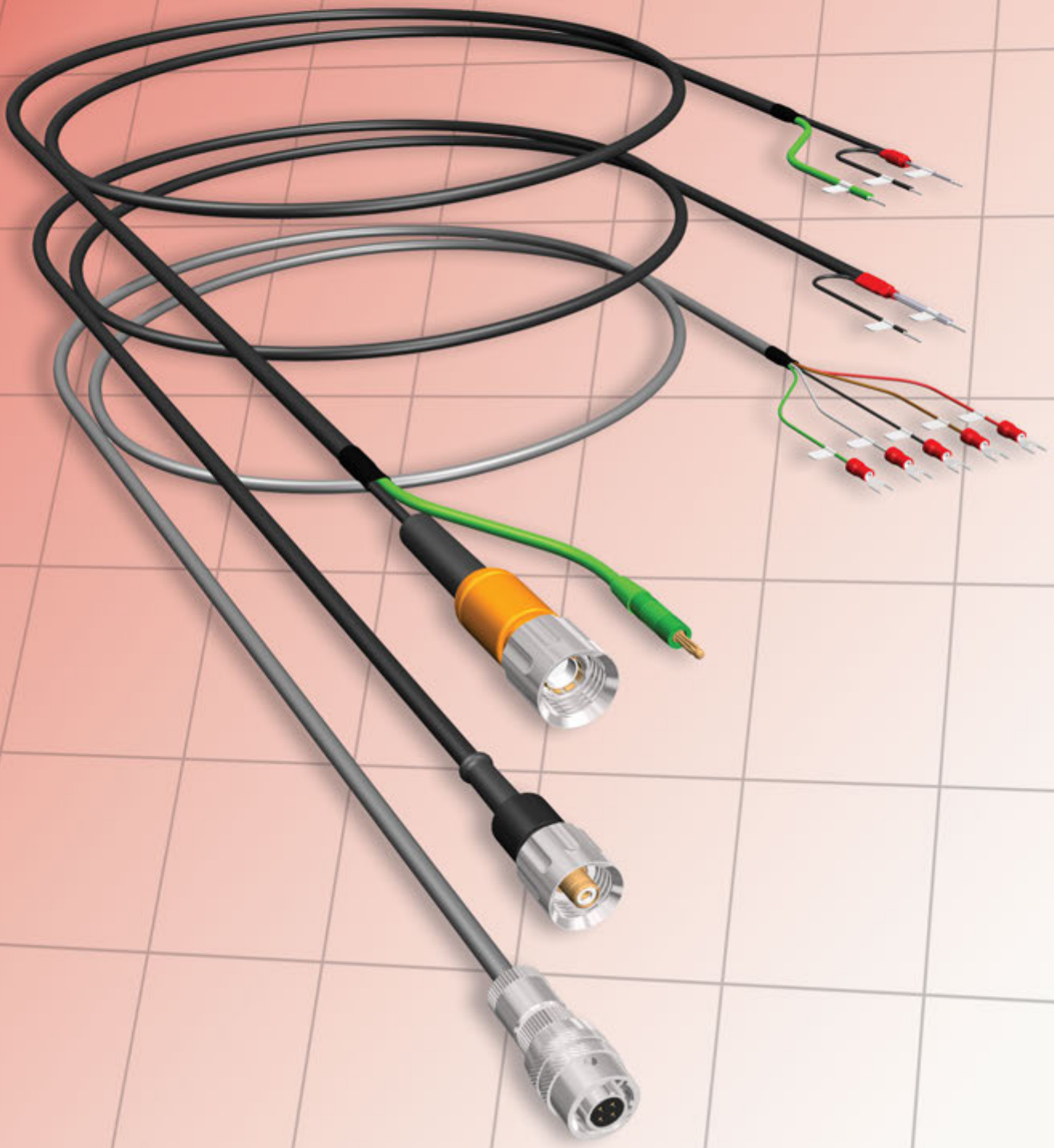
Cables



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New & Improved Cable & Connector Designs

Improved Stainless Steel pH Connectors

Broadley-James offers both types of industry standard connectors, the "S8" and the "K9", which have been used for decades with proven performance in fermentation applications. Where improvements were needed, such as in the durability of the cable connector, the existing style was improved by switching to a solid 316L stainless steel shell. This approach solved the problem while preserving the function of the installed base of equipment. These industry standard connectors are the first, and still the best, choice for pH sensors.

Special Low-Noise Coaxial Cable

Some suppliers use standard coaxial cables for pH and D.O. sensors, and while functional, they are not optimal. If such cables are pinched or sharply bent the inner shielding is compromised and the sensor is subject to interference from electromagnetic noise. Broadley-James has found that the environments around a fermentation tank or bioreactor are full of such sources, including agitators, solenoids, electronic valves, and pumps, and use a different style cable instead. These cables have an extra layer of shielding, lying just below the traditional outer braid. It is composed of an electrically conductive polymer and provides for 100% shielding, even when the cable is tightly bent or stressed. This cable is custom made for Broadley-James and is standard on all cables, at no extra charge.

Improved D.O. Sensor Connector

The "D9" connector used on Broadley-James D.O. cables has been used for decades in the industry. However, while the same connectors are used, other companies construction methods are not used. Instead, not only are the leads soldered to the internal gold contacts, they are then coated with epoxy. This seals them in place and acts as a second barrier should any moisture penetrate. The added step, combined with an improvement in the cable compression fitting, prevents the cable from pulling loose from the contacts after extensive service. The end result is a longer lasting installation. The D.O. cable assemblies are made with the same custom fabricated low-noise coaxial cable that is used for the pH cables.

The Market Leader in pH and D.O. Cable and Connector Design

Broadley-James Corporation does not believe in changing the basic design of connectors every few years, forcing customers into buying new equipment to keep current. Instead, Broadley-James strives to make improvements "backwards compatible" so they can be used with new equipment as well as the old. Broadley-James strives to protect investments, and help leverage them into the future. Improvements are made with the customer process in mind.

New & Improved pH Cable Assemblies for T-Pull and S8 Metric Caps

Stock Cable Assemblies for All F-615 and F-635 FermProbe® pH Electrodes

The BioProcess Technologies® Catalog offers a wide range of cable assemblies to connect FermProbe pH electrodes with all of today's pH transmitters and benchtop controllers.

- The cables and electrodes are color coordinated so that the black HP electrode plug will connect to the standard S8 black cap on the pH electrode.
- Stock cable assemblies feature the most commonly requested cable lengths and connector schemes.
- Choice of flexible, lightweight 3 mm or rugged 5 mm low noise coaxial cable.
- Cables are tagged with replacement part numbers to enhance field serviceability.
- Cable assemblies are 100% tested for continuity, polarity, and the absence of short circuits.

Cable Type:

Type A 3 mm, low noise, shielded coaxial cable, lightweight and very flexible. 3 mm cable is frequently chosen for benchtop installations where space is at a premium and cables are required to make many sharp turns and twists.

Type M 5 mm, low noise, shielded coaxial cable. Thicker and more rugged, the 5 mm cable is often specified for pilot and process installations.

Type N 5 mm, low noise, shielded coaxial cable, jacketed with an extra lead for connecting solution ground to differential input style transmitters.

A wide selection of connectors is available upon request.

Custom assemblies to meet unique cabling requirements

How to Order Custom Cables

Ask for the Custom Cable Worksheet to specify custom cable assembly requirements. Return it by fax or mail to receive a quotation within 24 hours.

ordering information

Cable Part Number	Connector A	Cable Type	Cable Length	Connector B	
HP Electrode Plug to BNC Plug • Lightweight and highly flexible 3 mm cable • Connects to most NBS and Applikon vessel controllers					
AX-1000-HP-A03BC	HP plug	A	3 ft (1 m)	BNC plug	
AX-1000-HP-A06BC	HP plug	A	6 ft (2 m)	BNC plug	
AX-1000-HP-A10BC	HP plug	A	10 ft (3 m)	BNC plug	

A B

HP Electrode Plug BNC Plug

Cable Part Number	Connector A	Cable Type	Cable Length	Connector B	
HP Electrode Plug to BNC Plug • Rugged 5 mm cable • Connects to most NBS and Applikon vessel controllers					
AX-1000-HP-M03BC	HP plug	M	3 ft (1 m)	BNC plug	
AX-1000-HP-M06BC	HP plug	M	6 ft (2 m)	BNC plug	
AX-1000-HP-M10BC	HP plug	M	10 ft (3 m)	BNC plug	

A B

HP Electrode Plug BNC Plug

Cable Part Number	Connector A	Cable Type	Cable Length	Connector B	
HP Electrode Plug to DIN 19262 Plug • Rugged 5 mm cable					
AX-1000-HP-M03DN	HP plug	M	3 ft (1 m)	DIN plug	
AX-1000-HP-M06DN	HP plug	M	6 ft (2 m)	DIN plug	
AX-1000-HP-M10DN	HP plug	M	10 ft (3 m)	DIN plug	

A B

HP Electrode Plug DIN 19262 Plug

ordering information

Cable Part Number	Connector A	Cable Type	Cable Length	Connector B	
HP Electrode Plug to Spade Lugs • Rugged 5 mm cable • Typically connects to terminal strips found in junction boxes					
AX-1000-HP-M03SL	HP plug	M	3 ft (1 m)	Spade Lugs	
AX-1000-HP-M06SL	HP plug	M	6 ft (2 m)	Spade Lugs	
AX-1000-HP-M10SL	HP plug	M	10 ft (3 m)	Spade Lugs	

HP Electrode Plug

Spade Lugs

Cable Part Number	Connector A	Cable Type	Cable Length	Connector B	
HP Electrode Plug to Crimped Ferrules • Rugged 5 mm cable • Connects to either terminal blocks or terminal strips					
AX-1000-HP-M03FF	HP plug	M	3 ft (1 m)	Crimped Ferrules	
AX-1000-HP-M06FF	HP plug	M	6 ft (2 m)	Crimped Ferrules	
AX-1000-HP-M10FF	HP plug	M	10 ft (3 m)	Crimped Ferrules	

HP Electrode Plug

Crimped Ferrules

Cable Part Number	Connector A	Cable Type	Cable Length	Connector B	
HP Electrode Plug with Solution Ground to Crimped Ferrules • Rugged 5 mm cable • Connects to either terminal blocks or terminal strips					
AX-1000-H5-N03FF	HP plug[1]	N	3 ft (1 m)	Crimped Ferrules	
AX-1000-H5-N06FF	HP plug[1]	N	6 ft (2 m)	Crimped Ferrules	
AX-1000-H5-N10FF	HP plug[1]	N	10 ft (3 m)	Crimped Ferrules	

Note 1: This HP plug has additional 7" (18 cm) solution ground lead to plug into electrode housing.

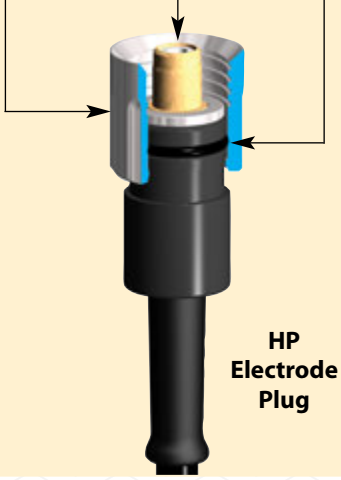
HP Electrode Plug
with Solution Ground Lead

Crimped Ferrules

TIPS & HINTS

New & Improved Standard HP Plug

1. Thick walled 316 stainless steel shell is free spinning to reduce cable twisting.
2. O-ring is seated in a precisely machined groove, which provides a better seal to keep the connector moisture-free.
3. Gold plated pH connection.



HP Electrode Plug

New & Improved pH Cable Assemblies for K9 Metric Caps

Stock Cable Assemblies for All F-695 FermProbe® pH Electrodes

The BioProcess Technologies® Catalog offers a wide range of cable assemblies to connect FermProbe pH electrodes with all of today's pH transmitters and benchtop controllers.

- Cables with the KP electrode plug fit on all brands of pH electrodes that use the K9 cap.
- The cables and electrodes are color coordinated so that the orange KP electrode plug will connect to the orange K9 cap on the pH electrode.
- Choice of rugged 5 mm or 6 mm low noise coaxial cable.

ordering information

Cable Part Number	Connector A	Cable Type	Cable Length	Connector B	
KP Electrode Plug to BNC Plug • Rugged 5 mm cable • Connects to most NBS and Applikon vessel controllers					
AX-1000-KP-M03BC	KP plug	M	3 ft (1 m)	BNC plug	
AX-1000-KP-M06BC	KP plug	M	6 ft (2 m)	BNC plug	
AX-1000-KP-M10BC	KP plug	M	10 ft (3 m)	BNC plug	

A B

KP Electrode Plug BNC Plug

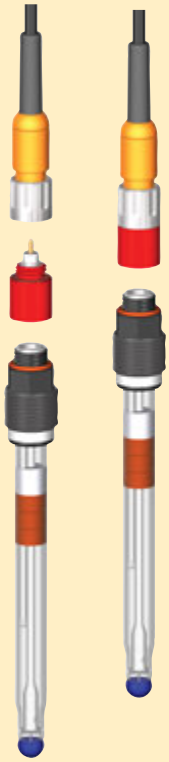
Cable Part Number	Connector A	Cable Type	Cable Length	Connector B	
KP Electrode Plug to DIN 19262 Plug • Rugged 5 mm cable					
AX-1000-KP-M03DN	KP plug	M	3 ft (1 m)	DIN plug	
AX-1000-KP-M06DN	KP plug	M	6 ft (2 m)	DIN plug	
AX-1000-KP-M10DN	KP plug	M	10 ft (3 m)	DIN plug	

A B

KP Electrode Plug DIN 19262 Plug

TIPS & HINTS

How to Convert Cables with a KP Electrode Plug to Work with the F-635 FermProbe® pH Electrodes



E-1245 Adapter

Step 1: Thread the adapter into an AK9 cable plug.

Step 2: Adapter and cable are now converted to work with the FermProbe pH electrode disconnect cap.

E-1245 Adapter **Part Number:** E-1245-AAD-DZ

Cable Type:

Type M 5 mm, low noise, shielded coaxial cable is thicker and more rugged. The 5 mm cable is often specified for pilot and process installations.

Type Z 6 mm, low noise, shielded triaxial cable is jacketed with an extra lead for connecting solution ground to differential input style transmitters.

How to Order Custom Cables

Ask for the Custom Cable Worksheet to specify custom cable assembly requirements. Return it by fax or mail to receive a quotation within 24 hours.

Cables are tagged with replacement part numbers to enhance field serviceability.

Cable assemblies are 100% tested for continuity, polarity, and the absence of short circuits.

Stock cable assemblies feature the most commonly requested cable lengths and connector schemes.

ordering information

Cable Part Number	Connector A	Cable Type	Cable Length	Connector B	
KP Electrode Plug to Spade Lugs • Rugged 5 mm cable • Typically connects to terminal strips found in junction boxes					
AX-1000-KP-M03SL	KP plug	M	3 ft (1 m)	Spade Lugs	
AX-1000-KP-M06SL	KP plug	M	6 ft (2 m)	Spade Lugs	
AX-1000-KP-M10SL	KP plug	M	10 ft (3 m)	Spade Lugs	

Cable Part Number	Connector A	Cable Type	Cable Length	Connector B	
KP Electrode Plug to Crimped Ferrules • Rugged 5 mm cable • Connects to either terminal blocks or terminal strips					
AX-1000-KP-M03FF	KP plug	M	3 ft (1 m)	Crimped Ferrules	
AX-1000-KP-M06FF	KP plug	M	6 ft (2 m)	Crimped Ferrules	
AX-1000-KP-M10FF	KP plug	M	10 ft (3 m)	Crimped Ferrules	

Cable Part Number	Connector A	Cable Type	Cable Length	Connector B	
KP Electrode Plug with Solution Ground to Crimped Ferrules • Rugged 6 mm cable • Connects to either terminal blocks or terminal strips					
AX-1000-K5-N03FF	KP plug[1]	B	3 ft (1 m)	Crimped Ferrules	
AX-1000-K5-N06FF	KP plug[1]	B	6 ft (2 m)	Crimped Ferrules	
AX-1000-K5-N10FF	KP plug[1]	B	10 ft (3 m)	Crimped Ferrules	

Note 1: This KP plug has an additional 7" (18 cm) solution ground lead to plug into the electrode housing.

TIPS & HINTS

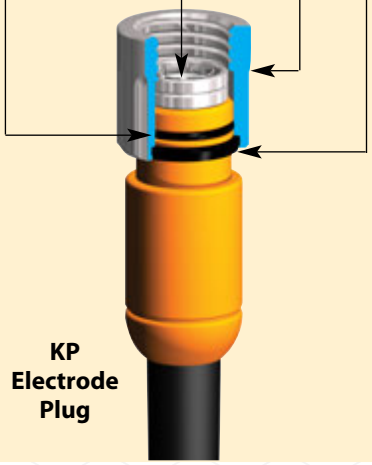
New Connector Offers Improved Seals

1) The o-ring is seated in a precisely machined groove. This provides a better seal to keep the connector moisture-free.

2) Gasket to secure threaded cap.

3) Free-spinning steel nut to reduce cable twisting.

4) Gold plated pH connection.



KP Electrode Plug

Cable Assemblies for Dissolved Oxygen Sensors

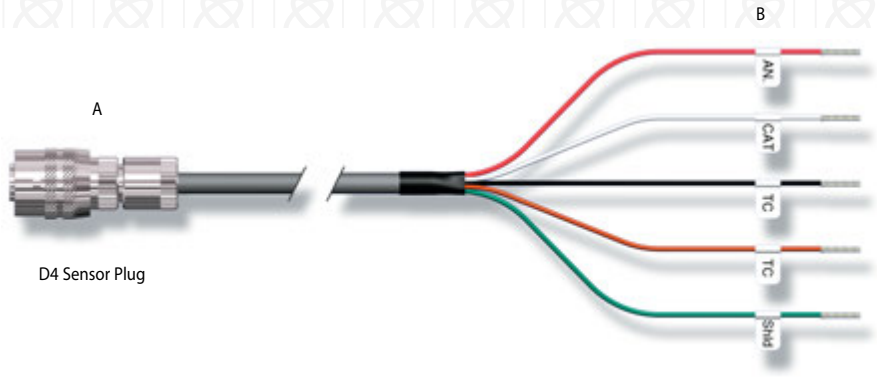
Stock Cable Assemblies for All OxyProbe® Sensors

The BioProcess Technologies® Catalog offers a variety of cable assemblies to connect OxyProbe D.O. sensors with today's D.O. transmitters and controllers.

- Stock cable assemblies feature the most commonly requested cable lengths and connector schemes.
- Cables are shielded to decrease signal noise and other interferences.
- Cables are tagged with part numbers for easy replacement.
- Cables have a D4 twist-lock coaxial cable plug to connect to the sensor.
- Cable assemblies are 100% tested for continuity and the absence of short circuits.
- D-type cables are 6 mm diameter, low noise, multi-conductor cables.

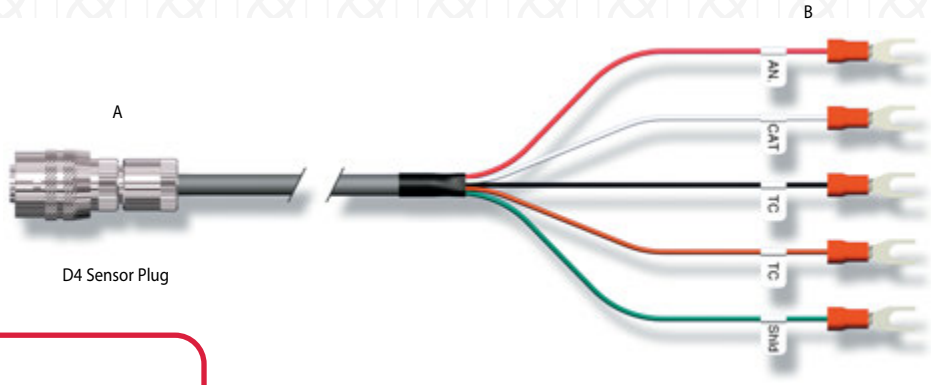
ordering information

Cable Part Number	Connector A	Cable Type	Cable Length	Connector B	
D4 Sensor Plug to Crimped Ferrules • Connects to either terminal blocks or terminal strips					
AX-5000-D4-D03FF	D4	D	3 ft (1 m)	Crimped Ferrules	
AX-5000-D4-D06FF	D4	D	6 ft (2 m)	Crimped Ferrules	
AX-5000-D4-D10FF	D4	D	10 ft (3 m)	Crimped Ferrules	



Crimped Ferrules

Cable Part Number	Connector A	Cable Type	Cable Length	Connector B	
D4 Sensor Plug to Spade Lugs • Connects to either terminal blocks or terminal strips					
AX-5000-D4-D03S5	D4	D	3 ft (1 m)	Spade Lugs	
AX-5000-D4-D06S5	D4	D	6 ft (2 m)	Spade Lugs	
AX-5000-D4-D10S5	D4	D	10 ft (3 m)	Spade Lugs	



Spade Lugs

Custom assemblies to meet unique cabling requirements

How to Order Custom Cables

Ask for the Custom Cable Worksheet. Use this worksheet to specify custom cable assembly requirements. Return it by fax or mail to receive a quotation within 24 hours.

ordering information

Cable Part Number	Connector A	Cable Type	Cable Length	Connector B	
D4 Sensor Plug to Lemo 6 Connector • Connects to B. Braun Biotech and some European vessel controllers					
AX-5000-D4-D03L6	D4	D	3 ft (1 m)	Lemo 6	
AX-5000-D4-D06L6	D4	D	6 ft (2 m)	Lemo 6	
AX-5000-D4-D10L6	D4	D	10 ft (3 m)	Lemo 6	

D4 Sensor Plug Lemo 6 Connector

Cable Part Number	Connector A	Cable Type	Cable Length	Connector B	
D4 Sensor Plug to BNC Connector and Spade Lugs • Connects to Applikon vessel controllers*					
AX-5000-D4-D03G3	D4	D	3 ft (1 m)	BNC with TC & Spade Lugs	
AX-5000-D4-D06G3	D4	D	6 ft (2 m)	BNC with TC & Spade Lugs	
AX-5000-D4-D10G3	D4	D	10 ft (3 m)	BNC with TC & Spade Lugs	

D4 Sensor Plug

BNC Connector with Spade Lugs on side leads

* Note: On many Applikon controllers the T.C. leads and shield are not utilized. Simply cut off or tape them back out of the way

TIPS & HINTS

Two different dust caps are available from Broadley-James. One to protect the cable and the other to protect the sensor connection. When the sensor is disconnected from the transmitter, attach the cap to the connector to protect it from damage and moisture. When the sensor is connected the cap can hang from the sensor or cable, ready for the next use.

Cable Connector Dust Cap
Part Number: AM-9219

Sensor Connector Dust Cap
Part Number: AM-9212