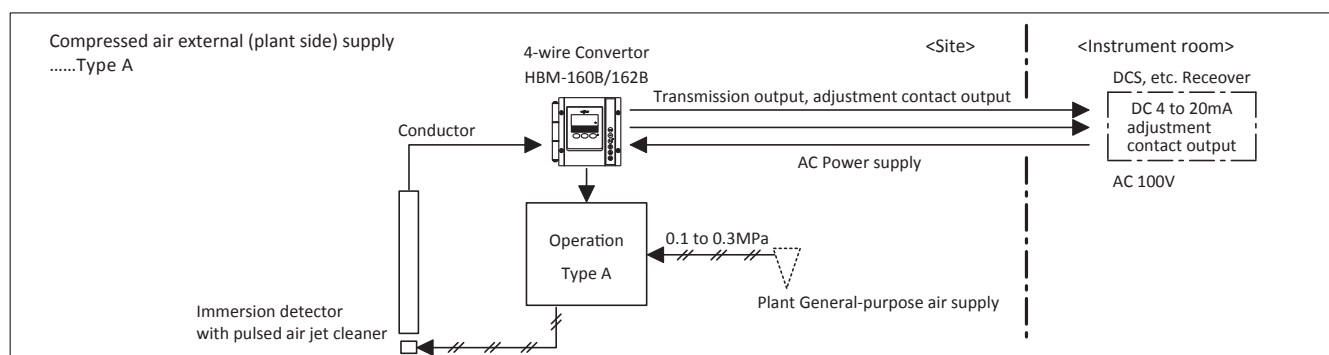
4. If Detector mounting equipment is required, select one of below Mounting bracket: ZC-1 or ZC-2

Attached flange :ZFK-1 (Detector length maximum 1.5m) or ZFK-1

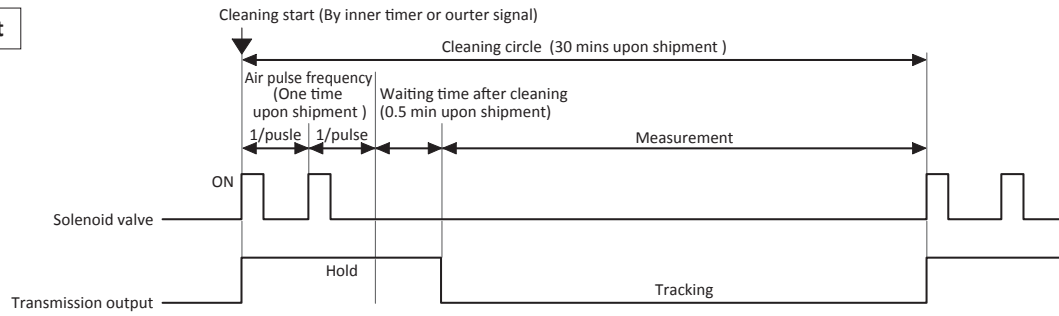
5. For immersion lengths longer than 2m, we recommend the drop-in type PHCG-95D, which is easy to maintain and operate.

The drop-in type combination electrode is only available for KCl non-refilled type. Protection tube fittings is ZSSC-20 .

Diagram



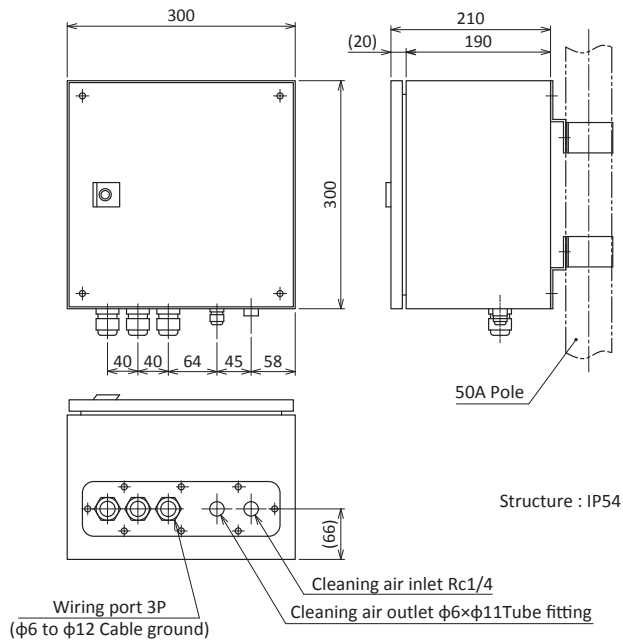
Time Chart



Dimensions

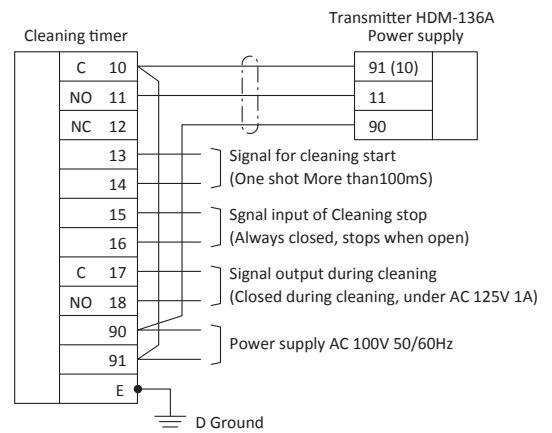
Unit : mm

● Operation (Type A/B)



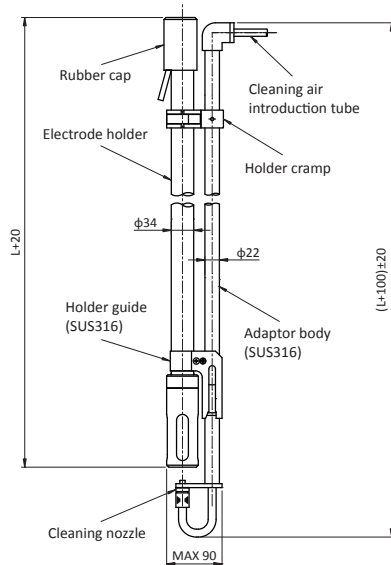
Cleaning timer connection

Type B/C Example for connecting with transmitter HDM-136A

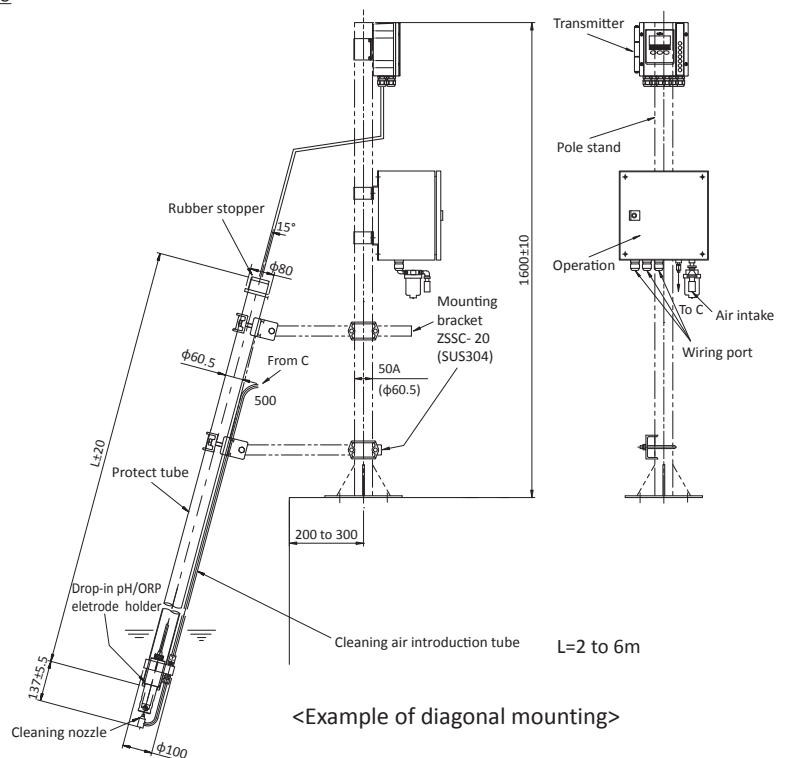


● PHCG-95D Drop-in Detector (Type C Example) (Built-in air pump)

● PHCG-7D Immersion type detector

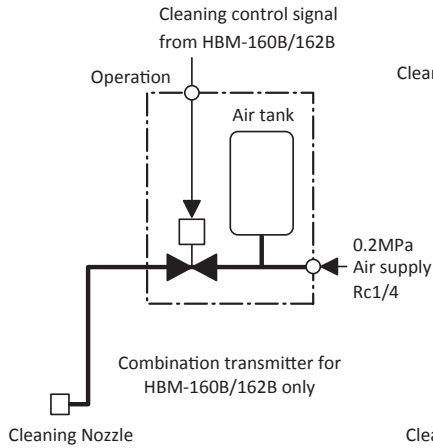


L=1 to 3m

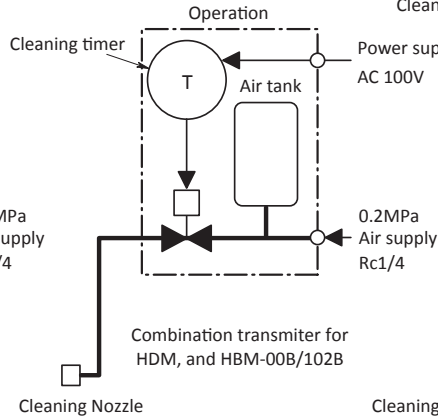


Flow Sheet

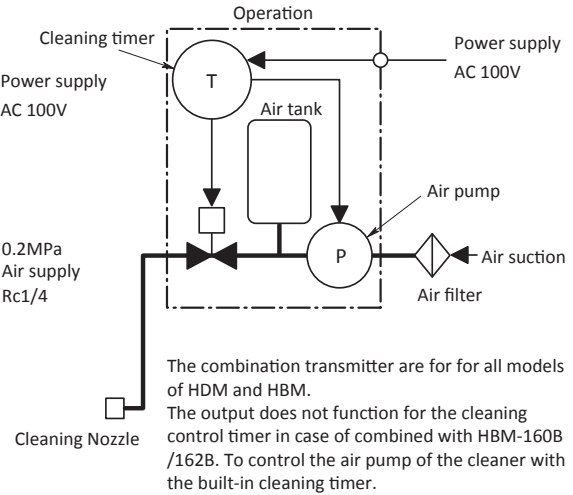
●Type A: Cleaning Timer and w/o air pump



●Type B: With Cleaning Timer a w/o air pump



●Type C: Cleaning Timer and with air pump



Product code

PHCG7D-1-□□□□□	Compressed air supply *1
1	Type A External supply
2	Type A External supply • built-in pressure reducing valve with filter
3	Type B External supply • built-in cleaning timer
4	Type B External supply • built-in cleaning timer Built-in pressure reducing valve with filter
5	Type C Air built-in self-contained cleaning timer
A	Built-in power supply voltage Specified 50/60Hz with AC 100V
B	Built-in power supply voltage Specified 50/60Hz with AC 110 to 120V *2
C	Built-in power supply voltage Specified 50/60Hz with AC 200 to 240V *2
A	Combination holder Transparent PVC (HC-G70, sample water temperature Max.60°C)
B	Combination holder PP (HC-G70, sample water temperature Max.80°C)
1	Length of combination holder 1.0m
2	Length of combination holder 1.5m
3	Length of combination holder 2.0m
4	Length of combination holder 2.5m
5	Length of combination holder 3.0m
0	Hood (Sun shade of operation area) No
1	Hood (Sun shade of operation area) Yes
0	Built-in arrester No
1	Built-in arrester Yes *3
A	Notation Standard
B	Notation English

PHCG95D-1-□□□□□	Compressed air supply *1
1	Type A External supply
2	Type A External supply • built-in pressure reducing valve with filter
3	Type B External supply • built-in cleaning timer
4	Type B External supply • built-in cleaning timer Built-in pressure reducing valve with filter
5	Type C Air built-in self-contained cleaning timer
A	Built-in power supply voltage Specified 50/60Hz with AC 100V
B	Built-in power supply voltage Specified 50/60Hz with AC 110 to 120V *2
C	Built-in power supply voltage Specified 50/60Hz with AC 200 to 240V *2
1	Combination holder Hard PVC Made (HC-G95, sample water temperature Max.60°C)
1	Protection tube material SUS304
2	Protection tube material SUS316
A	Protection tube length 2.0m
B	Protection tube length 2.5m
C	Protection tube length 3.0m
D	Protection tube length 3.0m (2 Divisions)
E	Protection tube length 3.5m
F	Protection tube length 3.5m (2 Divisions)
G	Protection tube length 4.0m
H	Protection tube length 4.0m (2 Divisions)
J	Protection tube length 4.5m (2 Divisions)
K	Protection tube length 5.0m (2 Divisions)
L	Protection tube length 6.0m (2 Divisions)
0	Hood (Sun shade of operation area) No
1	Hood (Sun shade of operation area) Yes
0	Built-in arrester No
1	Built-in arrester Yes *3
A	Notation Standard
B	Notation English

[Common]

*1. The combination transmitter changes depending on the compressed air supply method (TypeA/B/C).

Type A	HBM-160B/162B
Type B	HDM-135A/136A/137A/138A, HBM-100B/102B
Type C	HBM-160B/162B, HDM-135A/136A/137A/138A, HBM-100B/102B

*2. Specify from AC 110V/115V/120V or AC 200V/220V/230V/240V (AC 100V step down transformer Built-in operation part)

*3. Install a ceramic surge arrester on the power supply line in the case of Type B/C (with built-in wash timer).

■ Combination pH/ORP Analyzer/Transmitter

On-site installation type (2 wire type)
HDM-135A / HDM-137A



- 2-wire, rainproof structure with built-in microcomputer, site-installed type
- Range of changeable transmission output (4 to 20mADC)
- Transmission output value kept in maintenance
- Power supply: 2-wire 24V DC
- Auto-pass / fail judgement for electrode deterioration
- Measurement range
pH meter (HDM-135A): pH-1 to 14
ORP meter (HDM-137A): -2000 to +2000mV

On-site installation type (4 wire type)
HDM-136A / HDM-138A



- 4-wire, rainproof structure with built-in microcomputer, site-installed type
- Range of changeable transmission output (4 to 20mADC)
- Transmission output value kept in maintenance
- Power supply is AC 90 to 132V or 180 to 264V free Power supply
- Auto-pass / fail judgement for electrode deterioration
- Measurement range
pH meter (HDM-136A): pH-1 to 14
ORP meter (HDM-138A): -2000 to +2000mV

On-site installation type (4 wire type)
HBM-160B / HBM-162B



- Practical functions are equipped on the solid aluminum die casting
- Transmission output (4 to 20mA) of the two-circuit (pH/ORP, liquid Temperature)
- Range of changeable transmission output (4 to 20mADC)
- With upper/lower limit adjustment contact (4-point alarm available)
- Display unit with back light
- The power supply is 100 to 240VAC free power supply
- Measurement range
pH meter (HBM-160B): pH-1 to 15
ORP meter (HBM-162B): -2000 to +2000mV

Panel installation type
HBM-100B / HBM-102B



- Compact DIN96 size
- Range of changeable transmission output (4 to 20mADC)
- With upper/lower limit adjustment contact (4-point alarm available)
- Display unit with back light
- The power supply is 100 to 240VAC free power supply
- Measurement range
pH meter (HBM-100B): pH-1 to 15
ORP meter (HBM-102B): -2000 to +2000mV



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CAUTION

Please read the operation manual carefully before using products.