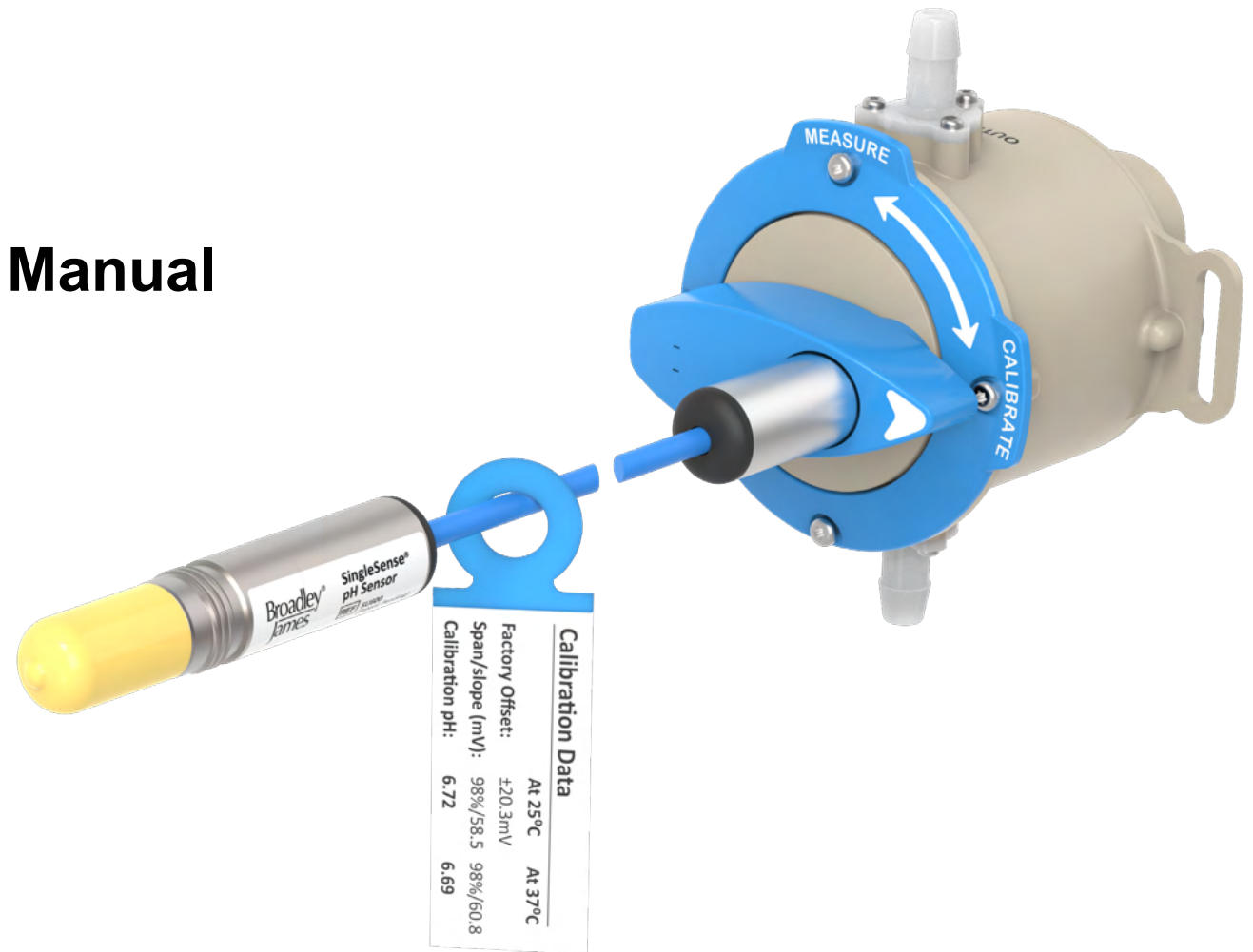


Specification and Installation Manual

SingleSense[®] Single-Use pH Sensor

Model SU600/SU680



Purpose

This manual provides instructions on how to specify and install Models SU600/SU680 SingleSense® single-use pH sensors for use with a downstream bioprocess system.

Scope

This manual is for customers who purchase and use Models SU600/SU680 SingleSense® single-use pH sensors.

Precautions

This product is intended for professional use only. Follow your standard operating procedures when using this product. Do not use the product if it is broken, defective, or visually damaged.

Disclaimers

Read all instructions prior to installing or operating this product. Save this manual for future reference.
If the instructions in this manual are unclear, contact Broadley-James. If this instruction manual is not for the product ordered, call (949) 829-5555.
Follow all warnings, cautions, and instructions marked on and supplied with the product.
To ensure proper performance, use qualified personnel to install, operate, update, calibrate, and maintain the product.
This product is designed for single-use.

Third-Party Content

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Compliance

Broadley-James Corporation confirms Models SU600/SU680 SingleSense® single-use pH sensors meet the following regulatory and compliance standards:

CE Compliant	Yes
RoHS Compliant	Yes
REACH Compliant	Yes
CFR 21-11 Compliant	Not applicable
BSE/TSE/ADI Free	Yes
USP Class VI Compliant	Yes, all wetted parts
FDA Material Compliant	Yes, all wetted parts

Wetted Materials

PEEK: UPS Class VI, ADI-Free, Extraction Tested 21CFR, 177.2600 | Dimethyl Silicone Rubber: Pt Cure, USP Class VI, Extraction Tested 21 CFR, 177.2600 | EPDM: USP Class VI, FDA Compliant, ADI-Free | Lead-Free Glass | Alumina Silicate

Full scale extractable and leachable test based on BPOG extractable protocol and USP 665 pending.



Product Description

The SU600 and SU680 SingleSense® single-use pH sensors are designed for installation with a downstream bioprocess system.

Definition of Symbols

	Catalogue number
	Serial number
	CE marking
	Use by date
	Temperature limit
	Quantity

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Step 1: How to Specify the pH Sensor

This section describes how to specify a sensor by creating a part number. Below are two standard options of the sensor.

Option 1: Unsterilized sensor

Unsterilized SU600 ready for integration into user's process assembly and subsequent sterilization



Option 2: Sterilized single-use assembly

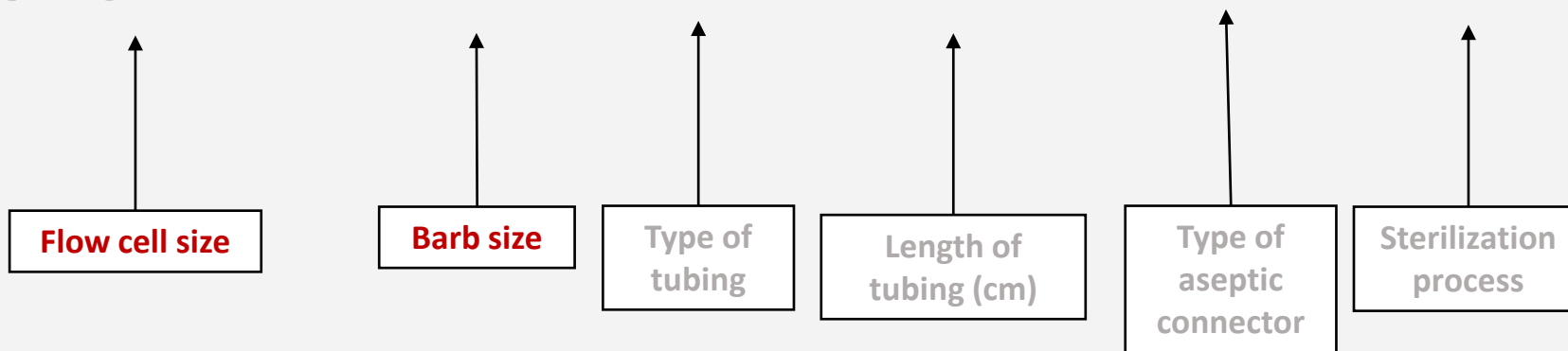
Sterilized single-use assembly with SU600, tubing, and aseptic connectors ready for integration into user's process assembly for immediate use



1.1 Part Number System for an Unsterilized Single-Use Sensor

Each sensor follows a part number scheme based on the following six choices: **flow cell size, barb size, type of tubing, length of tubing (cm), type of aseptic connector, and sterilization process.** Start by choosing your flow cell and barb size. The remaining choices are optional to build a custom single-use assembly.

SU6XX-XX-XX-XX-XXX-X

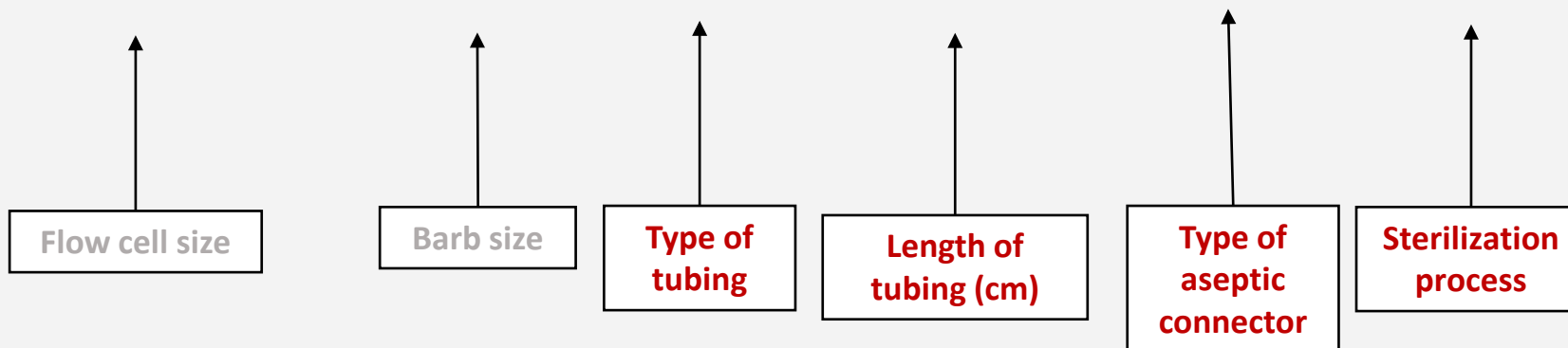


SU600-02 is an example of a part number for an unsterilized sensor without further customizations.

1.2 Part Number System for a Sterilized Single-Use Assembly

Select the tubing and aseptic connectors, the type of tubing, length of tubing, type of aseptic connector, and sterilization process to specify a sterilized single-use assembly.

SU6XX-XX-XX-XX-XXX-X

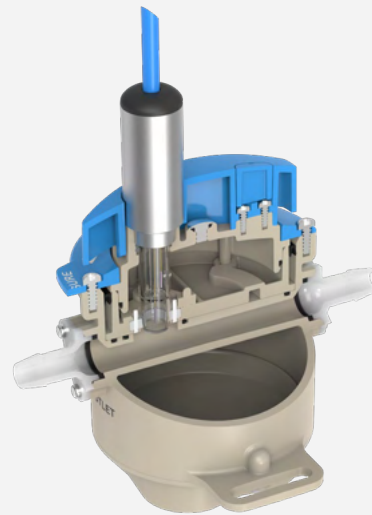


SU600-02-01-85-103-G is an example of a part number for a sterilized single-use assembly. Continue to the following slides for more information on these customizations.

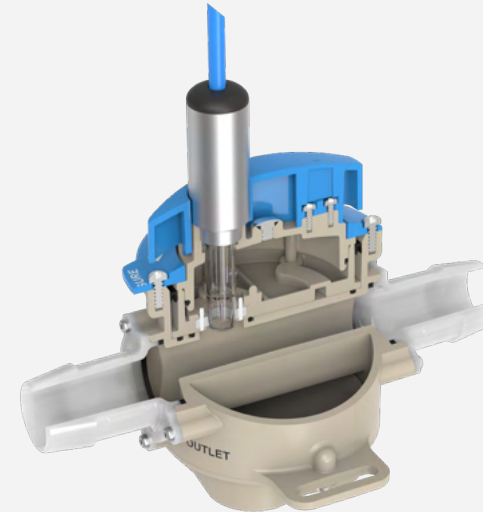
1.3 Specify the Flow Cell Size

SU6XX-XX-XX-XX-XXX-X

Flow cell size



SU600 flow cell



SU680 flow cell

There are two sensor models based on flow cell size—the SU600 and the SU680. The SU600 sensor is available in $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$ inch flow cell sizes and the SU680 sensor is available in $\frac{1}{2}$, $\frac{3}{4}$, and 1 inch flow cell sizes.

Figure 1. Flow cell size

1.4 Specify a Barb Size

SU6XX-XX-XX-XX-XXX-X

Barb size

SU600

Specify a barb size.

02 (1/8 in)

04 (1/4 in)

06 (3/8 in)

SU600	
Part Number	Barb Size
02	1/8 in
04	1/4 in
06	3/8 in

SU680

Specify a barb size.

08 (1/2 in)

12 (3/4 in)

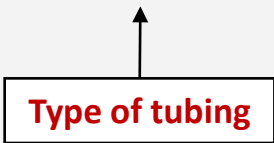
16 (1 in)

SU680	
Part Number	Barb Size
08	1/2 in
12	3/4 in
16	1 in

Figure 2. Barb size

1.5 Specify Type of Tubing

SU6XX-XX-**XX**-XX-XXX-X



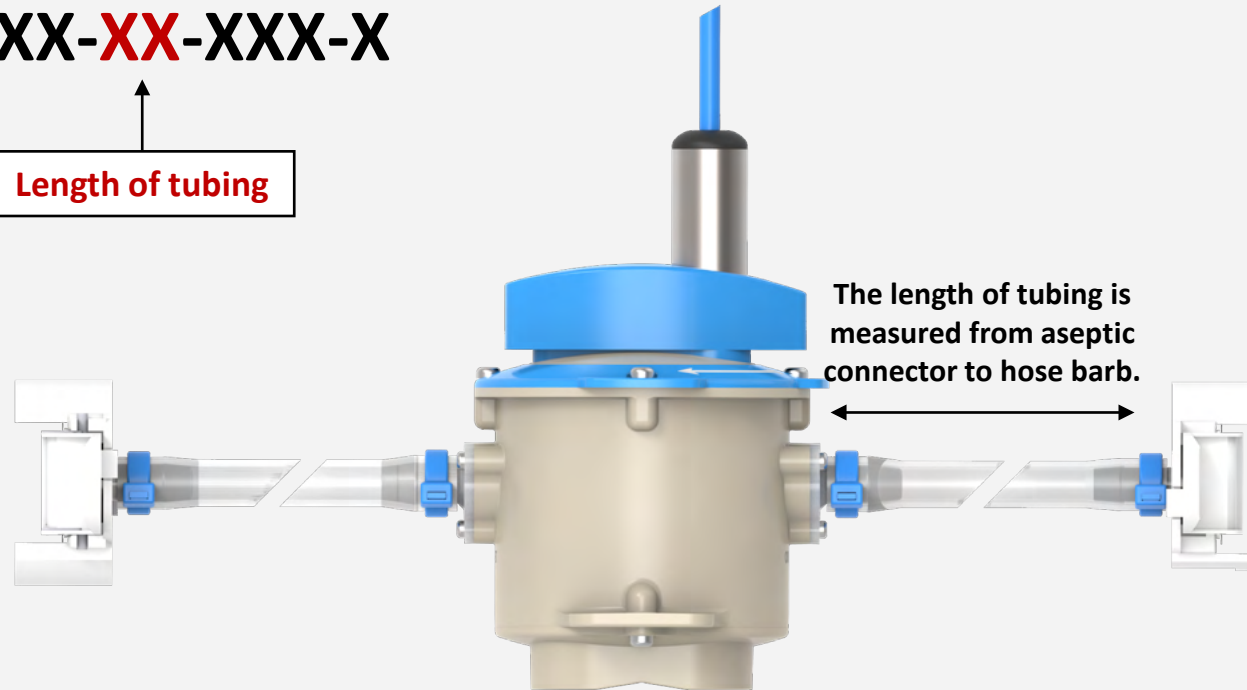
Standard Types of Tubing for the SU600 and SU680 Sensor	
Part Number	Type of Tubing
01	Pt Cured Silicone Tygon® 3350
02	Saint-Gobain C-Flex® 374

This table outlines the standard types of tubing available for the sensor. If a different type of tubing is required, contact Broadley-James sales.

1.6 Specify Length of Tubing (Centimeters)

SU6XX-XX-XX-**XX**-XXX-X

Length of tubing



To specify length, input the length in centimeters in the part number from 01–99. If longer tubing or asymmetric tubing is required, contact Broadley-James sales.

Figure 3. Length of tubing

1.7 Specify Type of Aseptic Connector

SU6XX-XX-XX-XX-**XXX**-X

Connector series

Contact Broadley-James sales for assistance specifying the aseptic connector part number. A sample of the available connectors is listed in the table below.

Types of Aseptic Connector and Sizes				
Make	Brand	Type	Barb size (in)	Connector series
Saint-Gobain	• Barblock® • PharmaFluor® • PureFit®	• High temperature • Standard	1⁄8, 1⁄4, 3⁄8, 1⁄2, 3⁄4, 1	100 Series
Colder (CPC)	• AseptiQuik®	• High temperature • Standard	1⁄8, 1⁄4, 3⁄8, 1⁄2, 3⁄4, 1	200 Series
PALL	• Kleenpak™	• High temperature • Standard	1⁄8, 1⁄4, 3⁄8, 1⁄2, 3⁄4, 1	300 series

1.8 Specify the Sterilization Process

SU6XX-XX-XX-XX-XXX-**X**

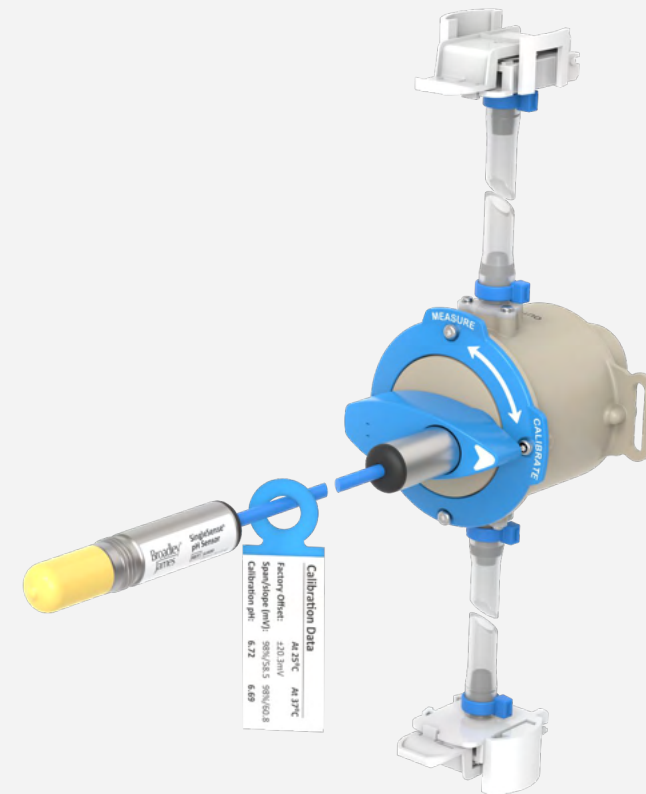
Sterilization process

Gamma Sterilized

To select a sterilized sensor, add a **“G”** in the last step of the part number. Sterilized sensors are assembled with tubing and aseptic connectors and are ready for installation after unpacking.

Unsterilized

To select an unsterilized sensor, add a **zero** in the final step of the part number. Unsterilized sensors will require further set up and sterilization prior to use.



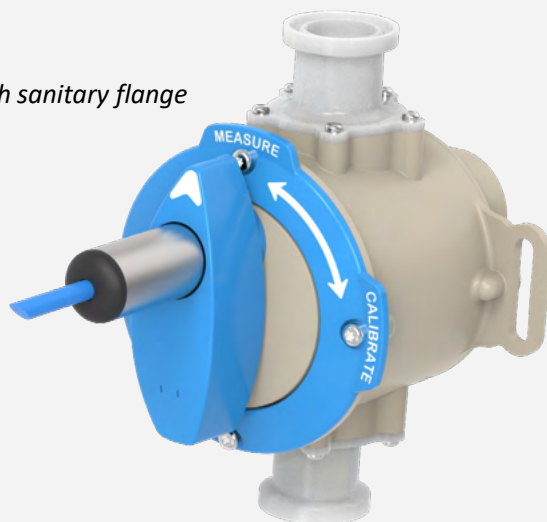
Sterilized single-use assembly with SU600, tubing, and aseptic connectors

Figure 4. Sterilization process

1.9 Custom SU600/SU680 Single-Use Assemblies

The SU600/SU680 can be customized to suit unique downstream bioprocessing needs. Customizations include asymmetrical tubing lengths, different types of tubing on the same sensor, and color-coded inlet and outlet connectors. Below are two examples of potential custom single-use assemblies. Contact Broadley-James sales for a consultation and quote if the application or assembly requires further customizations than those offered within the standard part number.

Sensor with sanitary flange



Sterilized single-use assembly with SU600, tubing, and aseptic connectors ready for integration into user's process assembly for immediate use

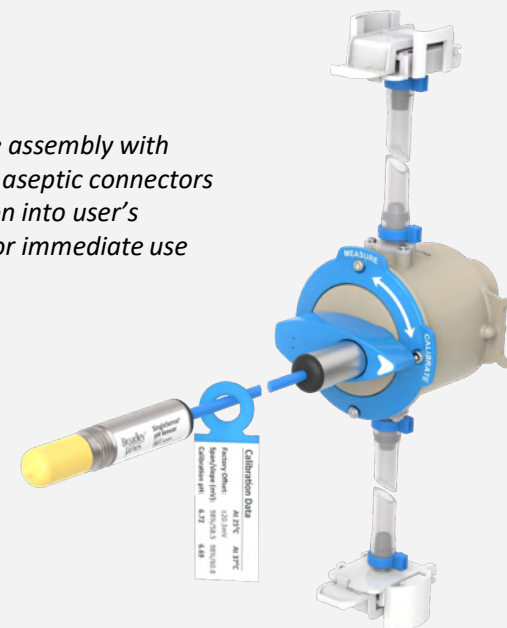


Figure 5. Custom SU600/SU680 single-use assembly

Step 2: Installation

- Sensor Overview
- Installation Overview
- Installation Options
- Mounting to Recommended Bracket

2.1 Essential Terms and Definitions

This table outlines terms and definitions important for the installation process. See the next slides for their location on the sensor and single-use assembly.

Term	Definition
Aseptic connector (optional)	Attaches the sensor to the flow stream
Bracket clip	For attachment to an optional bracket
Calibration tag	Tag on the sensor's cable that displays data specific to each sensor (do not remove)
Yellow protective cap	Protects the sensor's VP8 connector during shipment
Dial face	Displays the position of the sensor in either measure or calibrate
Inlet	Allows process solution to pass through the sensor
Mounting bracket (optional)	An optional bracket to mount sensor in a vertical position
Outlet	Allows process solution to flow out of the sensor
Protective barb cover	Disposable cover protecting the barb (not shown)
Switch	Changes the position of the sensor between measure and calibrate
Tubing	Allows process solution to pass through the flow cell
Zip tie	Secures tubing to inlet and aseptic connector

2.2 Sensor Description

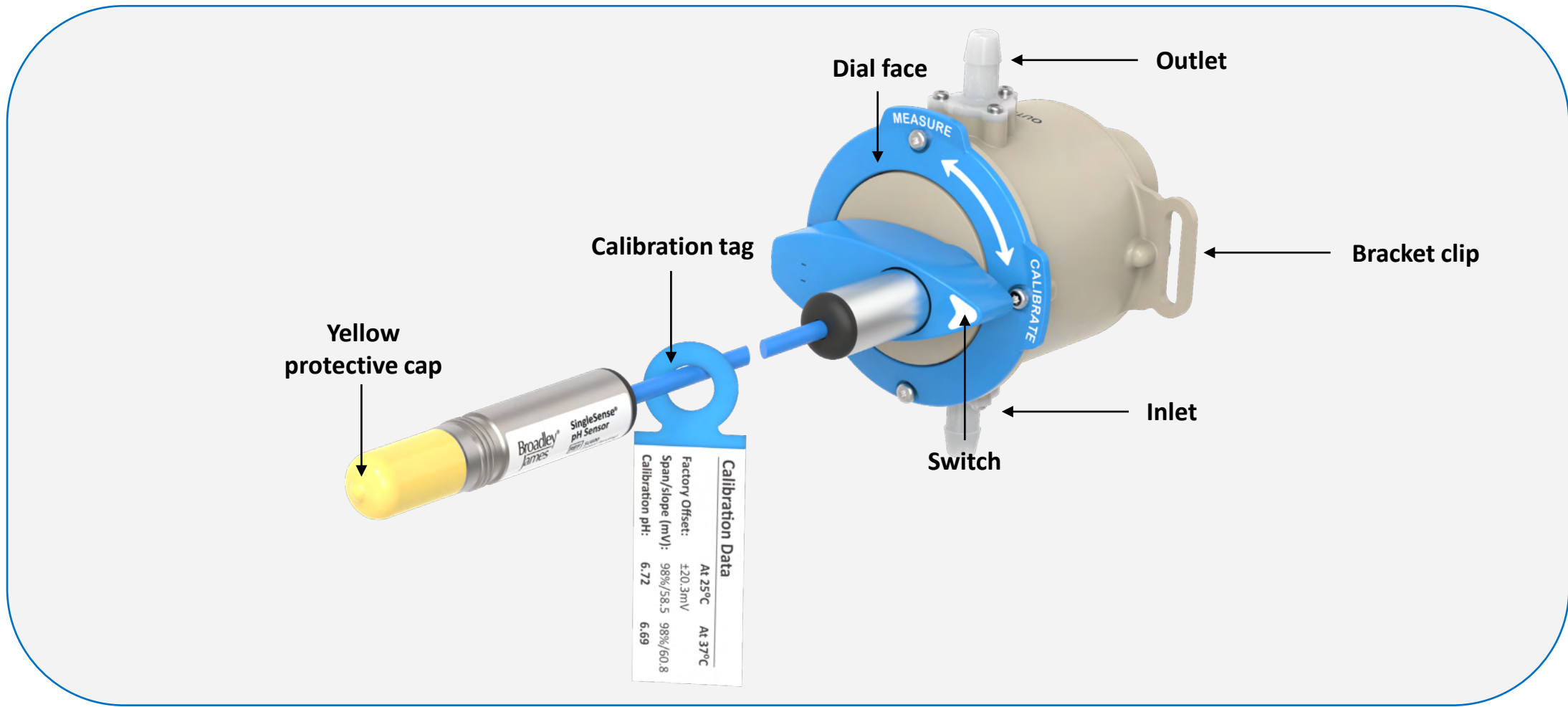


Figure 6. Sensor description

2.3 Single-use Assembly Description

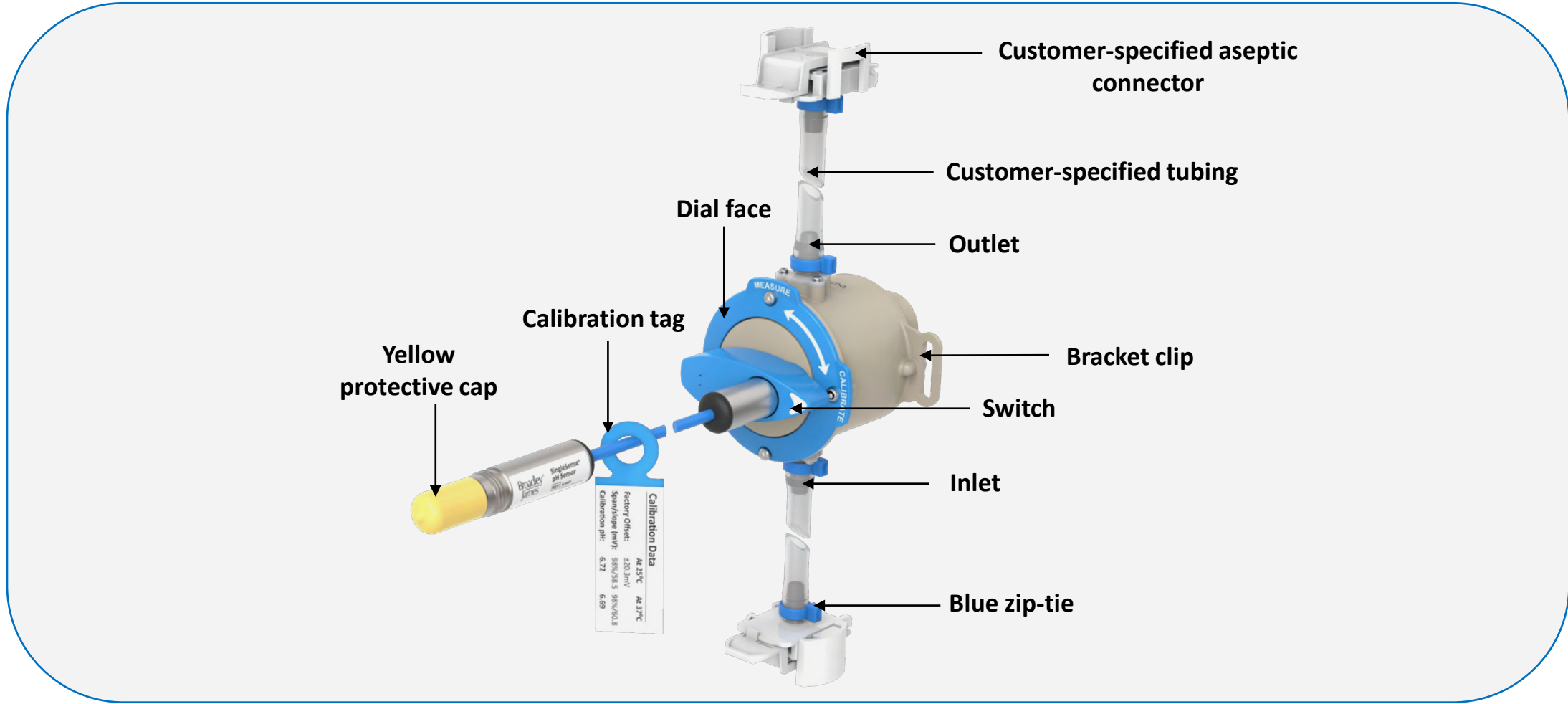


Figure 7. Single-use assembly description

2.5 Sensor Packaging Configuration

- The sensor is double bagged.
- The outer bag protects the inner bag. The inner bag is sealed in a Class 7 clean air hood.
- All labeling on the inner bag is legible through the outer bag.



If a sterilized single-use assembly was ordered, check to see if the gamma sterilization sticker is red. For unsterilized sensors, the sticker will be yellow.

Note: For demonstration purposes, this manual shows an unsterilized SU600 sensor only.



Figure 8. Sensor packaging configuration

2.6 Unpacking the Sensor

- Remove the outer bag from the sensor package and transfer the inner bag to a clean room.
- When inside a clean room, carefully open the inner bag and remove the sensor.

⚠ **Do not remove the calibration tag.**

Note: Do not damage the sensor's cable during removal. Only open the inner bag in a clean room.



Remove from outer bag

*Remove from inner bag only
when in a clean room*

Figure 9. Unpacking the sensor

2.7 Installation Options

Option 1:

For **unsterilized sensors**, tubing or tubing with aseptic connectors will need to be installed and sterilized.

Follow your standard operating procedures to install the sensor.



For correct process solution flow, position the sensor with the outlet and inlet as shown.

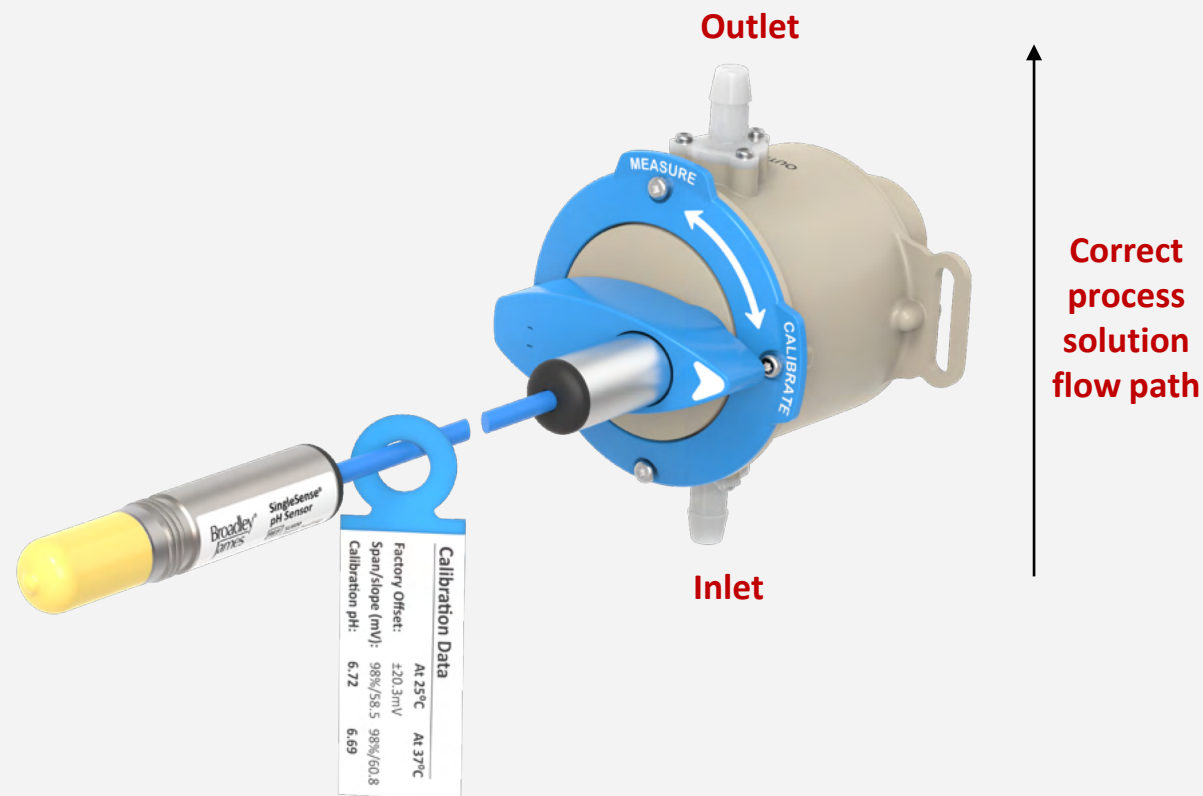


Figure 10. Unsterilized sensor installation option

2.8 Installation Options (cont.)

Option 2:

For **sterilized single-use assemblies**, the assembly is ready for installation into your downstream bioprocess system.



For correct process solution flow, position the sensor with the outlet and inlet as shown.

This completes the installation for a single-use assembly.

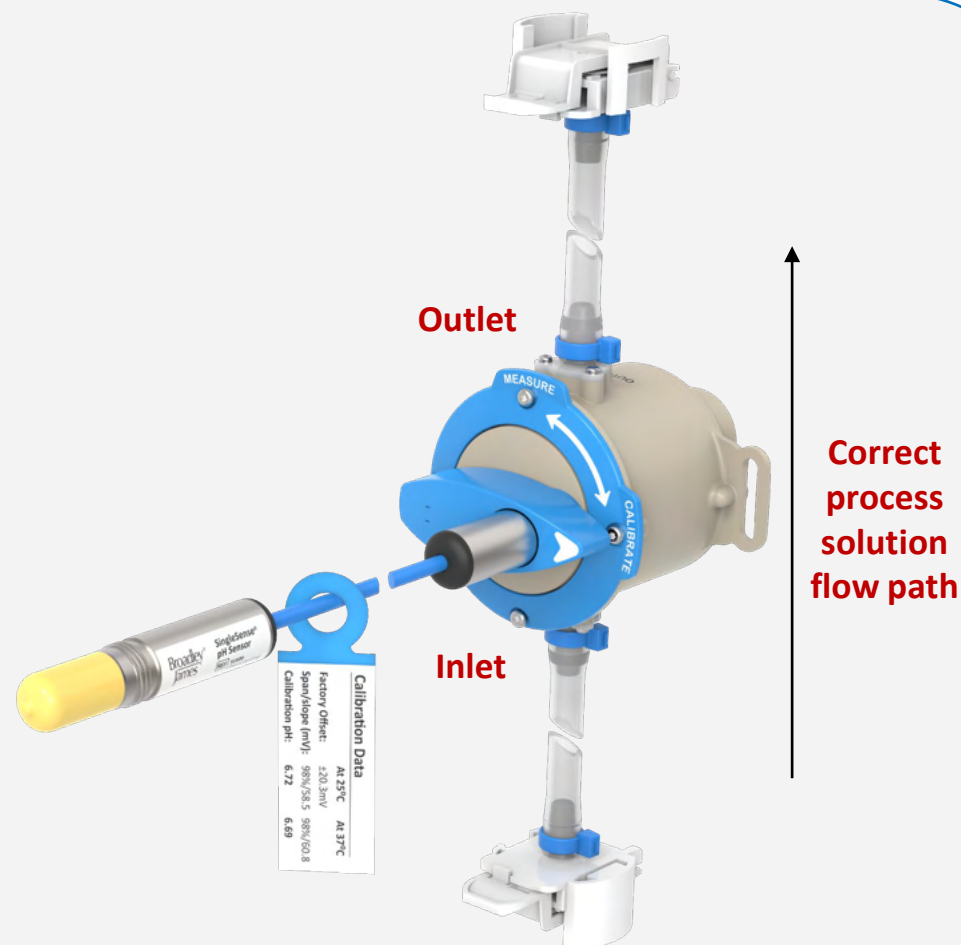


Figure 11. Sterilized single-use assembly installation option

2.9 Mounting to Optional Bracket

To mitigate inline bubbles, the recommended orientation for installing the sensor is vertical, with the outlet on the top and the inlet on the bottom.

Broadley-James offers an optional mounting bracket for this purpose. Contact Broadley-James sales for more information.

See **Appendix B – Bracket Mounting Information** for more information.

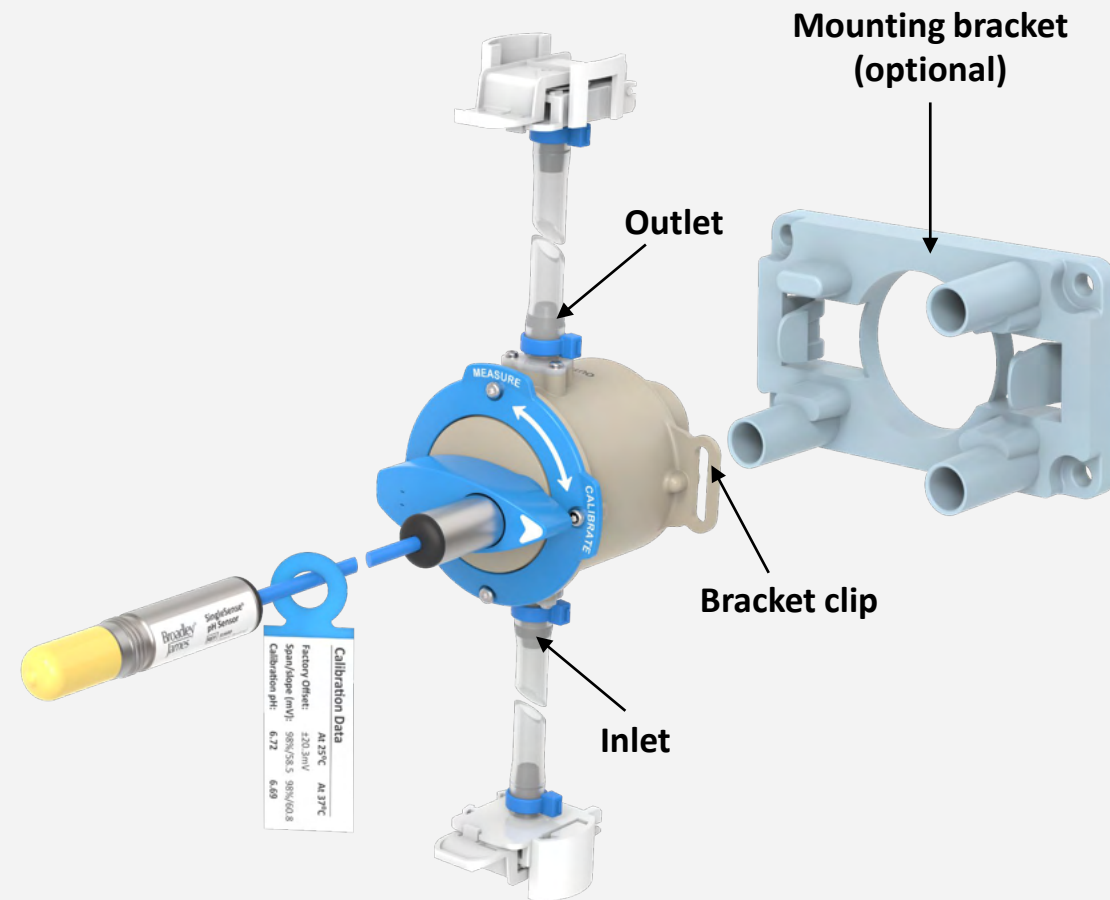


Figure 12. Mounting sensor to optional bracket

2.10 Mounting to Optional Bracket (cont.)

Follow these steps when using an optional mounting bracket:

- Align the bracket clips with the fasteners on the bracket.
- Push the sensor into the bracket to snap it into place.
- To detach the sensor from the bracket, bend back the fastener from the clips. The bracket stays part of the permanent installation.

This completes the recommended installation in the vertical position using the optional bracket.

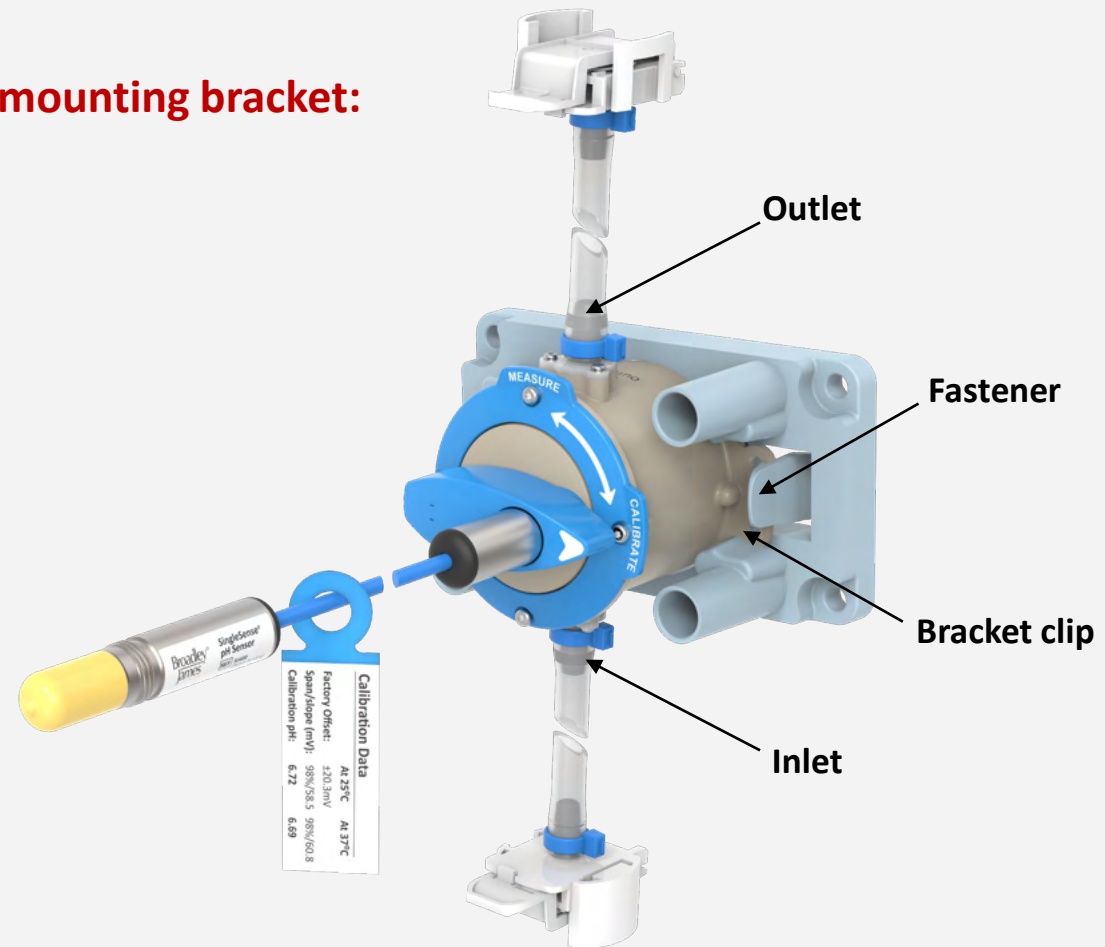


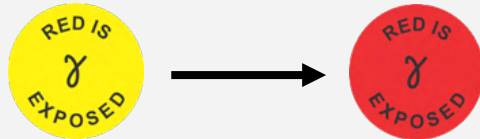
Figure 13. Mounting bracket installation

Step 3. Post-Installation Inspection

- Post-installation Checklist
- Calibration Warning

3.1 Post-installation Inspection Checklist

- ☐ 1. Is the calibration tag still attached?
- ☐ 2. Is the switch in the calibrate position?
- ☐ 3. If it is a sterilized single-use assembly, was the sticker red when the sensor was taken out of the bag?



Do not move the dial to the **measure** position until ready to operate.

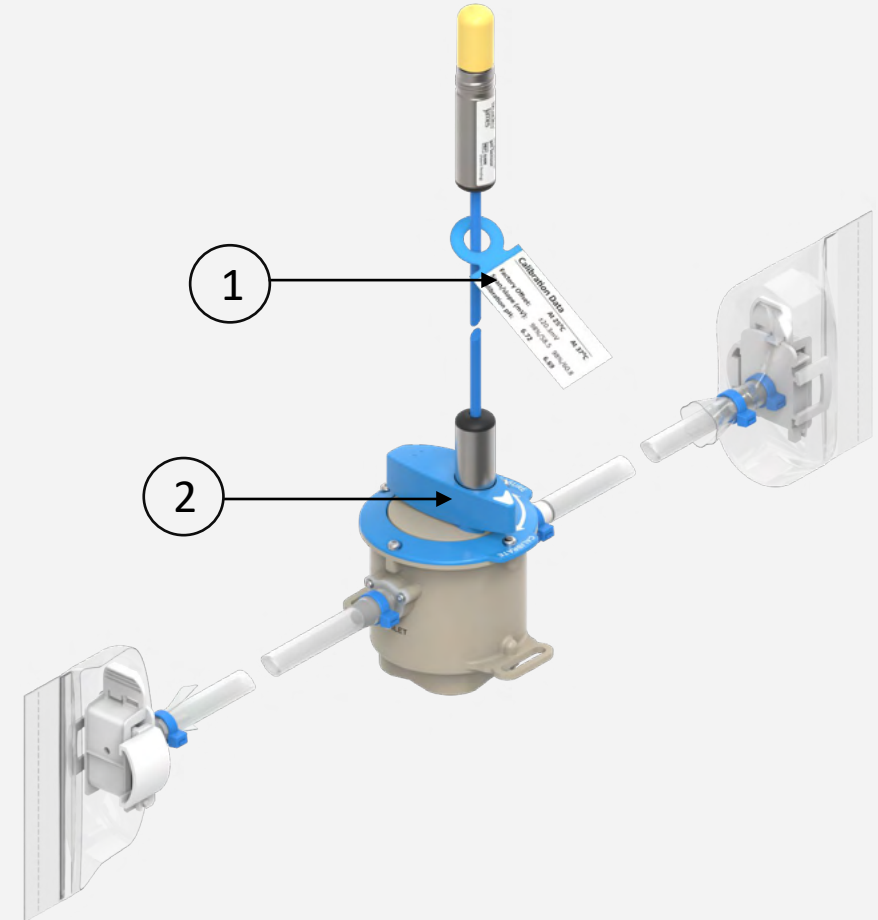


Figure 14. Post-installation inspection checklist

Appendices

- Appendix A – Specification Sheets
- Appendix B – Purchasing Sheets

Appendix A – Specification Sheet for SU600 with 1/8-inch Hose Barbs

Product Specification Sheet
Doc Nbr: PSS-082101 R3
July 2023 – Page 1

REF SU600-02
Single-Use, Flow-Through pH Sensor
with 1/8-inch Hose Barbs

Description

The SU600-02 SingleSense® single-use, flow-through pH sensor is designed for downstream applications where the pH must be continuously measured in process media flowing through 1/8-inch flexible tubing. Rugged and always ready to use, no hydration time is required. The sensor can be rotated into the buffer storage chamber for a 1-point standardization check or to avoid exposure to CIP process solution.

Model	SU600 Series
Part Number	SU600-02

Sensor Specifications

Measurement Range	2–12 pH
Operational Temp. Range	15°–50° C [60°–122° F]
Storage Temperature	5°–35° C [41°–95° F]
Shelf Life	36 months
Post Gamma	30 months
Gamma Tolerance Level	50 kGy
Sensor/Tubing Interface	1/8-inch Hose Barbs
Sensor Connector Cable	8-pin Variopin

Wetted Materials

Main Sensor Body	PEEK, USP Class VI, ADI Free
Port Gasket	Dimethyl Silicone Rubber Pt Cure, USP Class VI, ADI Free
O-ring	EPDM, USP Class VI, FDA Compliant Extraction Tested 21CFR, 177.2600, ADI Free
pH Glass Electrode	Lead-free Glass
Ceramic Junction	Alumina Silicate
Hose Barbs	HDPE, USP Class VI

Features

- pH sensor rotates into the buffer storage chamber in the sensor body for long-term storage
- Only the sensor rotates out of flow path, keeping flow path open
- Sensor can be rotated multiple times without loss of buffer storage electrolyte in the flow stream

Benefits

- Sensor can be stored and protected from exposure to CIP solutions
- Always ready to use; no rehydration time required
- Sensor can be rotated into buffer storage chamber during mid-run for 1-point standardization check

Isometric View

Side View

Top View with Dial Face

Product Specification Sheet
Doc Nbr: PSS-082101 R3
July 2023 – Page 2

REF SU600-02
Single-Use, Flow-Through pH Sensor
with 1/8-inch Hose Barbs

Dimensional Drawings of SU600-02

OUTLET 1/8" Barb

INLET 1/8" Barb

[103 mm] 4.1 in

[89 mm] 3.5 in

[89 mm] 3.5 in

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Published 27 July 2023

78MP-PSS-082101 R3

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Appendix A (cont.) – Specification Sheet for SU600 with 1/4-inch Hose Barbs

Product Specification Sheet
Doc Nbr: PSS-082102 R3
July 2023 – Page 1

REF SU600-04
Single-Use, Flow-Through pH Sensor
with 1/4-inch Hose Barbs

Description

The SU600-04 SingleSense® single-use, flow-through pH sensor is designed for downstream applications where the pH must be continuously measured in process media flowing through 1/4-inch flexible tubing. Rugged and always ready to use, no hydration time is required. The sensor can be rotated into the buffer storage chamber for a 1-point standardization check or to avoid exposure to CIP process solution.

Model	SU600 Series
Part Number	SU600-04

Sensor Specifications

Measurement Range	2–12 pH
Operational Temp. Range	15°–50° C [60°–122° F]
Storage Temperature	5°–35° C [41°–95° F]
Shelf Life	36 months
Post Gamma: 30 months	
Gamma Tolerance Level	50 kGy
Sensor/Tubing Interface	1/4-inch Hose Barbs
Sensor Connector Cable	8-pin Variopin

Wetted Materials

Main Sensor Body	PEEK, USP Class VI, ADI Free
Port Gasket	Dimethyl Silicone Rubber Pt Cure, USP Class VI, ADI Free
O-ring	EPDM, USP Class VI, FDA Compliant Extraction Tested 21CFR, 177.2600, ADI Free
pH Glass Electrode	Lead-free Glass
Ceramic Junction	Alumina Silicate
Hose Barbs	HDPE, USP Class VI

Features

- pH sensor rotates into the buffer storage chamber in the sensor body for long-term storage
- Only the sensor rotates out of flow path, keeping flow path open
- Sensor can be rotated multiple times without loss of buffer storage electrolyte in the flow stream

Benefits

- Sensor can be stored and protected from exposure to CIP solutions
- Always ready to use; no rehydration time required
- Sensor can be rotated into buffer storage chamber during mid-run for 1-point standardization check

Isometric View

Side View

Top View with Dial Face

Product Specification Sheet
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July 2023 – Page 2

REF SU600-04
Single-Use, Flow-Through pH Sensor
With 1/4-inch Hose Barbs

Dimensional Drawings of SU600-04

OUTLET 1/4" Barb

INLET 1/4" Barb

[108 mm] 4.3 in

[89 mm] 3.5 in

[89 mm] 3.5 in

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Appendix A (cont.) – Specification Sheet for SU600 with 3/8-inch Hose Barbs

Product Specification Sheet
Doc Nbr: PSS-082103 R3
July 2023 – Page 1

REF SU600-06
Single-Use, Flow-Through pH Sensor
with 3/8-inch Hose Barbs

Description

The SU600-06 SingleSense® single-use, flow-through pH sensor is designed for downstream applications where the pH must be continuously measured in process media flowing through 3/8-inch flexible tubing. Rugged and always ready to use, no hydration time is required. The sensor can be rotated into the buffer storage chamber for a 1-point standardization check or to avoid exposure to CIP process solution.

Model	SU600 Series
Part Number	SU600-06

Sensor Specifications

Measurement Range	2–12 pH
Operational Temp. Range	15°–50° C [60°–122° F]
Storage Temperature	5°–35° C [41°–95° F]
Shelf Life	36 months
Post Gamma: 30 months	
Gamma Tolerance Level	50 kGy
Sensor/Tubing Interface	3/8-inch Hose Barbs
Sensor Connector Cable	8-pin Variopin

Wetted Materials

Main Sensor Body	PEEK, USP Class VI, ADI Free
Port Gasket	Dimethyl Silicone Rubber Pt Cure, USP Class VI, ADI Free
O-ring	EPDM, USP Class VI, FDA Compliant Extraction Tested 21CFR, 177.2500, ADI Free
pH Glass Electrode	Lead-free Glass
Ceramic Junction	Alumina Silicate
Hose Barbs	HDPE, USP Class VI

Features

- pH sensor rotates into the buffer storage chamber in the sensor body for long-term storage
- Only the sensor rotates out of flow path, keeping flow path open
- Sensor can be rotated multiple times without loss of buffer storage electrolyte in the flow stream

Benefits

- Sensor can be stored and protected from exposure to CIP solutions
- Always ready to use; no rehydration time required
- Sensor can be rotated into buffer storage chamber during mid-run for 1-point standardization check

Isometric View

Side View

Top View with Dial Face

Product Specification Sheet
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REF SU600-06
Single-Use, Flow-Through pH Sensor
with 3/8-inch Hose Barbs

Dimensional Drawings of SU600-06

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Appendix A (cont.) – Specification Sheet for SU680 with 1/2-inch Hose Barbs

Product Specification Sheet
Doc Nbr: PSS-082104 R3
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REF SU680-08
Single-Use, Flow-Through pH Sensor
with 1/2-inch Hose Barbs

Description

The SU680-08 SingleSense® single-use, flow-through pH sensor is designed for downstream applications where the pH must be continuously measured in process media flowing through 1/2-inch flexible tubing. Rugged and always ready to use, no hydration time is required. The sensor can be rotated into the buffer storage chamber for a 1-point standardization check or to avoid exposure to CIP process solution.

Model	SU680 Series
Part Number	SU680-08

Sensor Specifications

Measurement Range	2–12 pH
Operational Temp. Range	15°–50° C [60°–122° F]
Storage Temperature	5°–35° C [41°–95° F]
Shelf Life	36 months
Post Gamma: 30 months	
Gamma Tolerance Level	50 kGy
Sensor/Tubing Interface	1/2-inch Hose Barbs
Sensor Connector Cable	8-pin Variopin

Wetted Materials

Main Sensor Body	PEEK, USP Class VI, ADI Free
Port Gasket	Dimethyl Silicone Rubber Pt Cure, USP Class VI, ADI Free
O-ring	EPDM, USP Class VI, FDA Compliant Extraction Tested 21CFR, 177.2600, ADI Free
pH Glass Electrode	Lead-free Glass
Ceramic Junction	Alumina Silicate
Hose Barbs	HDPE, USP Class VI

Features

- pH sensor rotates into the buffer storage chamber in the sensor body for long-term storage
- Only the sensor rotates out of flow path, keeping flow path open
- Sensor can be rotated multiple times without loss of buffer storage electrolyte in the flow stream

Benefits

- Sensor can be stored and protected from exposure to CIP solutions
- Always ready to use; no rehydration time required
- Sensor can be rotated into buffer storage chamber during mid-run for 1-point standardization check

Isometric View

Side View

Top View with Dial Face

Product Specification Sheet
Doc Nbr: PSS-082104 R3
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REF SU680-08
Single-Use, Flow-Through pH Sensor
with 1/2-inch Hose Barbs

Dimensional Drawings of SU680-08

Appendix A (cont.) – Specification Sheet for SU680 with 3/4-inch Hose Barbs

Product Specification Sheet
Doc Nbr: PSS-082105 R3
July 2023 – Page 1

REF SU680-12
Single-Use, Flow-Through pH Sensor
with 3/4-inch Hose Barbs

Description

The SU680-12 SingleSense® single-use, flow-through pH sensor is designed for downstream applications where pH must be measured while process solution is flowing through 3/4-inch flexible tubing.

Rugged and always ready to use, no hydration time is required. The sensor can be rotated into the buffer storage chamber for a 1-point standardization check or to avoid exposure to CIP process solution.

Model	SU680 Series
Part Number	SU680-12

Sensor Specifications

Measurement Range	2–12 pH
Operational Temp. Range	15°–50° C [60–122° F]
Storage Temperature	5°–35° C [41–95° F]
Shelf Life	36 months
Post Gamma: 30 months	
Gamma Tolerance Level	50 kGy
Sensor/Tubing Interface	3/4-inch Hose Barbs
Sensor Connector Cable	8-pin Variopin

Wetted Materials

Main Sensor Body	PEEK, USP Class VI, ADI Free
Port Gasket	Dimethyl Silicone Rubber Pt Cure, USP Class VI, ADI Free
O-ring	EPDM, USP Class VI, FDA Compliant Extraction Tested 21CFR, 177.2600, ADI Free
pH Glass Electrode	Lead-free Glass
Ceramic Junction	Alumina Silicate
Hose Barbs	HDPE, USP Class VI

Features

- pH sensor rotates into the buffer storage chamber in the sensor body for long-term storage
- Only the sensor rotates out of flow path, keeping flow path open
- Sensor can be rotated multiple times without loss of buffer storage electrolyte in the flow stream

Benefits

- Sensor can be stored and protected from exposure to CIP solutions
- Always ready to use; no rehydration time required
- Sensor can be rotated into buffer storage chamber during mid-run for 1-point standardization check

Isometric View

Side View

Top View with Dial Face

Product Specification Sheet
Doc Nbr: PSS-082105 R3
July 2023 – Page 2

REF SU680-12
Single-Use, Flow-Through pH Sensor
with 3/4-inch Hose Barbs

Dimensional Drawings of SU680-12

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Appendix A (cont.) – Specification Sheet for SU680 with 1-inch Hose Barbs

Product Specification Sheet
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REF SU680-16
Single-Use, Flow-Through pH Sensor
with 1-inch Hose Barbs

Description

The SU680-16 SingleSense® single-use, flow-through pH sensor is designed for downstream applications where the pH must be continuously measured in process media flowing through 1-inch flexible tubing. Rugged and always ready to use, no hydration time is required. The sensor can be rotated into the buffer storage chamber for a 1-point standardization check or to avoid exposure to CIP process solution.

Model	SU680 Series
Part Number	SU680-16

Sensor Specifications

Measurement Range	2–12 pH
Operational Temp. Range	15°–50° C [60°–122° F]
Storage Temperature	5°–35° C [41°–95° F]
Shelf Life	36 months
Post Gamma: 30 months	
Gamma Tolerance Level	50 kGy
Sensor/Tubing Interface	1-inch Hose Barbs
Sensor Connector Cable	8-pin Variopin

Wetted Materials

Main Sensor Body	PEEK, USP Class VI, ADI Free
Port Gasket	Dimethyl Silicone Rubber Pt Cure, USP Class VI, ADI Free
O-ring	EPDM, USP Class VI, FDA Compliant Extraction Tested 21CFR, 177.2500, ADI Free
pH Glass Electrode	Lead-free Glass
Ceramic Junction	Alumina Silicate
Hose Barbs	HDPE, USP Class VI

Features

- pH sensor rotates into the buffer storage chamber in the sensor body for long-term storage
- Only the sensor rotates out of flow path, keeping flow path open
- Sensor can be rotated multiple times without loss of buffer storage electrolyte in the flow stream

Benefits

- Sensor can be stored and protected from exposure to CIP solutions
- Always ready to use; no rehydration time required
- Sensor can be rotated into buffer storage chamber during mid-run for 1-point standardization check



Isometric View



Side View

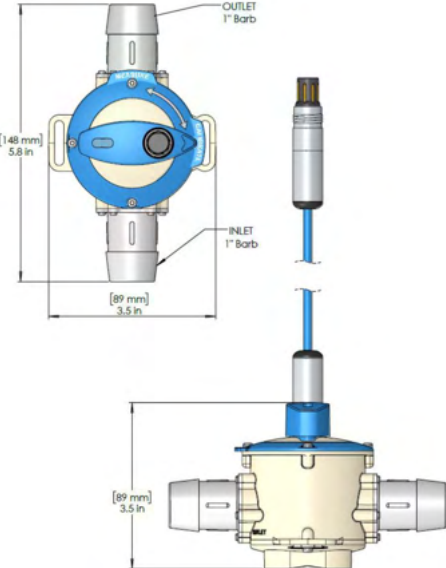


Top View with Dial Face

Product Specification Sheet
Doc Nbr: PSS-082106 R3
July 2023 – Page 1

REF SU680-16
Single-Use, Flow-Through pH Sensor
with 1-inch Hose Barbs

Dimensional Drawings of SU680-16



OUTLET 1" Barb

INLET 1" Barb

[148 mm] 5.8 in

[89 mm] 3.5 in

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TMP-PSS-102101-01

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Appendix B – Purchasing Sheet for SU600 with 1/8-inch Hose Barbs

Product Purchasing Sheet

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REF SU600-02

**Single-Use, Flow-Through pH Sensor
with 1/8-inch Hose Barbs**

Description

The SU600-02 SingleSense® Single-Use pH Sensor is a flow-through sensor with 1/8-inch hose barbs. Designed for downstream bioprocess applications.

Purchase Information

Part Number	SU600-02
Description	Single-use flow-through pH sensor, 1/8-inch

Classification

Model Type	SU600
Product Type	pH Sensor

Specifications

Measurement

Type	pH
Principle	Potentiometric
Range	2–12 pH
Drift	≤ 0.01 pH per day

Operational Range

Temperature	15°–50° C [60°–122° F]
Pressure	0–3040 mmHg [0–45 psig]
Maximum Flow Rate	0.9 liters/minute [0.23 gallons/minute]

Signal

Input	Not applicable
Output	Sensor: Millivolts: ±414 Metadata: Digital: SensorTalk®

Sterilization

Autoclavable	Not autoclavable
Steam Sterilizable	Not steam sterilizable
Gamma Sterilizable	Yes, up to 50 kGy

Connectors and Cables

Connector	8-pin Variopin
Cable Length	0.15 m [6 inches]

Process Interface

Insertion Method	1/8-inch Hose Barbs
Insertion Length	Not applicable

Wetted Materials

PEEK, USP Class VI, ADI-Free, Extraction Tested 21CFR, 177.2600
Dimethyl Silicone Rubber, Pt Cure, USP Class VI, Extraction Tested 21CFR, 177.2600
EPDM USP Class VI, FDA Compliant, ADI-Free
HDPE, USP Class VI
Lead-Free Glass, Alumina Silicate

Isometric View

Side View

Top View with Dial Face

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Product Purchasing Sheet
Doc Nbr: PDS-112055 R4
July 2023 – Page 2

[REF] SU600-02
Single-Use, Flow-Through pH Sensor
with 1/8-inch Hose Barbs

Packaging and Regulations

Packaging Information

Package Type	Cardboard box with double-bagged sensor inside
Package Dimensions	30.48 x 30.48 x 5.08 cm [12 in x 12 in x 2 in]
Package Weight	< 0.5 kg [1 lb]
Double Bagged	Yes, sensor is double-bagged
Cleanhood Bagged	Yes, inner bag only
Cleanhood Class	Class 7 Clean Air Hood
Storage Conditions	Temperature: 5°–35° C [41°–95° F]
Included Accessories	Not applicable
Quality Certificate	Included
Shelf Life	36 months
Shelf Life Post Gamma Sterilization	30 months

Origination and Tariff Code

Harmonized Tariff Trade Code	9027803100
Country of Origin	USA
MFR Location	California, USA

Purchasing Information

Unit of Sale	Each
Minimum Purchase Quantity	Each

Regulatory and Compliance

CE Compliant	Yes
RoHS Compliant	Yes
REACH Compliant	Yes
CFR 21-11 Compliant	Not applicable
BSE/TSE/ADI Free	Yes
USP Class VI Compliant	Yes, all wetted parts
FDA Material Compliant	Yes, all wetted parts

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Doc Nbr: PDS-112055 R4

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TRF-PDS-112055 R4

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Appendix B (cont.) – Purchasing Sheet for SU600 with 1/4-inch Hose Barbs

Product Purchasing Sheet
Doc Nbr: PDS-112056 R4
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REF SU600-04
Single-Use, Flow-Through pH Sensor
with 1/4-inch Hose Barbs

Description
The SU600-04 SingleSense® Single-Use pH Sensor is a flow-through sensor with 1/4-inch hose barbs. Designed for downstream bioprocess applications.

Purchase Information

Part Number	SU600-04
Description	Single-Use Flow-Through pH Sensor, 1/4 inch

Classification

Model Type	SU600
Product Type	pH Sensor

Specifications

Measurement

Type	pH
Principle	Potentiometric
Range	2–12 pH
Drift	≤ 0.01 pH per day

Operational Range

Temperature	15°–50° C [60°–122° F]
Pressure	0–3040 mmHg [0–45 psig]
Maximum Flow Rate	3.5 liters/minute [0.92 gallons/minute]

Signal

Input	Not applicable
Output	Sensor: Millivolts: ±414 Metadata: Digital: SensorTalk®

Sterilization

Autoclavable	Not autoclavable
Steam Sterilizable	Not steam sterilizable
Gamma Sterilizable	Yes, up to 50 kGy

Connectors and Cables

Connector	8-pin Variopin
Cable Length	0.15 m [6 inches]

Process Interface

Insertion Method	1/4-inch Hose Barbs
Insertion Length	Not applicable

Wetted Materials
PEEK, USP Class VI, ADI-Free, Extraction Tested 21CFR, 177.2600
Dimethyl Silicone Rubber, Pt Cure, USP Class VI, Extraction Tested 21CFR, 177.2600
EPDM USP Class VI, FDA Compliant, ADI-Free
HDPE, USP Class VI
Lead-Free Glass, Alumina Silicate

Isometric View

Side View

Top View with Dial Face

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Product Purchasing Sheet
Doc Nbr: PDS-112056 R4
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REF SU600-04
Single-Use, Flow-Through pH Sensor
with 1/4-inch Hose Barbs

Packaging and Regulations

Packaging Information

Package Type	Cardboard box with double-bagged sensor inside
Package Dimensions	30.48 x 30.48 x 5.08 cm [12 in x 12 in x 2 in]
Package Weight	< 0.5 kg [1 lb]
Double Bagged	Yes, sensor is double-bagged
Cleanroom Bagged	Yes, inner bag only
Cleanroom Class	Class 7 Clean Air Hood
Storage Conditions	Temperature: 5°–35° C [41°–95° F]
Included Accessories	Not applicable
Quality Certificate	Included
Shelf Life	36 months
Shelf Life Post Gamma Sterilization	30 months

Origination and Tariff Code

Harmonized Tariff Trade Code	9027803100
Country of Origin	USA
MFR Location	California, USA

Purchasing Information

Unit of Sale	Each
Minimum Purchase Quantity	Each

Regulatory and Compliance

CE Compliant	Yes
RoHS Compliant	Yes
REACH Compliant	Yes
CFR 21-11 Compliant	Not applicable
BSE/TSE/ADI Free	Yes
USP Class VI Compliant	Yes, all wetted parts
FDA Material Compliant	Yes, all wetted parts

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TMP-PDS-112056 R1

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Appendix B (cont.) – Purchasing Sheet for SU600 with 3/8-inch Hose Barbs

Product Purchasing Sheet
Doc Nbr: PDS-112057 R4
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REF SU600-06
Single-Use, Flow-Through pH Sensor
with 3/8-inch Hose Barbs

Description

The SU600-06 SingleSense® Single-Use pH Sensor is a flow-through sensor with 3/8-inch hose barbs designed for downstream bioprocess applications.

Purchase Information

Part Number	SU600-06
Description	Single-Use Flow-Through pH Sensor, 3/8 inch

Classification

Model Type	SU600
Product Type	pH Sensor

Specifications

Measurement

Type	pH
Principle	Potentiometric
Range	2–12 pH
Drift	≤ 0.01 pH per day

Operational Range

Temperature	15°–50° C [60°–122° F]
Pressure	0–3040 mmHg [0–45 psig]
Maximum Flow Rate	7.8 liters/minute [2.07 gallons/minute]

Signal

Input	Not applicable
Output	Sensor: Millivolts: ±414 Metadata: Digital: SensorTalk®

Sterilization

Autoclavable	Not autoclavable
Steam Sterilizable	Not steam sterilizable
Gamma Sterilizable	Yes, up to 50 kGy

Connectors and Cables

Connector	8-pin Variopin
Cable Length	0.15 m [6 inches]

Process Interface

Insertion Method	3/8-inch Hose Barbs
Insertion Length	Not applicable

Wetted Materials

PEEK, USP Class VI, ADI-Free, Extraction Tested 21CFR, 177.2600
Dimethyl Silicone Rubber, Pt Cure, USP Class VI, Extraction Tested 21CFR, 177.2600
EPDM USP Class VI, FDA Compliant, ADI-Free
HDPE, USP Class VI
Lead-Free Glass, Alumina Silicate

Isometric View

Side View

Top View with Dial Face

Product Purchasing Sheet
Doc Nbr: PDS-112057 R4
July 2023 – Page 2

REF SU600-06
Single-Use, Flow-Through pH Sensor
with 3/8-inch Hose Barbs

Packaging and Regulations

Packaging Information

Package Type	Cardboard box with double-bagged sensor inside
Package Dimensions	30.48 x 30.48 x 5.08 cm [12 in x 12 in x 2 in]
Package Weight	< 0.5 kg [1 lb]
Double Bagged	Yes, sensor is double-bagged
Cleanroom Bagged	Yes, inner bag only
Cleanroom Class	Class 7 Clean Air Hood
Storage Conditions	Temperature: 5°–35° C [41°–95° F]
Included Accessories	Not applicable
Quality Certificate	Included
Shelf Life	36 months
Shelf Life Post Gamma Sterilization	30 months

Origination and Tariff Code

Harmonized Tariff Trade Code	9027803100
Country of Origin	USA
MFR Location	California, USA

Purchasing Information

Unit of Sale	Each
Minimum Purchase Quantity	Each

Regulatory and Compliance

CE Compliant	Yes
RoHS Compliant	Yes
REACH Compliant	Yes
CFR 21-11 Compliant	Not applicable
BSE/TSE/ADI Free	Yes
USP Class VI Compliant	Yes, all wetted parts
FDA Material Compliant	Yes, all wetted parts

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Appendix B (cont.) – Purchasing Sheet for SU680 with 1/2-inch Hose Barbs

Product Purchasing Sheet
Doc Nbr: PDS-112058 R4
July 2023 – Page 1

REF SU680-08
Single-Use, Flow-Through pH Sensor
with 1/2-inch Hose Barbs

Description

The SU680-08 SingleSense® Single-Use pH Sensor is a flow-through sensor with 1/2-inch hose barbs. Designed for downstream bioprocess applications.

Purchase Information

Part Number	SU680-08
Description	Single-Use Flow-Through pH Sensor, 1/2 inch

Classification

Model Type	SU680
Product Type	pH Sensor

Specifications

Measurement

Type	pH
Principle	Potentiometric
Range	2–12 pH
Drift	≤ 0.01 pH per day

Operational Range

Temperature	15–50° C [60°–122° F]
Pressure	0–3040 mmHg [0–45 psig]
Maximum Flow Rate	13.9 liters/minute [3.68 gallons/minute]

Signal

Input	Not applicable
Output	Sensor: Millivolts: ±414 Metadata: Digital: SensorTalk®

Sterilization

Autoclavable	Not autoclavable
Steam Sterilizable	Not steam sterilizable
Gamma Sterilizable	Yes, up to 50 kGy

Connectors and Cables

Connector	8-pin Variopin
Cable Length	0.15 m [6 inches]

Process Interface

Insertion Method	1/2-inch Hose Barbs
Insertion Length	Not applicable

Wetted Materials

PEEK, USP Class VI, ADI-Free, Extraction Tested 21CFR, 177.2600
Dimethyl Silicone Rubber, Pt Cure, USP Class VI, Extraction Tested 21CFR, 177.2600
EPDM USP Class VI, FDA Compliant, ADI-Free
HDPE, USP Class VI
Lead-Free Glass, Alumina Silicate



Sensor in Measure Mode



Side View of Sensor



Top View with Dial Face

Product Purchasing Sheet
Doc Nbr: PDS-112058 R4
July 2023 – Page 1

REF SU680-08
Single-Use, Flow-Through pH Sensor
with 1/2-inch Hose Barbs

Packaging and Regulations

Packaging Information

Package Type	Cardboard box with double-bagged sensor inside
Package Dimensions	30.48 x 30.48 x 5.08 cm [12 in x 12 in x 2 in]
Package Weight	< 0.5 kg [1 lb]
Double Bagged	Yes, sensor is double-bagged
Cleanroom Bagged	Yes, inner bag only
Cleanroom Class	Class 7 Clean Air Hood
Storage Conditions	Temperature: 5°–35° C [41°–95° F]
Included Accessories	Not applicable
Quality Certificate	Included
Shelf Life	36 months
Shelf Life Post Gamma Sterilization	30 months

Origination and Tariff Code

Harmonized Tariff Trade Code	9027803100
Country of Origin	USA
MFR Location	California, USA

Purchasing Information

Unit of Sale	Each
Minimum Purchase Quantity	Each

Regulatory and Compliance

CE Compliant	Yes
RoHS Compliant	Yes
REACH Compliant	Yes
CFR 21-11 Compliant	Not applicable
BSE/TSE/ADI Free	Yes
USP Class VI Compliant	Yes, all wetted parts
FDA Material Compliant	Yes, all wetted parts

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Appendix B (cont.) – Purchasing Sheet for SU680 with 3/4-inch Hose Barbs

Product Purchasing Sheet
Doc Nbr: PDS-112059 R4
July 2023 – Page 1

REF SU680-12
Single-Use, Flow-Through pH Sensor
with 3/4-inch Hose Barbs

Description
The SU680-12 SingleSense® Single-Use pH Sensor is a flow-through sensor with 3/4-inch hose barbs. Designed for downstream bioprocess applications.

Purchase Information

Part Number	SU680-12
Description	Single-Use Flow-Through pH Sensor, 3/4 inch

Classification

Model Type	SU680
Product Type	pH Sensor

Specifications

Measurement

Type	pH
Principle	Potentiometric
Range	2–12 pH
Drift	≤ 0.01 pH per day

Operational Range

Temperature	15°–50° C [60°–122° F]
Pressure	0–3040 mmHg [0–45 psig]
Maximum Flow Rate	31.3 liters/minute [8.27 gallons/minute]

Signal

Input	Not applicable
Output	Sensor: Millivolts: ±414 Metadata: Digital: SensorTalk®

Sterilization

Autoclavable	Not autoclavable
Steam Sterilizable	Not steam sterilizable
Gamma Sterilizable	Yes, up to 50 kGy

Connectors and Cables

Connector	8-pin Variopin
Cable Length	0.15 m [6 inches]

Process Interface

Insertion Method	3/4-inch Hose Barbs
Insertion Length	Not applicable

Wetted Materials
PEEK, USP Class VI, ADI-Free, Extraction Tested 21CFR, 177.2600
Dimethyl Silicone Rubber, Pt Cure, USP Class VI, Extraction Tested 21CFR, 177.2600
EPDM USP Class VI, FDA Compliant, ADI-Free
HDPE, USP Class VI
Lead-Free Glass, Alumina Silicate

Isometric View

Side View

Top View with Dial Face

Product Purchasing Sheet
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REF SU680-12
Single-Use, Flow-Through pH Sensor
with 3/4-inch Hose Barbs

Packaging and Regulations

Packaging Information

Package Type	Cardboard box with double-bagged sensor inside
Package Dimensions	30.48 x 30.48 x 5.08 cm [12 in x 12 in x 2 in]
Package Weight	< 0.5 kg [1 lb]
Double Bagged	Yes, sensor is double-bagged
Cleanroom Bagged	Yes, inner bag only
Cleanroom Class	Class 7 Clean Air Hood
Storage Conditions	Temperature: 5°–35° C [41°–95° F]
Included Accessories	Not applicable
Quality Certificate	Included
Shelf Life	36 months
Shelf Life Post Gamma Sterilization	30 months

Origination and Tariff Code

Harmonized Tariff Trade Code	9027803100
Country of Origin	USA
MFR Location	California, USA

Purchasing Information

Unit of Sale	Each
Minimum Purchase Quantity	Each

Regulatory and Compliance

CE Compliant	Yes
RoHS Compliant	Yes
REACH Compliant	Yes
CFR 21-11 Compliant	Not applicable
BSE/TSE/ADI Free	Yes
USP Class VI Compliant	Yes, all wetted parts
FDA Material Compliant	Yes, all wetted parts

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Published 27 July 2023
TMAP-PDS-112059 R4

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Appendix B (cont.) – Purchasing Sheet for SU680 with 1-inch Hose Barbs

Product Purchasing Sheet
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REF SU680-16
Single-Use, Flow-Through pH Sensor
with 1-inch Hose Barbs

Description
The SU680-16 SingleSense® Single-Use pH Sensor is a flow-through sensor with 1-inch hose barbs designed for downstream bioprocess applications.

Purchase Information

Part Number	SU680-16
Description	Single-Use Flow-Through pH Sensor, 1 inch

Classification

Model Type	SU600
Product Type	pH Sensor

Specifications

Measurement

Type	pH
Principle	Potentiometric
Range	2–12 pH
Drift	≤ 0.01 pH per day

Operational Range

Temperature	15°–50° C [60°–122° F]
Pressure	0–3040 mmHg [0–45 psig]
Maximum Flow Rate	55.7 liters/minute [14.71 gallons/minute]

Signal

Input	Not applicable
Output	Sensor: Millivolts: ±414 Metadata: Digital: SensorTalk®

Sterilization

Autoclavable	Not autoclavable
Steam Sterilizable	Not steam sterilizable
Gamma Sterilizable	Yes, up to 50 kGy

Connectors and Cables

Connector	8-pin Variopin
Cable Length	0.15 m [6 inches]

Process Interface

Insertion Method	1-inch Hose Barbs
Insertion Length	Not applicable

Wetted Materials
PEEK, USP Class VI, ADI-Free, Extraction Tested 21CFR, 177.2600
Dimethyl Silicone Rubber, Pt Cure, USP Class VI, Extraction Tested 21CFR, 177.2600
EPDM USP Class VI, FDA Compliant, ADI-Free
HDPE, USP Class VI
Lead-Free Glass, Alumina Silicate

Isometric View

Side View

Top View with Dial Face

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Product Purchasing Sheet
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REF SU680-16
Single-Use, Flow-Through pH Sensor
with 1-inch Hose Barbs

Packaging and Regulations

Packaging Information

Package Type	Cardboard box with double-bagged sensor inside
Package Dimensions	30.48 x 30.48 x 5.08 cm [12 in x 12 in x 2 in]
Package Weight	< 0.5 kg [1 lb]
Double Bagged	Yes, sensor is double-bagged
Cleanroom Bagged	Yes, inner bag only
Cleanroom Class	Class 7 Clean Air Hood
Storage Conditions	Temperature: 5°–35° C [41°–95° F]
Included Accessories	Not applicable
Quality Certificate	Included
Shelf Life	36 months
Shelf Life Post Gamma Sterilization	30 months

Origination and Tariff Code

Harmonized Tariff Trade Code	9027803100
Country of Origin	USA
MFR Location	California, USA

Purchasing Information

Unit of Sale	Each
Minimum Purchase Quantity	Each

Regulatory and Compliance

CE Compliant	Yes
RoHS Compliant	Yes
REACH Compliant	Yes
CFR 21-11 Compliant	Not applicable
BSE/TSE/ADI Free	Yes
USP Class VI Compliant	Yes, all wetted parts
FDA Material Compliant	Yes, all wetted parts

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Doc Nbr: PDS-112060 R4
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