

# SPECIFICATION SHEET



## pH/ORP TRANSMITTER (INTRINSICALLY SAFE pH/ORP TRANSMITTER)

## SHBM-161/163(transmitter) SHC-7/8(detector)

This product is a two-wire intrinsically safe explosion proof pH/ORP transmitter.

It complies with Exia II CT4X TIIS explosion proofing standard and features an IP65-compliant protective construction.

### Features

- One-touch automatic stability judgment function to eliminate operating errors, allowing for accurate calibrations (check) with standard solutions. Transmitter automatically judges the electrode character and displays the results on the screen.
- 9 water-resistant switches on the outside of the front panel, making it possible to conduct routine maintenance operations without opening the enclosure.
- Equipped with a wide range of analyzer/transmitter functions, such as pH electrode crack detection, temperature compensation for sample pH values, and pH/ORP value shift.



Transmitter



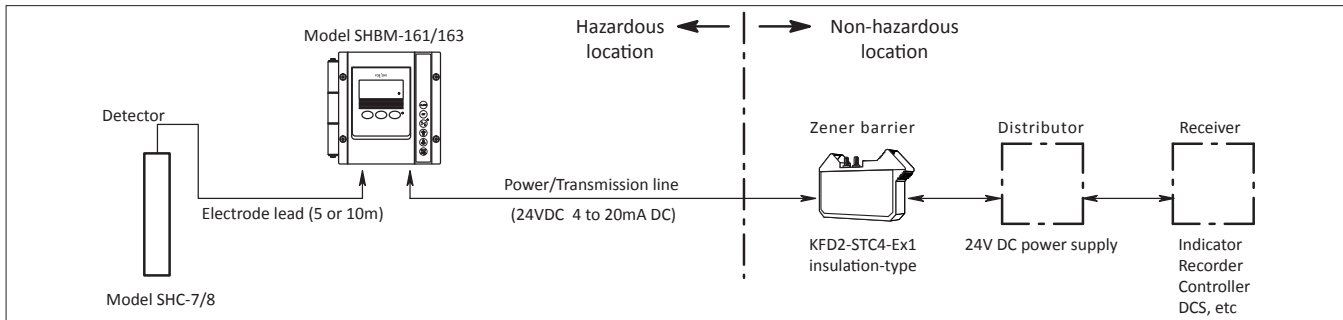
Immersion type detector  
(with loose flange)

- In maintenance mode (ST-BY), output signal would be held. It could not disrupt control system like chemical feed.  
Unit automatically switches back to measurement mode after two hours in maintenance mode (ST-BY).

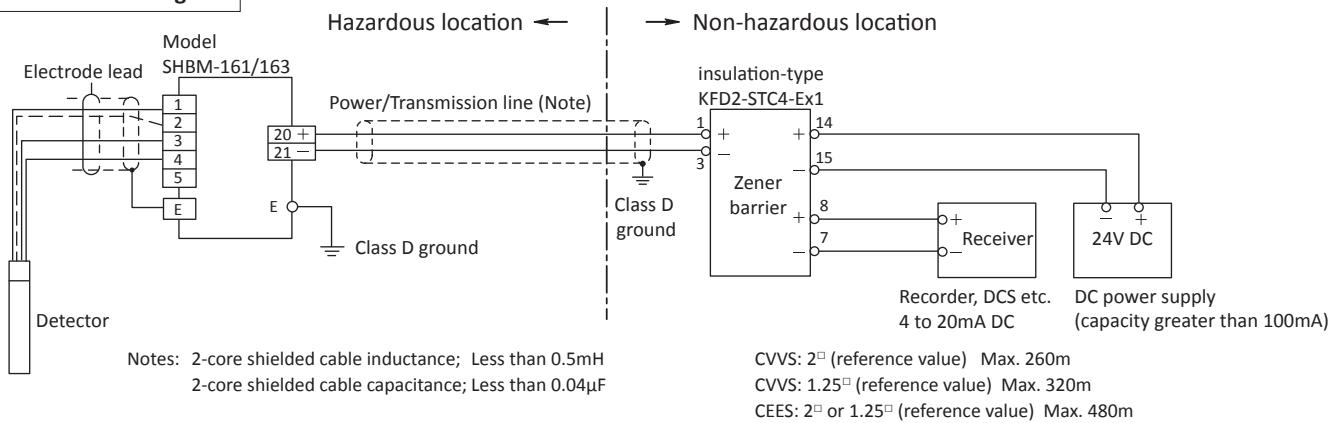
### Specifications

| Product Name                     | pH TRANSMITTER<br>(INTRINSICALLY SAFE pH TRANSMITTER)   | ORP TRANSMITTER<br>(INTRINSICALLY SAFE ORP TRANSMITTER)                                    |
|----------------------------------|---|--|
| Model                            | SHBM-161  | SHBM-163   |
| Explosion-proof type             | TIIS Exia II CT4, System Model: SHBM-2-1, TIIS Certification Number: TC18098  |  |
| Measurement display range        | -1.00 to 15.00pH<br>(Temp: 0 to 100°C)  | -2000 to +2000mV<br>(Temp: 0 to 100°C)   |
| Power supply / Power consumption | 2-wire system, 24V DC (17.1 to 25.5V DC, depending on load resistance) 0.6 VA or less   |  |
| Transmission output              | 4 to 20mA DC, isolated. Max. load resistance: 550Ω or less (when using the Zener Barrier KFD2-STC4-Ex1)   |  |
| Transmission output range        | Adjustable in 0.1pH steps, with a minimum width of 2pH  | Adjustable in 10mV steps, with a minimum width of 400mV                                    |
| Performance                      | Linearity: Within ±0.02pH (equivalent input)<br>Repeatability: Within ±0.02pH (equivalent input)  | Linearity: Within ±3mV (equivalent input)<br>Repeatability: Within ±2mV (equivalent input) |
| Construction                     | Outdoor installation, dust/jet-proof (IP65)   |  |
| Case material and color          | Case Material: Aluminum die-cast alloy Paint color: Metallic silver<br>(Display keypad, operation panel: Polyester resin, Munsell N1.5)   |  |
| Mounting                         | Mounted on a 50A pipe, wall, or rack mount  |  |
| Ambient temperature/humidity     | -20 to 55°C, 0 to 95% RH (when in transport and storage: -30 to 65°C, 0 to 98% RH)  |  |
| External dimensions/Weight       | 181 (W) x 180 (H) x 95 (D) mm, Approx. 2kg  |  |
| Other functions                  | Temperature compensation for sample pH value: Temperature coefficient setting range: ±0.100pH/°C, Standard temperature: 25°C<br>Manual temperature compensation for glass electrode: By setting the sample water temperature.<br>pH/ORP value shift: ±1.00 pH/±100 mV. (Shift width for temperature: ±5°C)<br>Burnout: The output signal would be shifted to the upper limit when problems occur, such as when the glass membrane cracks or the temperature sensor fails. |  |

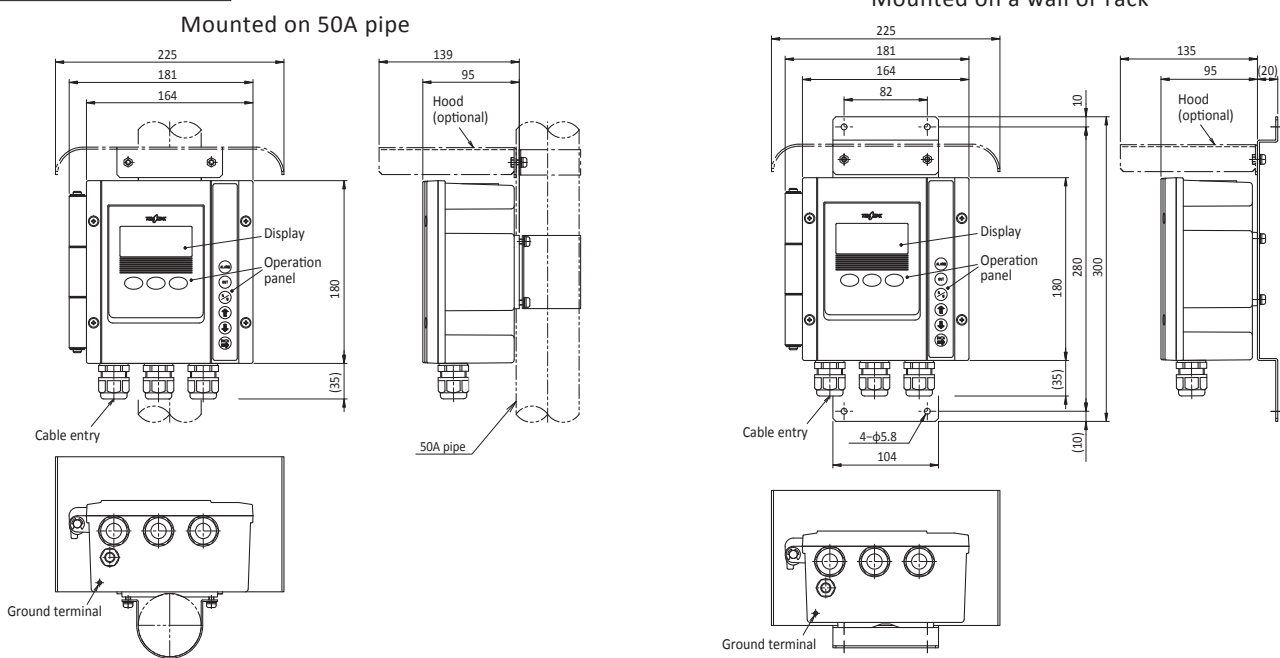
### Configuration Diagram



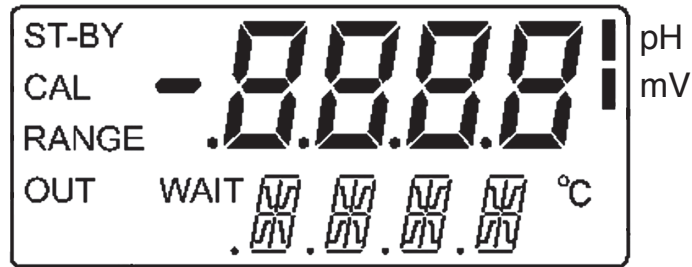
### Connection Diagram



### External Dimensions



Display Panel



Product code

|            |       |   |            |       |   |
|------------|-------|---|------------|-------|---|
| SHBM161-1- | □□□□□ | Transmission output range (4 to 20 mA DC) | SHBM163-1- | □□□□□ | Transmission output range (4 to 20 mA DC) |
| A          | ..... | 0 to 14pH                                 | A          | ..... | ±200mV                                    |
| B          | ..... | 0 to 10pH                                 | B          | ..... | ±500mV                                    |
| C          | ..... | 0 to 8pH                                  | C          | ..... | ±700mV                                    |
| D          | ..... | 2 to 12pH                                 | D          | ..... | ±1000mV                                   |
| E          | ..... | 4 to 14pH                                 | E          | ..... | ±1400mV                                   |
| F          | ..... | 4 to 10pH                                 | F          | ..... | ±2000mV                                   |
| G          | ..... | 6 to 14pH                                 | G          | ..... | 0 to +1000mV                              |
| Y          | ..... | Custom spec.*1                            | H          | ..... | 0 to +1400mV                              |
|            | ..... | System model                              | Y          | ..... | Custom spec.*1                            |
| A          | ..... | SHBM-2-1(Certification Number: TC18098)   |            | ..... | System model                              |
| Y          | ..... | The other                                 | A          | ..... | SHBM-2-1(Certification Number: TC18098)   |
|            | ..... | Power/Transmission cable entry            | Y          | ..... | The other                                 |
| 0          | ..... | Cable gland for ø6 to 12 cable            |            | ..... | Power/Transmission cable entry            |
| 1          | ..... | Conduit thread G1/2                       | 0          | ..... | Cable gland for ø6 to 12 cable            |
| 2          | ..... | NPT1/2 supplied with adapter              | 1          | ..... | Conduit thread G1/2                       |
|            | ..... | Surface finish (coating)*2                | 2          | ..... | NPT1/2 supplied with adapter              |
| A          | ..... | Standard coating                          |            | ..... | Surface finish (coating)*2                |
| B          | ..... | Heavy-duty coating                        | A          | ..... | Standard coating                          |
|            | ..... | Mounting bracket                          | B          | ..... | Heavy-duty coating                        |
| A          | ..... | For mounting on 50A pipe                  |            | ..... | Mounting bracket                          |
| B          | ..... | For mounting on rack or wall              | A          | ..... | For mounting on 50A pipe                  |
|            | ..... | Hood (sunshade)                           | B          | ..... | For mounting on rack or wall              |
| 0          | ..... | None                                      |            | ..... | Hood (sunshade)                           |
| 1          | ..... | Equipped (for mounting on 50A pipe)       | 0          | ..... | None                                      |
| 2          | ..... | Equipped (for mounting on rack or wall)   | 1          | ..... | Equipped (for mounting on 50A pipe)       |
|            | ..... | Marking                                   | 2          | ..... | Equipped (for mounting on rack or wall)   |
| A          | ..... | Standard (Japanese)                       |            | ..... | Marking                                   |
| B          | ..... | English                                   | A          | ..... | Standard(Japanese)                        |
|            |       |   | B          | ..... | English                                   |

\*1: Standard cable glands are also supplied, even when the conduit thread is selected in the specifications.

Standard: Cable glands for ø6 to 12 cable (3 ports)

G1/2: Conduit threads G1/2 when cable gland is removed.

NPT1/2: Remove the cable gland, then set the NPT1/2 adapter (SUS 316 ×3) that is included.

\*2: Standard coating: Melamine primer and topcoat. Average film thickness: Greater than 30µm

Heavy-duty coating: Epoxy primer and middle coat, polyurethane resin topcoat. Average film thickness: Greater than 100µm

## ■ Combined Zener Barrier

Product Name : Single Channel Insulation Type  
Intrinsically Safe Barrier  
For 4 to 20mA DC Transmitter

Model : KFD2-STC4-Ex1

Code No. : 134G838

Manufacturer : P&F

Rated Voltage : 24V DC

Environmental Temperature (non-hazardous location) : -20 to 60°C

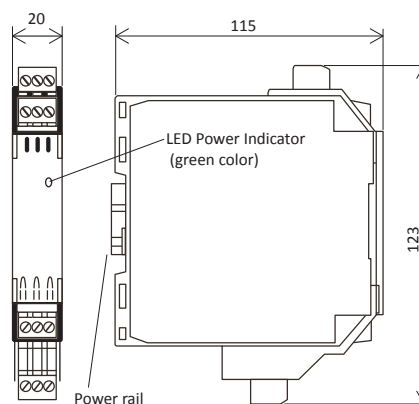
Weight : Approx. 200g

The insulation-type barrier does not require type A independent grounding. As a power supply unit with output current capacity of at least 100mA (per unit) is required, the DKK-TOA PA-24 power supply unit cannot be used due to its insufficient output current capacity.

We recommend the HDC1-K power supply unit (Code No. 134C620) from M-System Co., Ltd.

### External Dimensions

Unit : mm



### Applicable detectors

This is intrinsically safe detectors (holders) for the transmitter (SHBM-161/163).

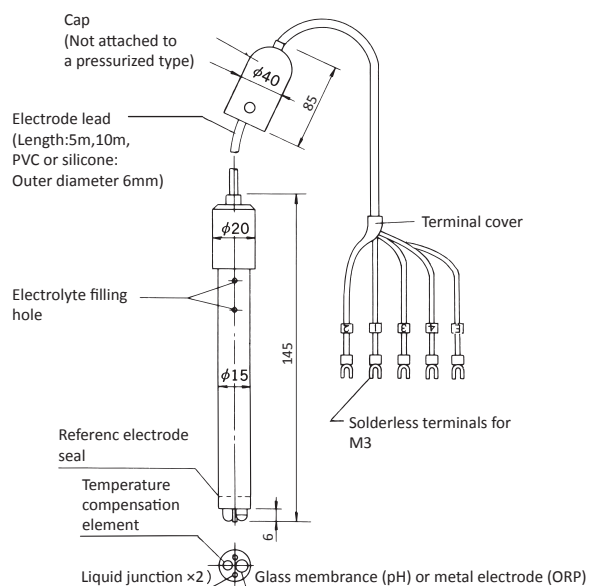
2 types are available (immersion type and flow-through type) and pH / ORP electrodes are combined.

You can select wetted part materials and length.

|                   | Application                             | Model       | Wetted part material | pH electrode                              | ORP electrode |
|-------------------|---|-------------|----------------------|---|---------------|
| Immersion type    | General purpose use<br>(60°C or lower)  | SHC-703     | PVC FKM              | 5600<br>5605(hydrofluoric acid-resistant) | 2600          |
|                   | High temperature use<br>(80°C or lower) | SHC-763     | PP FKM               | 5600<br>5601(high-temperature use)        | 2600          |
|                   | High temperature use Chemical resistant | SHC-703 (F) | PVDF FKM             | 5601                                      | 2601          |
|                   | Organic solvent-resistant               | SHC-703 (T) | PFA Perfluor         | 5602                                      | 2602          |
| Flow-through type | Insertion type (with no case)           | SHC-880     | PP FKM               | 5610                                      | 2610          |
|                   | with PP case                            | SNHC-882    | PP FKM               | 5610                                      | 2610          |
|                   | with SUS case                           | SNHC-883    | PP SUS316 FKM        | 5610, 5611( high-temperature use)         | 2610          |

● pH Electrode

The latest electrodes, employing a newly developed glass membrane with an excellent linearity to suppress AgCl exudation from the liquid junction of the reference electrode (the non-leak AgCl inner electrode). They are capable of performing stable and continuous measurement under various measurement conditions such as high temperature, low concentration solution or solution containing reducing agents. The type that employs hydrofluoric acid solution, and the type resistant to organic solvents with the use of Perfluoro (fluoro-rubber, new material) are also available as standard options. In addition, the projected construction of the temperature compensation element (TC: 10kΩ at 25°C) from the main electrode body further improves the response of temperature compensation. The electrolyte for the electrodes listed in the following table is 3M-KCl solution.



| Model   | Electrolyte exudation method | Type of glass membrane               | pH measurement range | Service temperature range | Seal material of reference electrode | Lead wire material | Applicable electrode holder         |
|---------|------------------------------|--------------------------------------|----------------------|---------------------------|--------------------------------------|--------------------|-------------------------------------|
| 5600-□F | Non-pressurized type         | Standard membrane                    | pH0 to 14            | -5 to 70°C                | FKM                                  | Heat resistant PVC | SHC-703/763                         |
| 5601-□F | Non-pressurized type         | Standard membrane                    | pH0 to 14            | -5 to 95°C                | FKM                                  | Silicone           |                                     |
| 5602-□F | Non-pressurized type         | Standard membrane                    | pH0 to 14            | -5 to 70°C                | Perfluoro rubber                     | Heat resistant PVC | SHC-703<br>SHC-703(F)<br>SHC-703(T) |
| 5603-□F | Non-pressurized type         | Standard membrane                    | pH0 to 14            | -5 to 95°C                | Perfluoro rubber                     | Silicone           |                                     |
| 5605-□F | Non-pressurized type         | Hydrofluoric acid resistant membrane | pH2 to 11            | -5 to 50°C                | FKM                                  | Heat resistant PVC |                                     |
| 5610-□F | Pressurized type             | Standard membrane                    | pH0 to 14            | -5 to 70°C                | FKM                                  | Heat resistant PVC | SHC-880<br>SNHC-882<br>SNHC-883     |
| 5611-□F | Pressurized type             | Standard membrane                    | pH0 to 14            | -5 to 95°C                | FKM                                  | Silicone           |                                     |
| 5612-□F | Pressurized type             | Standard membrane                    | pH0 to 14            | -5 to 70°C                | Perfluoro rubber                     | Heat resistant PVC |                                     |
| 5613-□F | Pressurized type             | Standard membrane                    | pH0 to 14            | -5 to 95°C                | Perfluoro rubber                     | Silicone           |                                     |
| 5615-□F | Pressurized type             | Hydrofluoric acid resistant membrane | pH2 to 11            | -5 to 50°C                | FKM                                  | Heat resistant PVC |                                     |

Electrode lead length (5: 5 m, 10: 10 m)

● ORP Electrode

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

Temperature sensor (T) is built in electrode. The temperature in sample water and standard solution can be checked on a display.

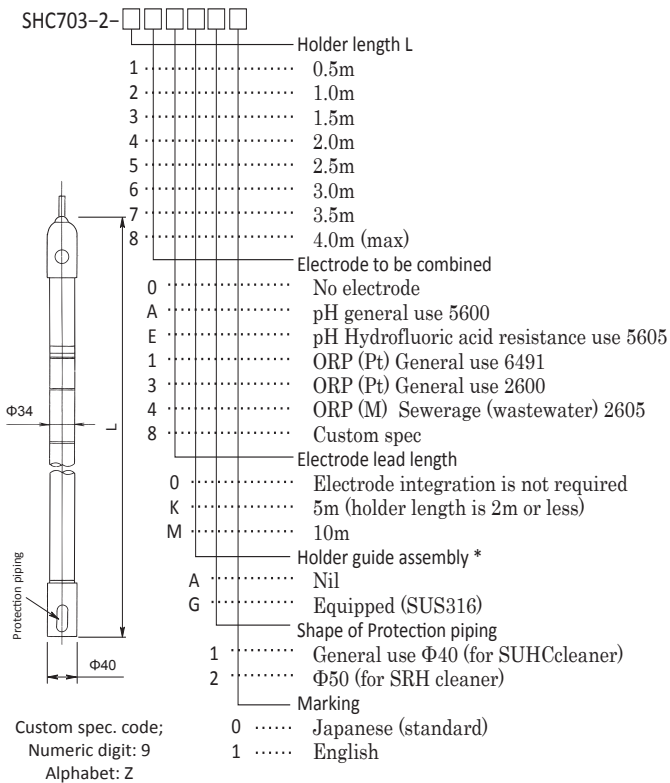
The construction of each reference electrode is the same as the abovementioned pH electrodes, and its electrolyte is 3M KCL solution.

| Model   | Component electrodes | Electrolyte exudation method | Service temperature range | Seal material for reference electrode | Lead wire material | Typical combination holder |
|---------|----------------------|------------------------------|---------------------------|---------------------------------------|--------------------|----------------------------|
| 2600-□F | Pt+R+T               | Non-pressurized type         | -5 to 70°C                | FKM                                   | Heat resistant PVC | SHC-703/763                |
| 2601-□F | Pt+R+T               | Non-pressurized type         | -5 to 95°C                | FKM                                   | Silicone           |                            |
| 2602-□F | Pt+R+T               | Non-pressurized type         | -5 to 70°C                | Perfluoro rubber                      | Heat resistant PVC |                            |
| 2605-□F | M+R+T                | Non-pressurized type         | -5 to 70°C                | FKM                                   | Heat resistant PVC |                            |
| 2610-□F | Pt+R+T               | Pressurized type             | -5 to 70°C                | FKM                                   | Heat resistant PVC | SHC-880<br>SNHC-882/883    |
| 2615-□F | M+R+T                | Pressurized type             | -5 to 70°C                | FKM                                   | Heat resistant PVC |                            |

Electrode lead length (5: 5 m, 10 : 10m)

### External Dimensions and product code (immersion type holder)

#### ● SHC-703 (PVC, semitransparent)

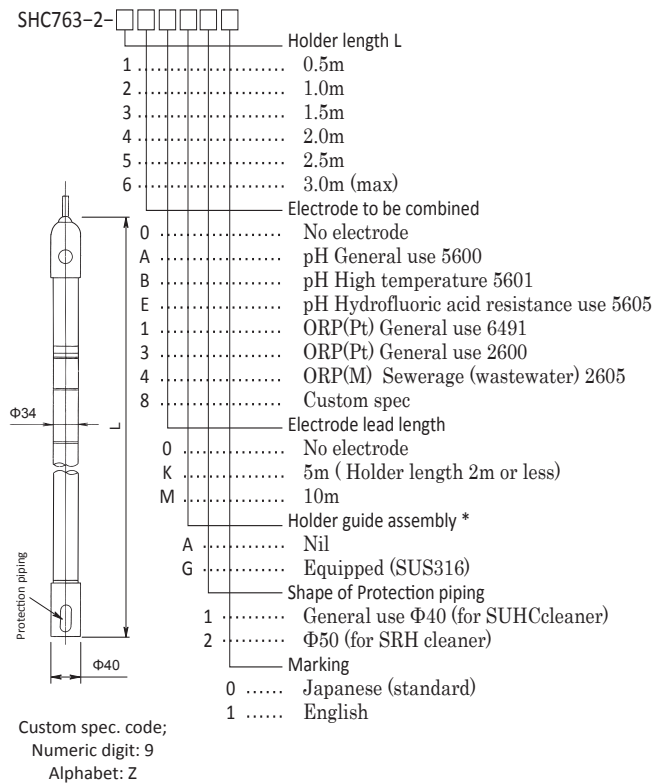


\*. Please select "Equipped", when various washing devices or fixture (ZN-7) are equipped.

#### Note:

- 1) This is intrinsically safe immersion type holder made of PVC for open tank, filled with electrolyte (KCl). In addition, pH or ORP electrode is equipped. When holder length is 3m or more and used in overseas, electrolyte cannot be filled and supplied
- 2) Although the temperature of heat-resistance is 60°C, because of its strongness, the length of piping made of PVC is up to 4.0m. Because PVC piping is good at weather proof, you can use it for a long time under the condions of outdoor installation and direct sunlight.

#### ● SHC-763 (PP, semitransparent)

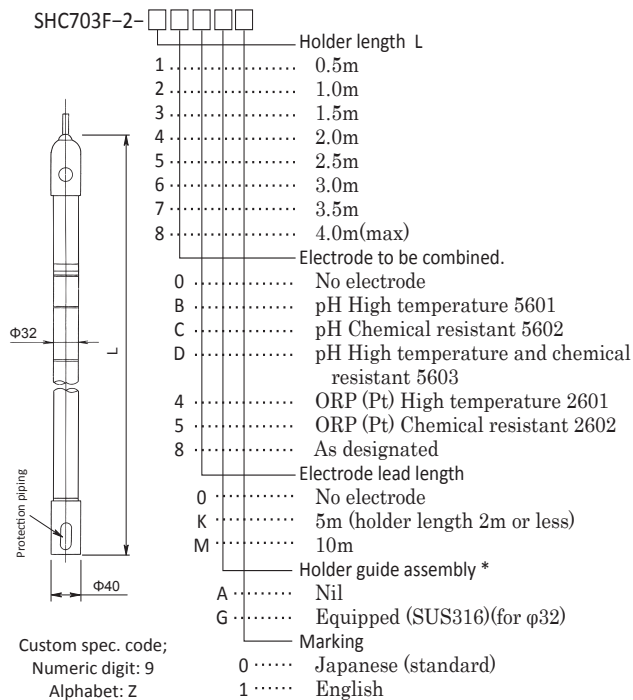


\*. Please select "Equipped", when various washing devices or fixture (ZN-7) are equipped.

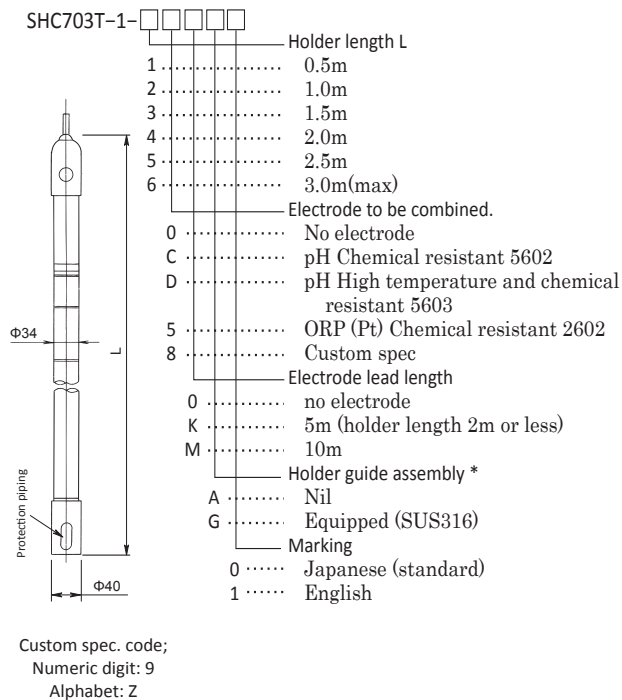
#### Note:

- 1) This is intrinsically safe immersion type holder made of PP for open tank, filled with electrolyte (KCl). In addition, pH or ORP electrode is equipped. When holder length is 3m or more and used in overseas, electrolyte cannot be filled and supplied.
- 2) In the case of outdoor installation under direct sunlight and the temperature of sample water is 60°C or less, SHC-703C is recommended.
- 3) The heat-resistant temperature of PP holder is 80°C. When general use electrode (5600, 2600) is used, the heat-resistant temperature is 70°C.

● SHC-703 (PVDF, semitransparent)



● SHC-703 (PFA, semitransparent)



\*. Please select "Equipped", when various washing devices or fixture (ZN-7) are equipped.

Note:

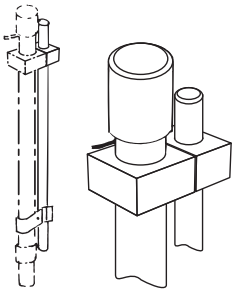
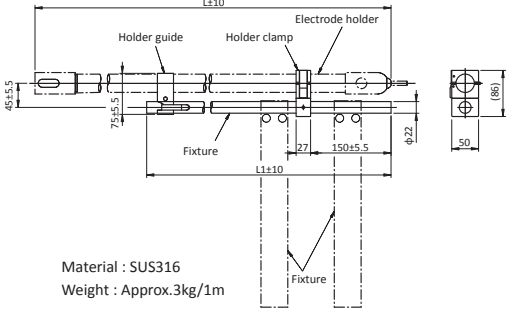
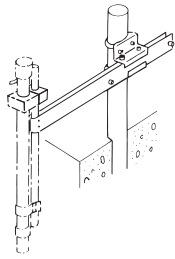
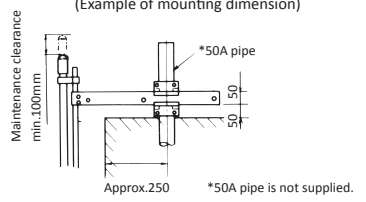
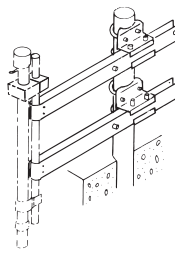
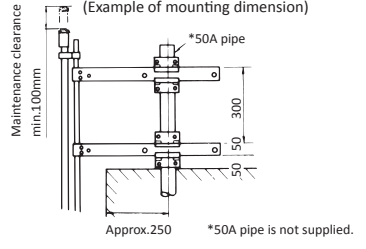
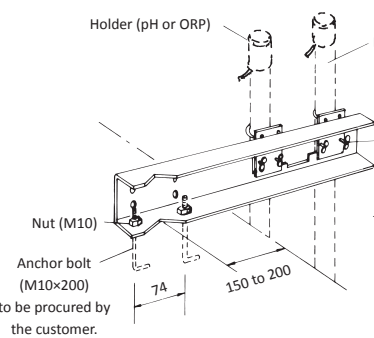
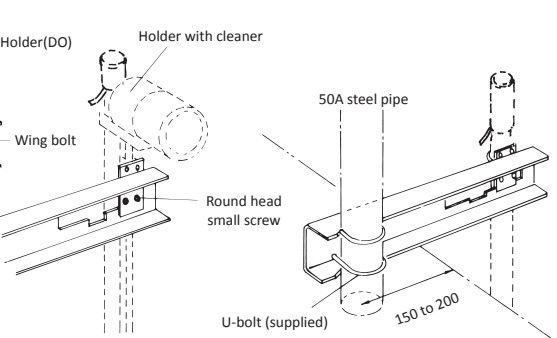
- 1) This is intrinsically safe immersion type holder made of PVDF for open tank, filled with electrolyte (KCl). In addition, pH or ORP electrode is equipped. When holder length is 3m or more and used in overseas, electrolyte cannot be filled and supplied.
- 2) PVDF is fluororesin, excellent in chemical or solvent and heat-resistance (max.100°C). Thus, this is safe holder resistant to high temperature or chemical, solvent on process online. This semi-transparent PVDF holder is robust, the length is up to 4.0m. Electrode packing is fluororubber (FKM).

\*. Please select "Equipped", when various washing devices or fixture (ZN-7) are equipped.

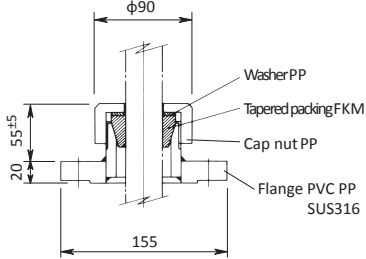
Note:

- 1) This is intrinsically safe immersion type holder made of PFA for open tank, filled with electrolyte (KCl). In addition, pH or ORP electrode is equipped. When holder length is 3m or more and used in overseas, electrolyte cannot be filled and supplied.
- 2) PFA is fluororesin, resistant to almost all the chemicals or solvents and high temperature (max.80°C). Thus, this is safe holder resistant to high temperature or chemicals, solvents on process online. The electrode packing is made of perflgogom excellent resistant to heat and chemicals, solvents.

### Metal Fixtures for Immersion type holder

| Model          | Application  | Installation Example  |  |
|----------------|--|---|--|
| ZN-7 (Support) | Used in combination with A, B, and C type metal fittings when a cleaner is not equipped. The holder can be detached / attached in a single action. The length L is shorter than the holder length.   |  <p>Support length (L1)<br/>                     500 (L : 1000)<br/>                     1000 (L : 1500, 2000)<br/>                     1500 (L : 2000, 2500)<br/>                     2000 (L : 2500, 3000)<br/>                     2500 (L : 3000, 3500)<br/>                     3000 (L : 3500, 4000)</p> |  <p>Material : SUS316<br/>                     Weight : Approx.3kg/1m</p>  |
| ZC-1 type B    | Mounted on a pole (50A). When the holder has no cleaner, ZC-1 type B is used in combination with ZN-7. Total length: 600mm, Material: SPCC or SUS  | Max. applicable holder length: 1.5m   |  <p>(Example of mounting dimension)</p>  <p>Maintenance clearance min.100mm<br/>                     Approx.250 *50A pipe is not supplied.</p>   |
| ZC-1 type C    | Mounted on a pole (50A). When the holder has no cleaner, ZC-1 type C is used in combination with ZN-7. Total length: 600mm, Material: SPCC or SUS  | Max. applicable holder length: 2.0 to 4.0m  |  <p>(Example of mounting dimension)</p>  <p>Maintenance clearance min.100mm<br/>                     Approx.250 *50A pipe is not supplied.</p> |
| ZC-2           | Fastened with the anchor bolts or on a 50A pole. Up to 2 holders (pH or ORP or DO) can be mounted. Holders are detachable /attachable by a single action. Fixture length: 500mm Material: SUS304 Length of holder to be combined: max. 2m or less Mounting of holders with cleaner is also possible. |  <p>Holder (pH or ORP)    Holder (DO)    Holder with cleaner</p> <p>Wing bolt</p> <p>Nut (M10)</p> <p>Anchor bolt (M10×200) to be procured by the customer.</p> <p>7A    150 to 200</p> <p>&lt;Mounting with anchor bolts&gt;</p>  |  <p>50A steel pipe</p> <p>Round head small screw</p> <p>U-bolt (supplied)</p> <p>150 to 200</p> <p>&lt;Mounting on a pole stanchion&gt;</p>  |

### Immersion type holder Mounting Flange

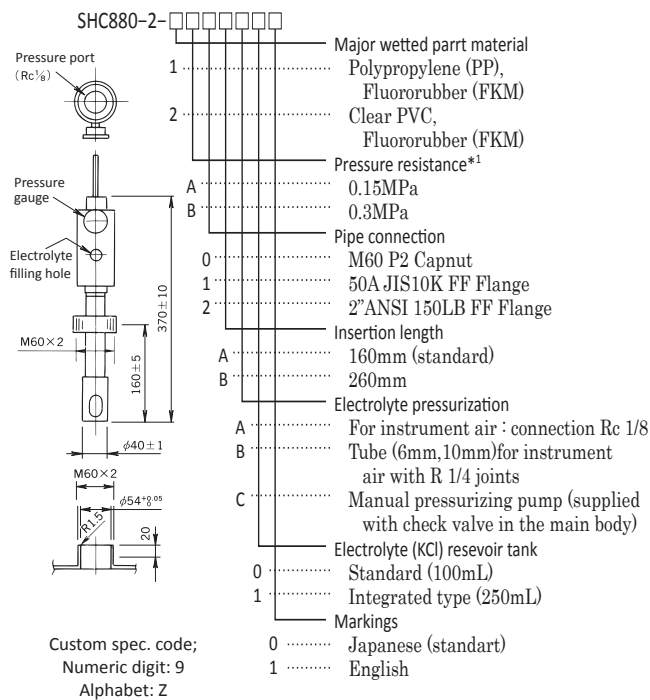
| Model  | Application                              | Material  | Flange Standard *1 | Construction, Example of installation  |
|--------|--|-----------|--------------------|--|
| ZFL-11 | For mounting KCl-supply electrode holder | PVC or PP | 50A JIS 10K FF     |  <p>Washer PP<br/>                     Tapered packing FKM<br/>                     Cap nut PP<br/>                     Flange PVC PP SUS316</p> |
| ZFL-2  |  | SUS316    | 50A JIS 10K RF     |  |

\*Allowable nominal size: Up to 200A Standards (JIS, 5K, ANSI, JPI) are possible.

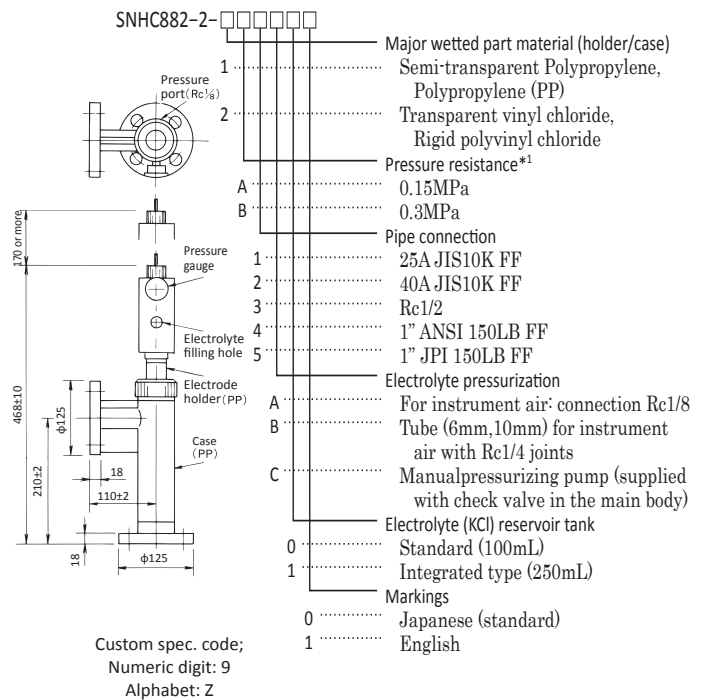


## External Dimensions and product code (Flow-through type holder)

### ● SHC-880 (PP)



### ● SNHC-882 (PP)



\*1. Please select 0.15MPa in the case of non-pressurized type (head pressure). Non-pressurized type (head pressure): The way electrolyte (KCl) outflows by utilizing the fall of electrolyte (KCl) (water head). This is possible only when measurement tank or the pipe connecting to this holder are opened to the air.

In case of air pressurized type, pressure gauge is equipped.  
 Pressure gauge scale: 0 to 0.2 MPa (pressure resistance: 0.15MPa)  
 0 to 0.4 MPa (pressure resistance: 0.3MPa)

\*2. This is the dimension from connection part (capnut or flange). As a rule, more than 260mm is impossible.

\*3. Manual pressurization pump is not standard equipment. When this pump is necessary, please consult us.

#### Notes

- Piping insertion type holder (intrinsically safe). Major wetted part material is resin such as polypropylene (PP).  
 Resistance of sample water temperature: PP-80°C PVC-60°C
- This product is electrode holder except a case (chamber) from SNHC-882/883 (flow-through type detector)

#### 3. Standard Applicable Electrode [Non-pressurized type] [Air pressurization] (head pressure)

| Classification   | Product Code | Product Code |
|--|--------------|--------------|
| pH<br>General use<br>High temperature<br>HF-resistance | EL5610-2-□F□ | EL5600-2-□F□ |
|  | EL5611-0-□F  | EL5601-2-□F□ |
|  | EL5615-2-□F□ | EL5605-2-□F□ |
| ORP<br>General use (Pt)<br>Sewerage (waste water) (M)  | EL2610-1-□F  | EL2600-1-□F  |
|  | EL2615-0-□F  | EL2605-0-□F  |

When the electrode except the table above is combined, please consult us.

- Installing outdoor in direct sunlight is not recommended. Especially PP-made holder or PE-made capnut are subjected to ultraviolet light and easy to deteriorate.  
 Inevitably installing in above conditions, please consult us about corresponding methods (ex. PVC-made product is used).
- When temperature and pressure in sample water are over 80°C or 0.3MPa, please select SHC-81/811/812 made of all stainless steel.

\*1. Construction of case (chamber) and scale of pressure gauge (pressure display of electrolyte (KCl)) are different depending on sample water pressure (pressure resistance).  
 Pressure gauge scale: 0 to 0.2 MPa (pressure resistance: 0.15MPa)  
 0 to 0.4 MPa (pressure resistance: 0.3MPa)

\*2. Manual pressurization pump is not standard equipment. When this pump is necessary, please consult us.

#### Notes

- This is intrinsically safe flow-through type holder. Wetted part material is resin-made (PP). Sealing rubber is Fluorine rubber (FKM)  
 The durable temperature of holders is 80°C (PP-made) and 60°C (PVC-made).
- Electrodes to be combined are separated. Please select an electrode from the table below based on measurement conditions or combined transmitter.

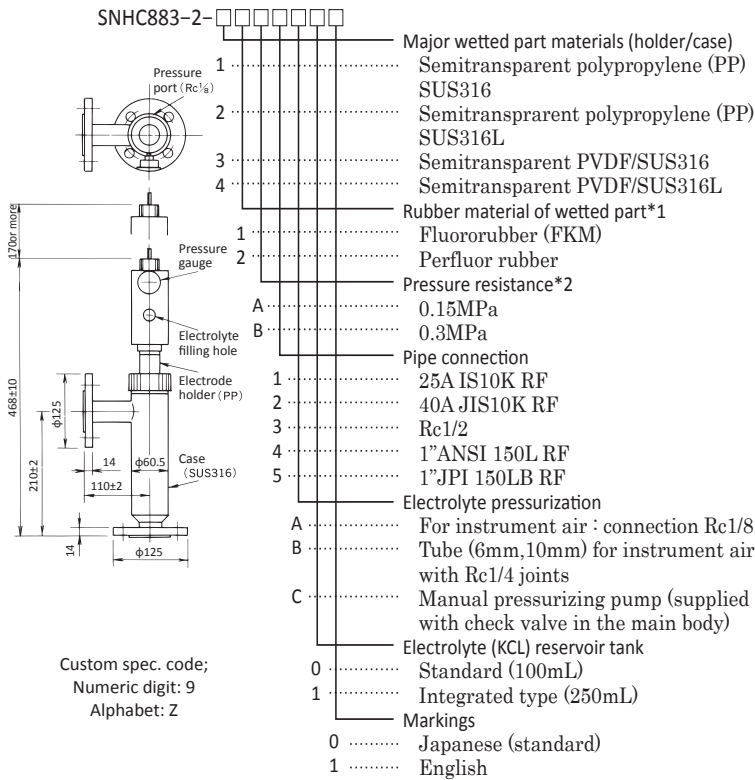
#### Standard Applicable Electrode

|     | Classification            | Product Code |
|-----|---------------------------|--------------|
| pH  | General use               | EL5610-2-□F□ |
|     | High temperature          | EL5611-0-□F  |
|     | HF-resistance             | EL5615-2-□F□ |
| ORP | General use (Pt)          | EL2610-1-□F  |
|     | Sewerage (waste water)(M) | EL2615-0-□F  |

When the electrode except the table above is combined, please consult us.

- Installing outdoor in direct sunlight is not recommended. Especially PP-made case (chamber) or PE-made capnut are subjected to ultraviolet light and easy to deteriorate.

● SNHC-883 (PP / SUS316)



- \*1. The materials of electrode holder: Polypropylene (PP) and PVDF  
 The materials of case (chamber): SUS316 and SUS316L  
 If organic solvent is mixed in sample water, please select PVDF and Perfluor rubber as wetted part materials , and the electrode (5612).
- \*2. pressure gauge scale: 0 to 0.2 MPa (pressure resistance; 0.15MPa)  
 0 to 0.4 MPa (pressure resistance; 0.3MPa)
- \*3. Manual pressurization pump is not standard equipment.  
 When this pump is necessary , please consult us.

Notes

1. This is intrinsically safe flow-through type holder. Wetted part material is resin made (PP or PVDF).  
 Case (chamber) is made of SUS316.  
 The durable temperature of holder is 80°C (PP-made) and 95°C (PVDF-made).  
 The pressurization holder of this product except a case (chamber) is SHC-880.
2. Electrodes to be combined are separated. Please select an electrode from the table below based on measurement conditions or combined transmitter

| Classification |                           | Product Code     |
|----------------|---------------------------|------------------|
| pH             | General use               | EL5610-2-□F□     |
|                | High temperature          | EL5611-0-□F      |
|                | Chemical resistant        | EL5612-0-□F      |
|                | HF-resistance             | EL5613-0-□F      |
|                | ORP                       | General use (Pt) |
|                | Sewerage (waste water)(M) | EL2615-0-□F      |

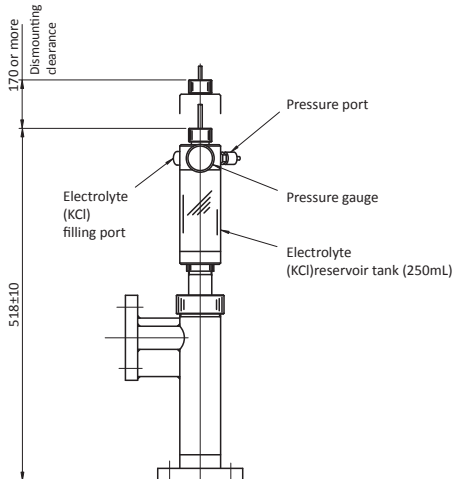
3. Installing outdoor in direct sunlight is not recommended.  
 Especially PP-made case (chamber) or PE-made capnut are subjected to ultraviolet light and easy to deteriorate.

**KCl reservoir tank (optional)**

Integrated type KCl reservoir tank (approx.250mL) can be added as an option to the head pressure type detector of flow-through and general use model.

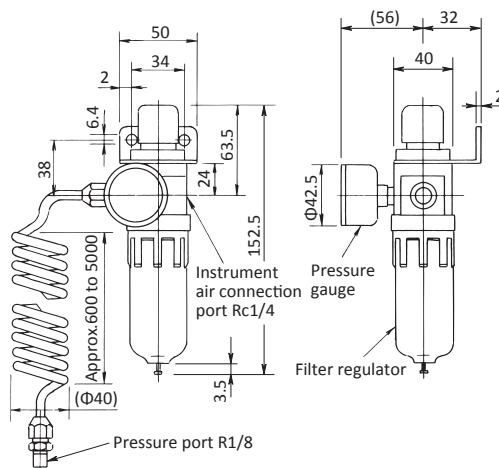
This is used to reduce the supply frequency of electrolyte (KCl), extending the service period up to about 1 month (integrated type). The material of tank is made of clear PVC, enabling to check the residual quantity easily.

<Integrated type>



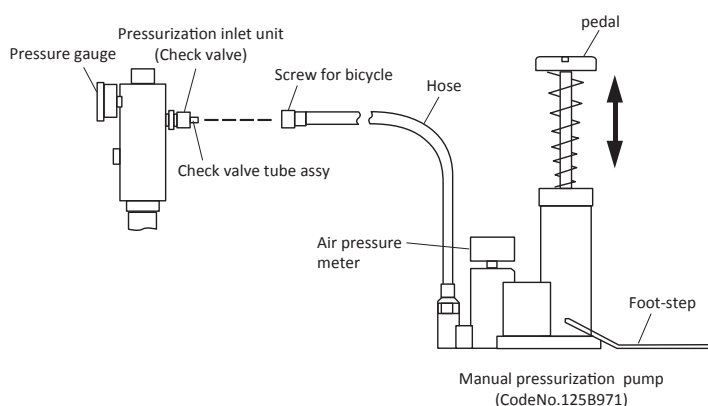
### Air set PAS-10

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 to 0.3MPa or 0 to 0.1MPa.



### Manual pressurization pump

When instrumental air is not equipped, pressurization inlet (check valve) and manual pressurization pump are available. In this case, pressure operation is necessary.

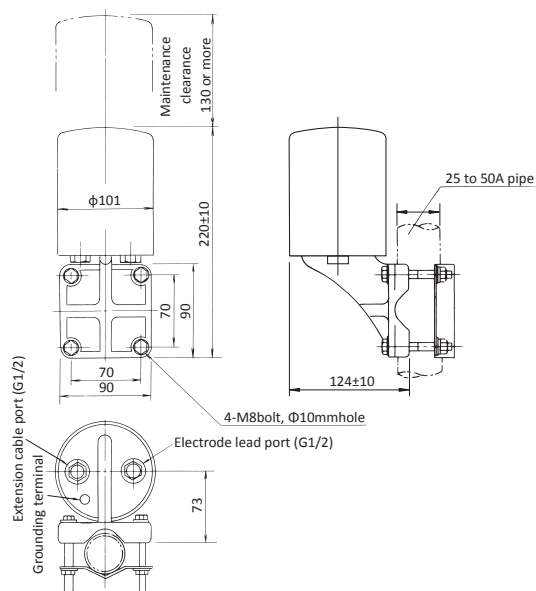


### Related Equipments

#### ● Connector 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.

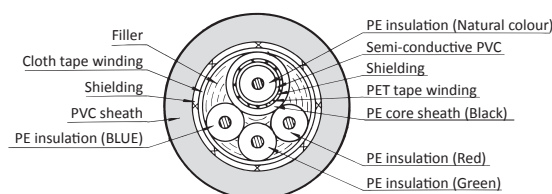
|              |  |
|--------------|--|
| Model        | : SFC-4G                                   |
| Construction | : Field installation type                  |
| Mounting     | : 25 to 50A Pipe, wall or panelmount       |
| Material     | : ABS resin                                |
| Finish       | : Matted chromium plating, metallic silver |
| Weight       | : Approx. 0.9kg                            |



#### ● Dedicated cable

The extension cable is a special cable manufactured for using with pH/ORP analysers. It is used for connection between transmitter and connector box.

|   |  |
|---|--|
| Model   | : EC-10                                      |
| Overall diameter                              | : 8mm  |
| Insulation                                    | : Polyethylene and Vinyl                     |
| Sheath  | : Vinyl                                      |
| Insulation resistance between core conductors | : At least $10^9 \text{M}\Omega/100\text{m}$ |
| Standard length                               | : 5 to 100m, in the unit of 5m               |
| Weight  | : Approx. 0.5kg/5m                           |



### Applicable cleaner

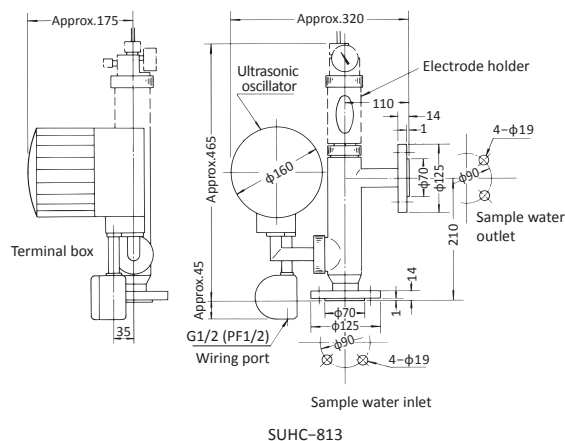
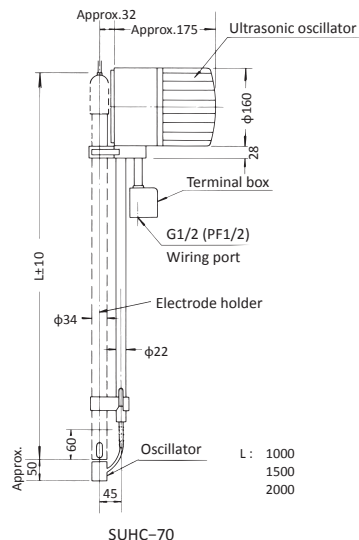
This ultrasonic cleaner with its flameproof, explosion-protected construction (d2G4), can be combined with the SHBM-161/163.

The sensing portion of the electrode is continuously irradiated by ultrasonic waves and the cavitation effect caused by this prevents adhesion of fouling.

### Standard Specification

|                                   |  |                |
|-----------------------------------|--|----------------|
| Product Name                      | Flameproof type explosion-protected Ultrasonic cleaner           |                |
| Type                              | SUHC-70  | SUHC-813       |
| Cleaning method                   | Continuous irradiation of ultrasonic waves                       |                |
| Certification pass number         | No. T56354   | No. T56355     |
| Cleaning object                   | pH / ORP electrodes  |                |
| Installation                      | Immersion type   | Flow through   |
| Service temperature range         | Sample water   | 0 to 80°C      |
|                                   | Ambient  | 0 to 50°C      |
| Pressure resistance               | Atmospheric pressure   | 0.1MPa or less |
| Oscillation frequency             | Approx. 70kHz  | Approx. 60kHz  |
| Power supply                      | 100V AC ±10% 50/60Hz   |                |
| Power consumption                 | Approx. 30VA   |                |
| Weight                            | Approx. 9kg  | Approx. 15kg   |
| Applicable electrodes and holders | 5600   | 5500           |
|                                   | SHC-703/763  | SHC-81         |
| Materials of wetted part          | SUS316 or SUS316L  |                |
| Standard color                    | Metallic silver (no paint on stainless steel surfaces)           |                |
| Construction                      | Flameproof type explosion-protected, rainproof construction d2G4 |                |
| Connection                        | —  | 25A JIS 10 KRF |

### Dimensions Unit : mm



The other cleaners (flameproof type explosion-protected) are as follows.

| Model   | Method  | Applicable detector |
|---------|---|---------------------|
| SJH-7A  | Immersion water-jet cleaning (using flameproof electromagnetic valve)       | SHC-763, SHC-703    |
| SRH-7A  | Immersion chemical cleaning (using flameproof electromagnetic valve)        |                     |
| SBJH-7A | Immersion water-jet/brush cleaning (using flameproof electromagnetic valve) |                     |



**DKK-TOA CORPORATION**



Please read the operation manual carefully before using products.

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