ISO-14001
ISO-9001

SPECIFICATION SHEET

TOA DKK

IMMERSION TYPE SENSOR WITH CHEMICAL CLEANER

Models: **RHC-7C/7EC**

This sensor has an immersion type pH/ORP electrode holder combined with a chemical cleaner. A mixture of chemical solution and air is sprayed on to the sensor section of the electrode to dissolve and remove fouling build-up. This cleaning system is particularly effective for removing crystal scale made from hydroxides. The chemical solution used for cleaning is normally 5% hydrochloric acid. Alkaline solution and neutral detergent can also be used depending on the type and extent of the fouling.

During cleaning, an air gap is formed around the sensing section of the electrode and this isolates the sensor tip from the sample. Thus, even a small quantity of chemical solution (approx. 100mL) is sufficient for effective cleaning.

RHC-7C is equipped with a lamp to indicate under-cleaning/ preliminary notice before cleaning. RHC-7EC must be combined with transmitter that has outputs for cleaner control as it does not have timer function (controller).

STANDARD SPECIFICATIONS

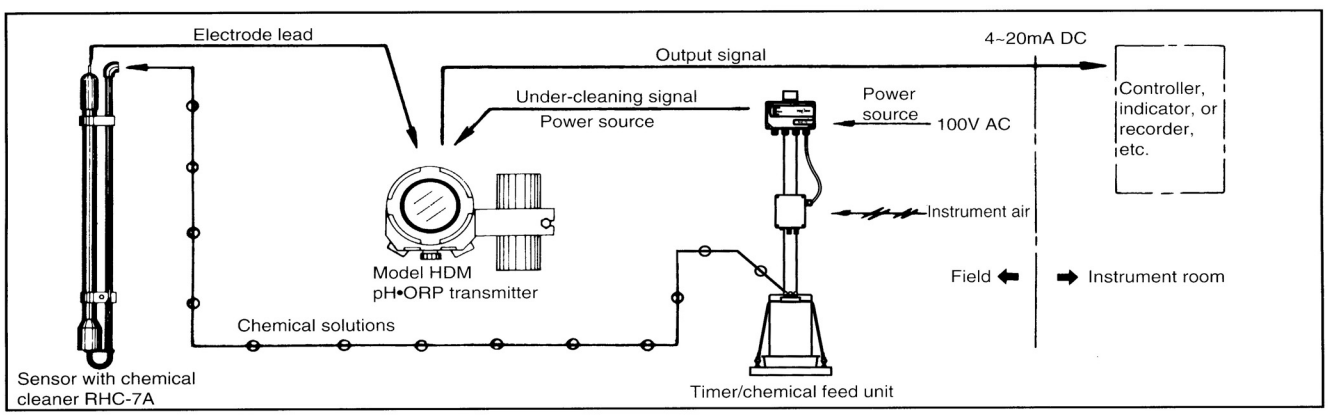
Product Name	:	Immersion type sensor with chemical cleaner
Models	:	RHC-7C, RHC-7EC
Measurement Object	:	pH/ORP
Cleaning Method	:	Cyclic cleaning with reagent solution spray combined with air-gap.
Cleaning Solution	:	Hydrochloric/nitric acid or others
Cleaning Cycle*	:	0.1~12h
Chemical Solution Spraying Duration*	:	0~1min
Extended Time after Spraying*	:	0~5min
"Under Cleaning" Signal Duration*	:	0~6min
Installation	:	Timer/chemical feed unit; 50A pipe or wall mount. Sensor; bracket or flange mount.
Ambient Temperature	:	-5~50°C
Sample Conditions		
Temperature	:	-5~80°C (no freezing, temp range limited by holder type used)
Pressure	:	Atmospheric
Chemical Solution	:	5~15% HCℓ or HNO3 aqueous solution. Consumption; Approx. 100mL/cleaning (effective capacity of tank; approx. 18L)
Air Requirements		
Quality	:	Instrument air or equivalent
Pressure	:	0.1MPa
Consumption	:	15~20NL/min

The pole stand is available as an option and the sensor bracket needs to be ordered separately.

Power Requirements	:	100V AC, 50/60Hz
Power Consumption	:	25VA
Input/output Signals*		
Under-cleaning output	:	Contact switching signal, contact rating: 125V AC, 1A.
Cleaning start input	:	Cleaning starts when contacts are closed for 100mS or more, internal load rating: 30V DC, 0.1A or more
Cleaning stop input	:	Cleaning stops when contacts open, internal load rating: 125V AC, 3A or more
***does not apply to RHC-7EC.**		
Length of Sensor Section	:	0.5m, 1.0m, 1.5m, 2.0m, 2.5m or 3.0m (to be specified)
Wetted Materials	:	316S.S., Viton, polypropylene, soft PVC, PPS
Weight		
Sensor	:	Approx. 3kg (Holder; 1m)
Timer/chemical feed	:	Approx. 9kg (Pole-stand excluded)
Construction	:	Rainproof type (IP 54)
Paint colour	:	Metallic silver and blue

SYSTEM SPECIFICATIONS

(Typical configuration with Model HDM transmitter)



Related Transmitter : RHC-7C; Model HDM
RHC-7EC; Model HBM-310, HBM-100A

Related Equipment : Bracket; Model ZC-1
Bracket for sensor length 0.5~2.0m, is type A or B.
Bracket for 2.0m or longer is type C.
Bracket (stainless steel); Model ZC-2 (max. sensor length; 2m)
Mounting flange (open flange)
Model ZFK-l (100A JIS 10K FF, PVC material)
Model ZFK-2 (100A JIS 10K FF, 316 S.S material)

Sample temperature range for typical combination of holder and electrode

Holder	Holder material	Integrated pH electrode*		Integrated ORP electrode
		Model 5600	Model 5601	Model 2600
HC-703C	PVC	–5~60°C	——	–5~60°C
HC-763	Polypro-pylene	–5~70°C	–5~80°C	–5~70°C

* The resistance value of temperature compensation resistor is 10kΩ

OPTIONS

Pole stand
A 50A stanchion with base to which a timer/liquid feed unit and a tank can be mounted.

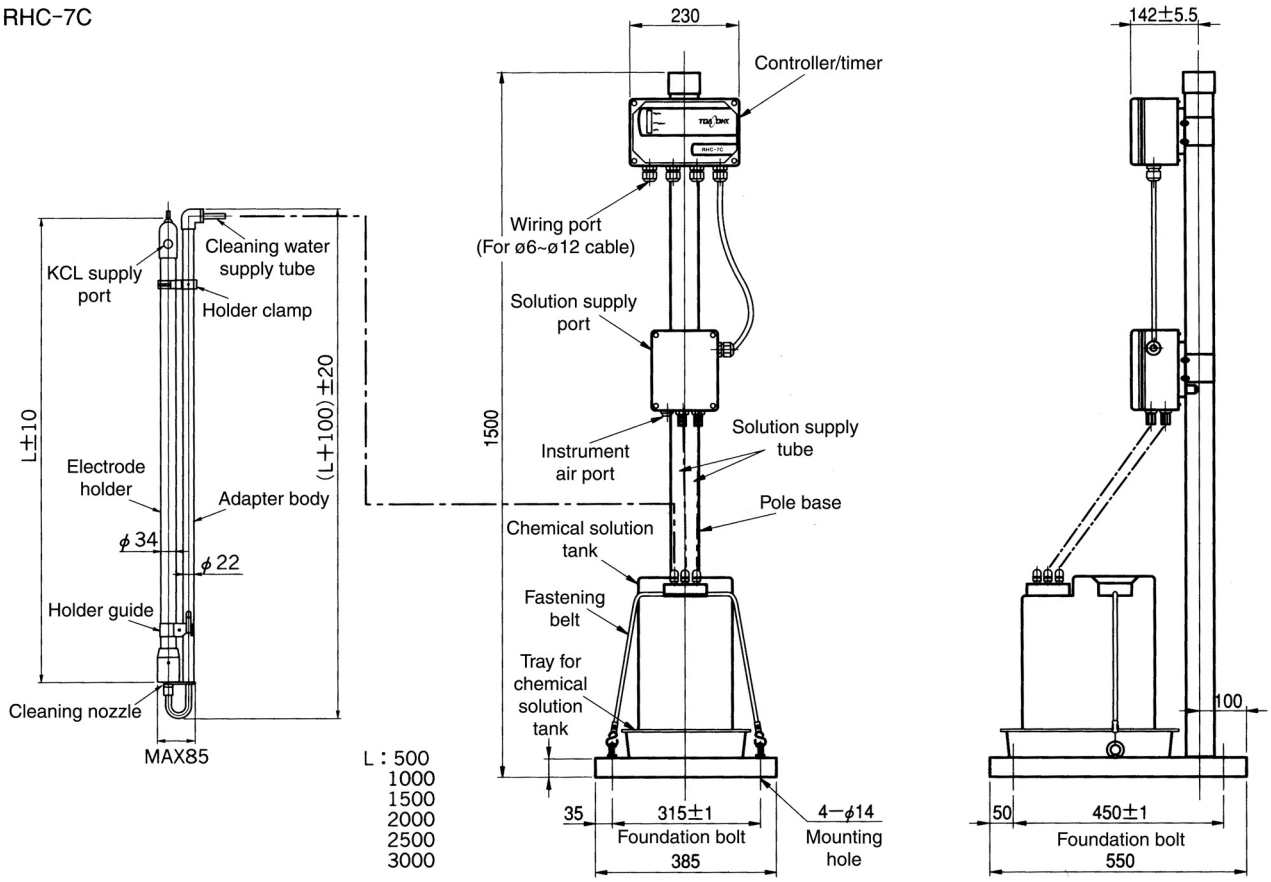
Pressure regulator for instrument air
Regulator with a low pressure filter and 0.3MPa pressure gauge. This is installed on the liquid feed unit and is used to set the chemical solution transfer pressure at 0.1MPa.

Air pump unit
When instrument air is not available, this unit should be added to the system. A pump with a capacity sufficient for chemical feed is housed in a rainproof case and is mounted on a 50A pipe.

DIMENSIONS

unit: mm

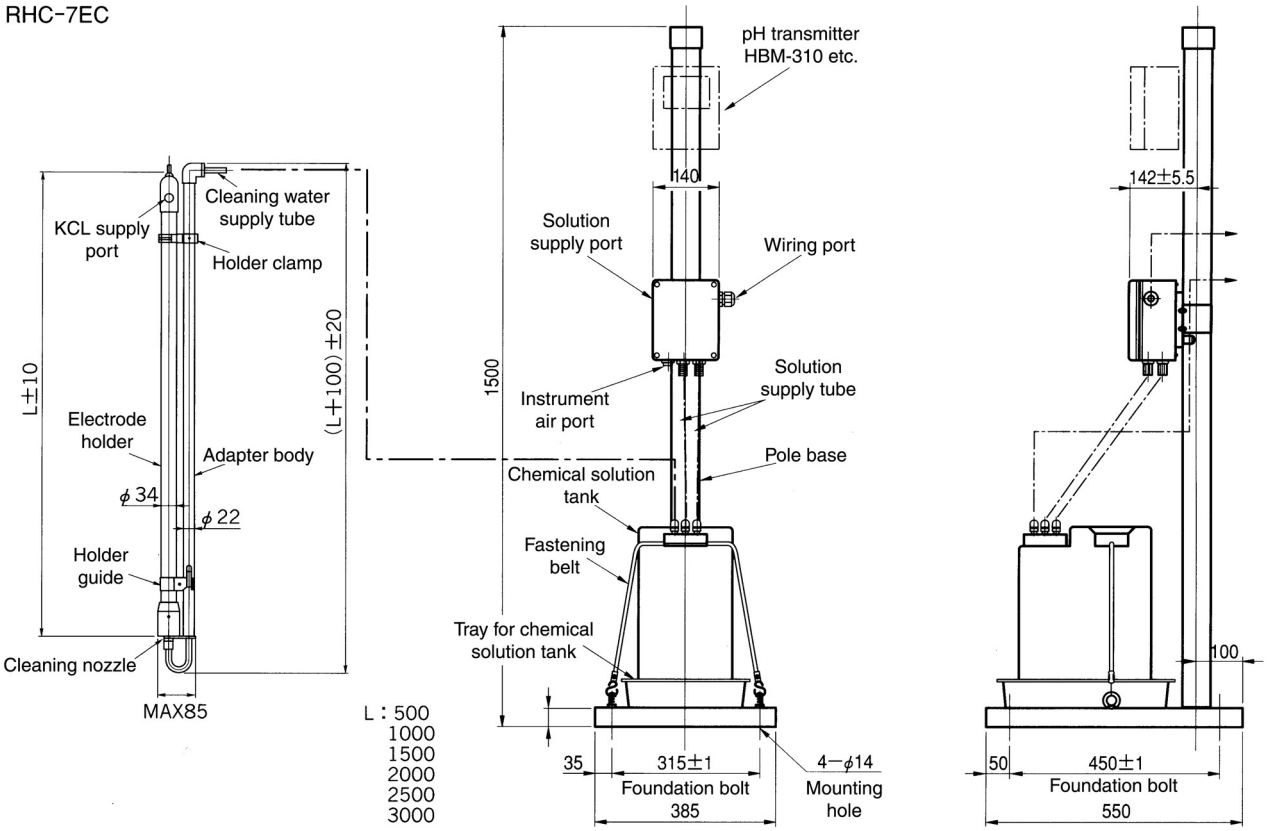
RHC-7C



DIMENSIONS

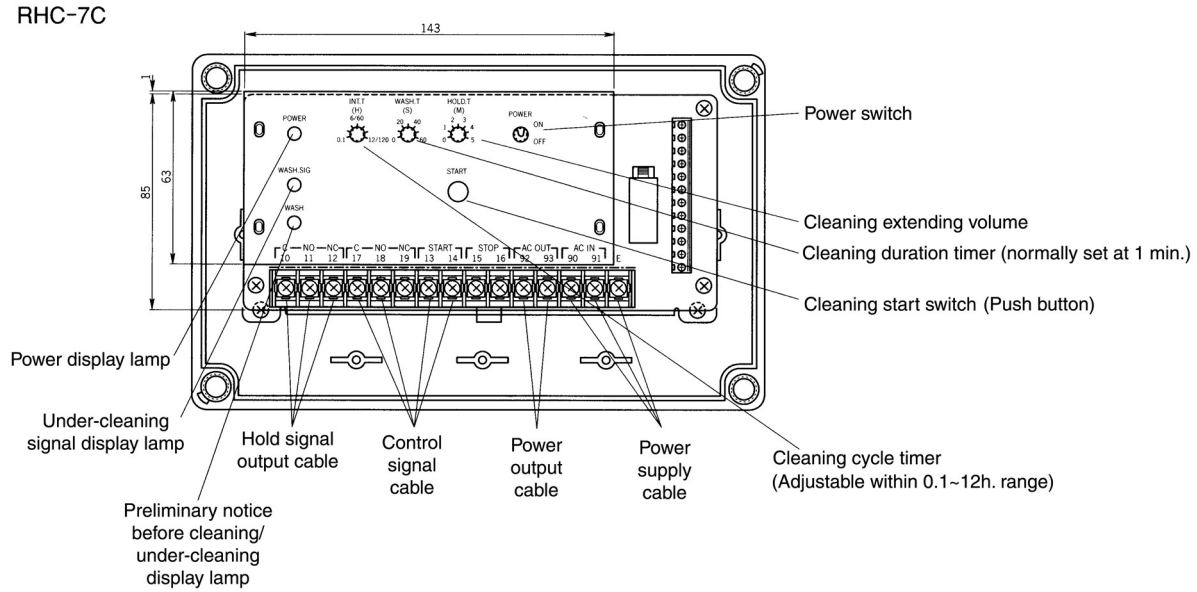
unit: mm

RHC-7EC

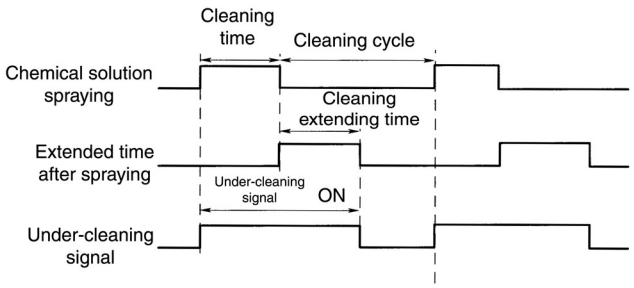


TIMER UNIT LAYOUT

RHC-7C



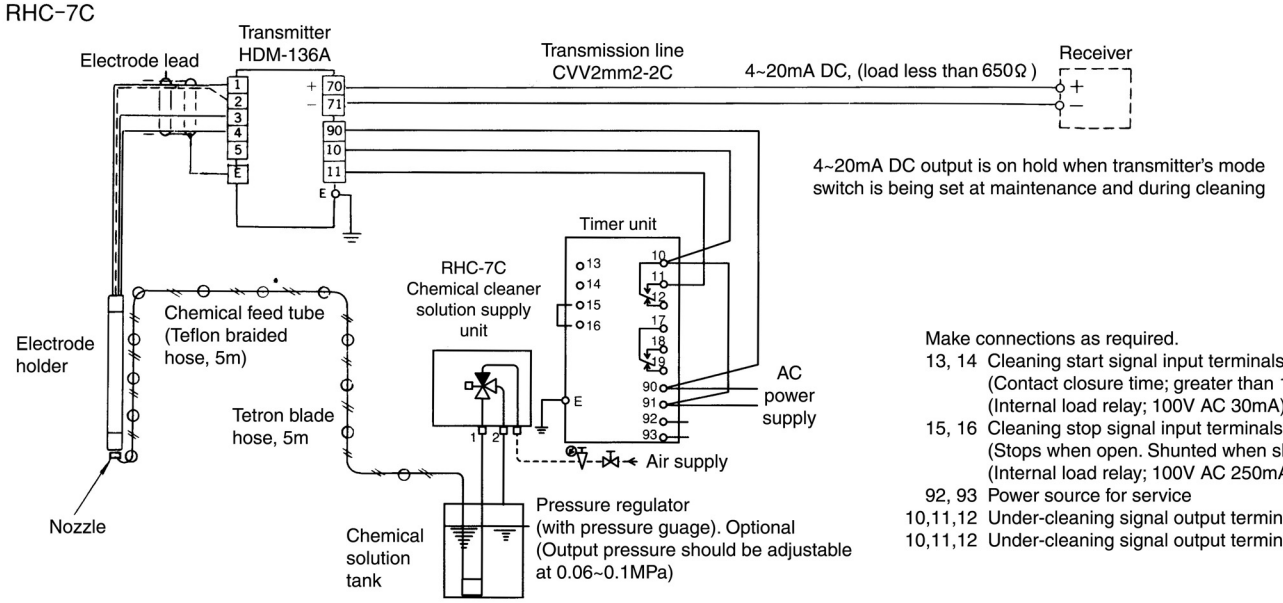
Time chart



10	C	Under-cleaning signal 1. Output terminals
11	NO	
12	NC	
17	C	Under-cleaning signal 2. Output terminals
18	NO	
19	NC	
13		Cleaning start input terminals (A contact signal input of 100ms or longer)
14		
15		Cleaning stop signal (Stop at the open position. Contact rating. 125V AC, 1A))
16		
92		Service power terminals (Useable as a power supply for pH indicator/transmitter These terminals are supplied via no fuse, and not ganged with the power switch. With 3A fuse)
93		
90		Power supply terminals
91		
E		Grounding connection terminals

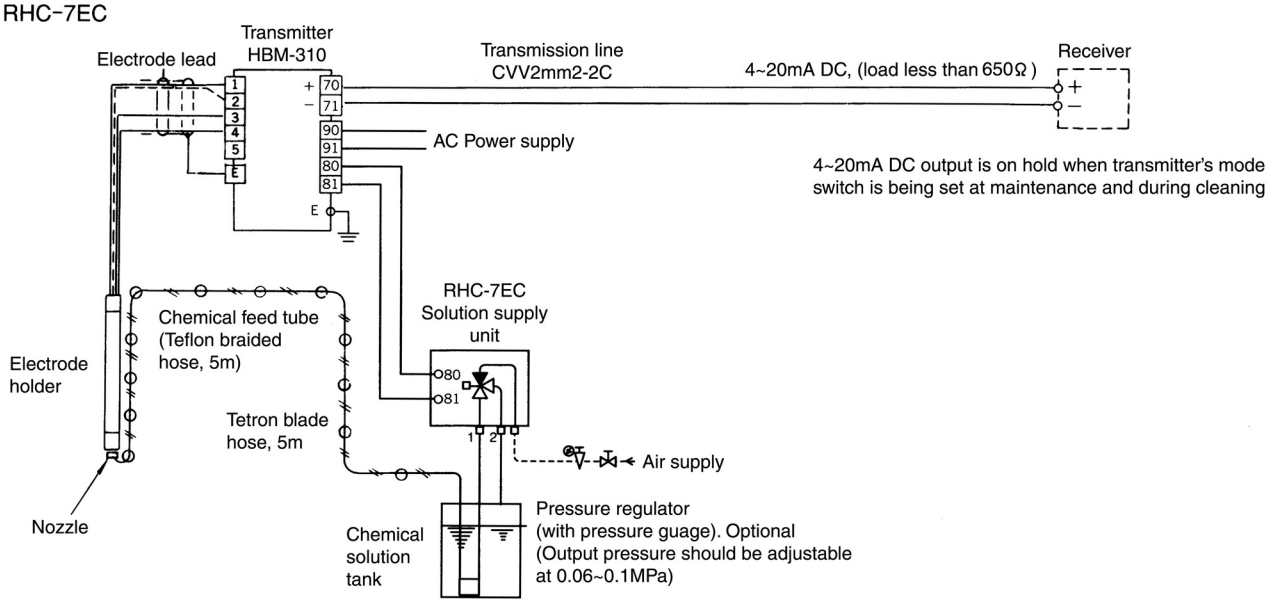
SYSTEM WIRING AND FLOW DIAGRAM

RHC-7C



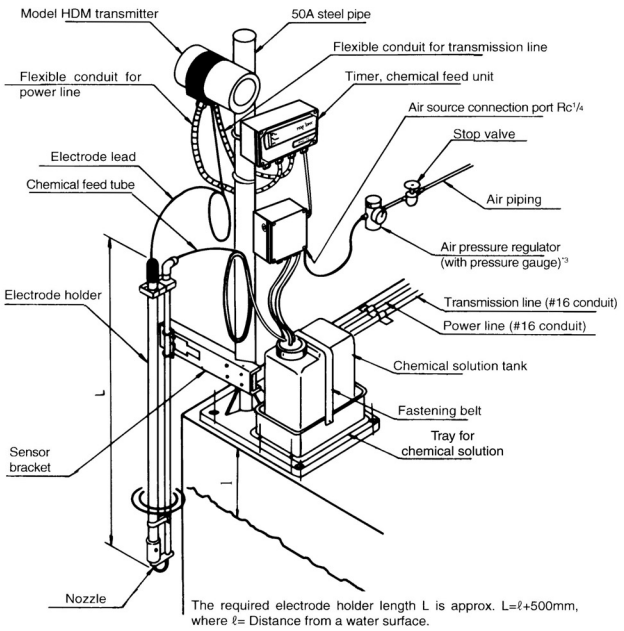
Make connections as required.
13, 14 Cleaning start signal input terminals
(Contact closure time; greater than 100ms)
(Internal load relay; 100V AC 30mA)
15, 16 Cleaning stop signal input terminals
(Stops when open. Shunted when shipped)
(Internal load relay; 100V AC 250mA)
92, 93 Power source for service
10,11,12 Under-cleaning signal output terminal 1.
10,11,12 Under-cleaning signal output terminal 2.

RHC-7EC



TYPICAL INSTALLATION

■ Example of standard type installation

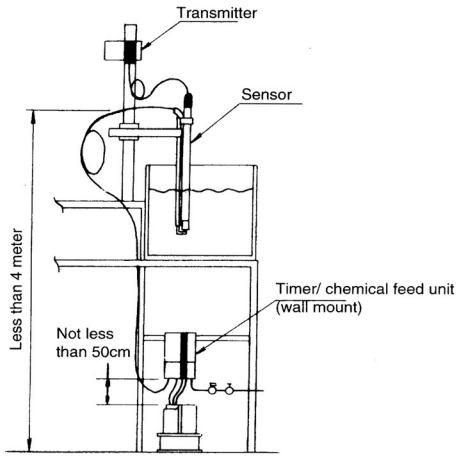


*1 Bundle the electrode lead because a large sag of the lead results in fluctuation of measured values.

*2 The standard length of chemical feed tube is 5m. Do not cut the tube but bundle it. If cut, the chemical feed may not work efficiently for cleaning.

*3 Use air pressure regulator capable of setting 0.05-0.1MPa. Install a filter and a drain trap when the supplied air contains dust or mist.

■ Example of separate type installation



The timer/chemical feed unit and the sensor may be installed apart from each other by up to 10m, but the height difference should be within 4m. (Refer to the above sketch when instrument air is used.) Even in this case, it is recommended to install the transmitter as close to the sensor as possible.

PRODUCT CODE

RHC7C-0□□□□□□□□□□□□

- Power source *1
  - A: 100V AC 50/60Hz
- Materials of wetted parts in cleaner
  - 1: SUS316 for main parts & PP for nozzel
  - 2: All PP *2
  - 3: SUS316L for main parts & PP for nozzel
- Combined holder (no separate order required)
  - 0: No holder
  - 1: Polypropylene holder HC-763
  - 2: Clear PVC holder HC-703C
- Length of combined holder *3 (↑ The sensor length depends on this holder)
  - 1: 0.5m
  - 2: 1.0m
  - 3: 1.5m
  - 4: 2.0m
  - 5: 2.5m
  - 6: 3.0m
- Applicable electrode
  - 0: No electrode
  - A: pH, general use, normal temperature, Model 5600
  - B: pH, general use, high temperature, Model 5601
  - E: pH, general use, normal temperature, Model 6462 TC=350Ω
  - 1: ORP(Pt), general use, normal temperature, Model 6491*
  - 3: ORP(Pt), general use, normal temperature, Model 2600* (with temperature sensor)
  - 7: ORP(M), general use, normal temperature, Model 6497*
  - 8: Others to be specified
- Electrode lead length
  - 0: No electrode
  - K: 5m (max. holder length 2m)
  - M: 10m
  - Y: Others to be specified
- Cleaning cycle
  - 0: 0.1~12 hours (Standard)
  - 1: 0.1~120 hours
  - 8: Others to be specified
- Chemical solution tank capacity
  - 1: 20L (standard)
  - 2: 50L
- Air supply
  - 0: External supply, no pressure regulator (instrumental air & pressure regulator must be supplied by customer)
  - 1: External supply, pressure regulator with filter (instrumental air must be supplied by customer)
  - 2: With air pump unit
- Pole stand
  - 0: Nil
  - 1: Supplied
- Markings
  - A: Japanese (Standard)
  - B: English
- Official certificate
  - 0: Nil
  - 1: With the certificate

*Official approval not applicable

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

RHC7EC-0□□□□□□□□□□

- Power source *1
  - A: 100V AC 50/60Hz
- Materials of wetted parts in cleaner
  - 1: SUS316 (Standard)
  - 2: SUS316L
- Combined holder (no separate order required)
  - 0: No holder
  - 1: Polypropylene holder HC-763
  - 2: Clear PVC holder HC-703C
- Length of combined holder *2 (↑ The sensor length depends on this holder)
  - 1: 0.5m
  - 2: 1.0m
  - 3: 1.5m
  - 4: 2.0m
  - 5: 2.5m
  - 6: 3.0m
- Applicable electrode *3
  - 0: No electrode
  - L: pH, general use, normal temperature, Model 5700* for differential use
  - M: pH, general use, high temperature, Model 5701* for differential use
  - A: pH, general use, normal temperature, Model 5600
  - 1: ORP, general use, normal temperature, Model 2600*
  - 8: Others to be specified
- Electrode lead length
  - 0: No electrode
  - K: 5m (holder length max. 2m)
  - M: 10m
  - Y: Others to be specified
- Air supply
  - 0: External supply, no pressure regulator (instrumental air & pressure regulator must be supplied by customer)
  - 1: External supply, pressure regulator with filter (instrumental air must be supplied by customer)
  - 2: With air pump unit
- Pole stand
  - 0: Nil
  - 1: Supplied
- Markings
  - 0: Japanese (Standard)
  - 1: English
- Official certificate
  - 0: Nil
  - 1: With the certificate

*Official approval not applicable

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

*1. Please separately order step down transformer (ZP; 35VA) for power voltages other than 100V AC.
*2. When made of polypropylene, max. holder length is 2m.
*3. Holder length is 3m for polypropylene and 4m for clear PVC. For a request exceeding 4m, drop-in type (custom order) is suitable.

Notes:
1. Max. sample temperature is 80°C for polypropylene holder (Model HC-763) and 60°C for clear PVC (Model HC-703C).
2. For mounting the holder, order one of the following: Bracket Model ZC-1 or ZC-2, Flange Model ZFK-1 or ZFK-2.
3. Addition of water-jet cleaning is available as an option. A lift-up and cleaning-in-air system is also available as an option.
4. For an ORP electrode, use 5~10% nitric acid (HNO_3) as a cleaning solution. Do not use hydrochloric acid. (HCl)
5. For a pressurized type holder, specify code 0 for combined holder and specify code 0 "No electrode" for electrode and separately order a pressure type holder.
6. Please order RHC-7EC when timer function is not required (to combine with HBM-31❑ or HBM-10❑A).
7. Please order ZH-24 when hold unit is required.

*1. Power is supplied to a sensor through transmitter (HBM-310). Please separately order step down transformer (ZP; 35VA) for power voltage other than 100V AC.
*2. Holder length is 3m for PP and 4m for clear PVC. For length that exceeds 4m, throw-in type (custom spec.) is suitable.
*3. Electrode for differential use cannot be combined with HBM-100A transmitter.

Notes:
1. This detector is combined with transmitter model HBM-310, which has a power supply output for the control of cleaner, so the detector has no control box (timer function).
2. Max. allowable sample temperature is 80°C for polypropylene holder (model HC-763) and 60°C for clear polyvinyl chloride holder (model HC703C).
3. For mounting, order separately a bracket models ZC-1 or ZC-2 and a flange models ZFK-1 or ZFK-2 as required.
4. For combination with a pressurized type holder, specify code 0 both for holder and for electrode and order separately the holder.

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⚠ **CAUTION** Do not operate products before consulting instruction manual.