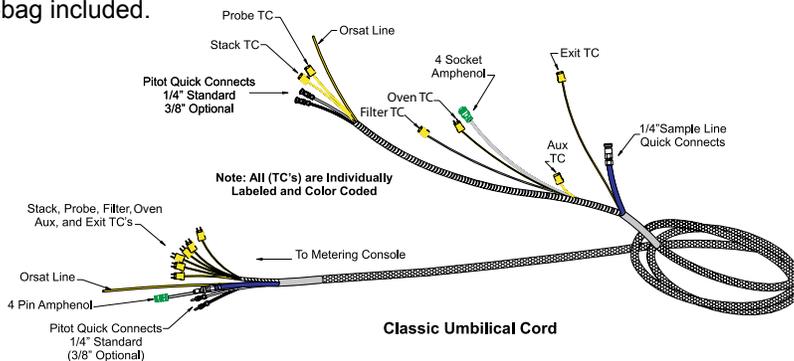


# ISOKINETIC SOURCE SAMPLING EQUIPMENT

## CLASSIC UMBILICAL CABLES

The traditional umbilical cable used for rigid sample train configuration includes one kink-free, wire reinforced sample line, 3 kink-resistant polyethylene lines (2 pitot & 1 orsat line), 6 type K thermocouple extensions, and five conductor electrical cable with 4-pin circular connectors. Thermocouple plugs are colored coded. The sample line has 1/2 inch quick connect and the pitot lines have 1/4 inch quick connects standard (3/8 inch optional). Standard lengths are 30, 60 and 90 feet. U-bag included.



**UMBILICAL CORD  
Part Identification**

U  -  -  -

**Design**  
Blank = Standard  
S = Split

**Length (ft.)**  
30ft  
60ft  
90ft  
150ft

**Split Length (ft.)**  
5ft  
10ft (Standard)  
15ft  
20ft

**Optional Pitot Connections**  
Blank = Standard (1/4" Male & Female QC)  
QS6 = 3/8" Male & Female QC  
QS6/4 = 3/8" Female 1/4" male

## CLASSIC UMBILICAL CORD

Model	Description
U-30	30', Method 5, 1/4" Pitot Quick Connects, Stainless Steel Quick Connects
U-60	60', Method 5, 1/4" Pitot Quick Connects, Stainless Steel Connects
U-90	90', Method 5, 1/4" Pitot Quick Connects, Stainless Steel Quick Connects
QS4/6	Stainless Steel Quick Connects 1/4" Male, 3/8" Female Pitot Quick Connects
QS6	Stainless Steel Quick Connects 3/8" Male and Female Pitot Quick Connects

## CLASSIC UMBILICAL CORD OPTIONS

Model	Description
QS4/6	Stainless Steel Quick Connects 1/4" Male, 3/8" Female Pitot Quick Connects
QS6	Stainless Steel Quick Connects 3/8" Male and Female Pitot Quick Connects

## CLASSIC UMBILICAL ADAPTERS



**UA-HJ**

### Probe Power Adapter (UA-HJ)

Connects to umbilical 4-pin circular connector and converts to a single female receptacle for the probe power.

**UA-HJ**

## SPLIT BACK UMBILICAL CABLE

Split Umbilical Cables replace Standard Umbilical Cords for added versatility. They are constructed the same way as the Standard Method 5 umbilicals with the sample line and exit thermocouple split to 10 feet. Split umbilicals are useful in flexible systems when the filter compartment is separated from impinger box with a flexible sample line such as Method 17, Flexible Method 5 set-ups and Compact Method 5. The umbilical lengths are specified according to overall length and all have a 10 foot cutback. Stainless steel quick connects are standard.

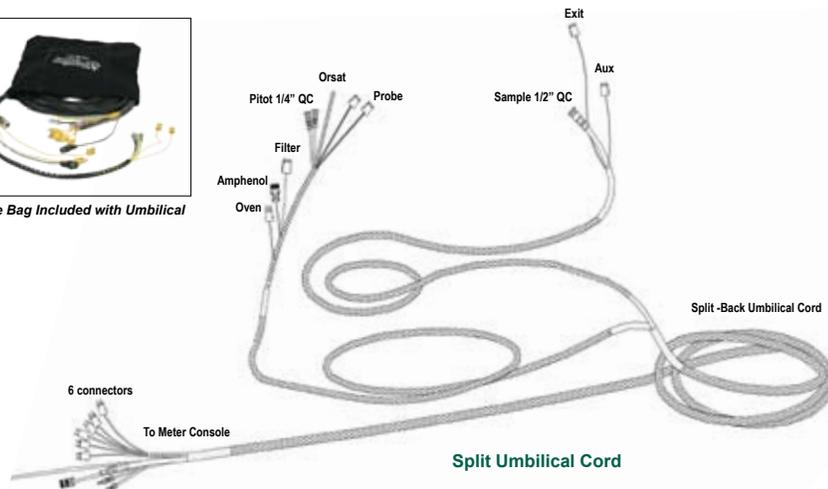
### Split Umbilical Cables

Model	Description
US-30-10	30' Umbilical with 10' Split 1/4" Pitot Quick Connects, Stainless Steel Quick Connects
US-60-10	60' Umbilical with 10' Split 1/4" Pitot Quick Connects, Stainless Steel Quick Connects
US-90-10	90' Umbilical with 10' Split 1/4" Pitot Quick Connects, Stainless Steel Quick Connects
U-BAG	Large Canvas Bag with Straps and Logo

Alternate Lengths Available, Call for Pricing



Free Bag Included with Umbilical



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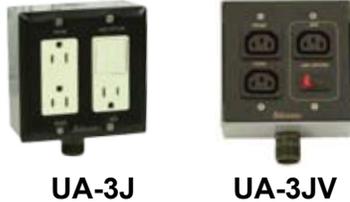
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## CLASSIC UMBILICAL ADAPTERS

### Power Box Adapter (UA-3J)

The UA-3J connects to umbilical 4-pin circular connector and converts to three straight blade receptacles. Clamps to 1/2 inch sample line or GA-100 adapter. The UA-3J is used in conjunction with the Compact Method 5, Method 8, Method 17 and in other sampling situations in which power for the probe is not available due to the absence of a heated filter box.

**UA-3J**  
**UA-3J-V**



### Heated Filter Box Power Adapter (UA-FP)

The UA-FP connects with male plug to the 4-pin circular connector on the filter oven and allows the oven to connect to a standard receptacle.

**UA-FP**



### Heated Filter Box Power Adapter (UA-FP2)

Heated Filter Box Power Adapter, Includes one (1) 4 Socket Amphenol to two (2) Male Standard 120V Plugs

**UA-FP2**



## NEW SELF-REGULATING HEATED SAMPLE LINES (JUMPERS)

Apex's New Heavy Duty Self Regulating Heated Sample Lines are custom manufactured to be rugged, lightweight and flexible. The heater cable is self-regulating and maintains the sample line at a constant temperature up to 250°F (120°C) over the entire length of the line. The standard core is typically comprised of PFA tubing, 3/8" for the sample and 1/4" for the calibration gas. The heated core is insulated with several layers of braided lightweight Pyron OPF yarn that will not burn or conduct electricity. The braided construction provides extreme flexibility, strength, and protects the heater cable by minimizing movement. The bundle is protected by a tough high temperature silicone coated fiberglass sleeving.

### Advantages/Features

- Rugged, Lightweight & Flexible
- Suitable for Permanent Installations or Portable use
- Braided Construction with High Temperature Jacket
- High Quality Components

### Options/Accessories

- Replaceable core, (flexible conduit) pass through power and thermocouples for the probe oven heaters.
- Cam-Lock fittings for easy installation and serves as a strain-relief.



Heated Sample Lines/Jumpers

### SELF REGULATING HEATED SAMPLE LINE Part Identification

HSRLB - [ ] - [ ] - [ ]

#### Tubing Core Information

- 4 = 1/4 inch
- 6 = 3/8 inch
- 8 = 1/2 inch
- 6/4 = 1/4 inch & 3/8 inch and custom configurations

#### Length in feet

Maximum length is 15 feet

#### Miscellaneous Options

Blank=110V

*Self-Regulating Heated Sample Lines Continued on next page*



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# ISOKINETIC SOURCE SAMPLING EQUIPMENT

## SELF REGULATED HEATED SAMPLE LINES (JUMPERS)

Replace □ with Nominal Length (feet)	PFA Sample Line w/ Braided Umbilical Cable Oversleeve	PFA Sample Line w/Braided Insulation	3/8 inch & 1/4 inch PFA with Braided Insulation & Oversleeve,	Self-Regulated Heated Sample Line HSRLB-□-□
5	1/4"			
10	1/4"			
20	1/4"			
35	1/4"			
75	1/4"			
100	1/4"			
6		3/8"		
10		3/8"		
25		3/8"		
6			3/8" x 1/4"	

Add "V" to end of part number for 240V at no extra cost.



The GA-113 strain relief is used specifically with heated sample lines at the SB-2M during Flexible Method 5 sampling. Includes bracket that attaches to the SB-2M and an adjustable Velcro® strap to grip heated sample lines.

**GA-113...\$53.00**

### Cable Specifications

Heater Cable	15 w/ft @ 50°F (10°C) 49 w/meter
Supply Voltages:	120 or 220Vac
Maintenance Temperature:	Up to 250°F (120°C)
Maximum Exposure Temperature:	366°F (185°C)

### Circuit Breaker Size Vs. Maximum Length in Feet

Circuit Breaker Size	Maximum Length (Ft.)	
	120VAC	240VAC
15 amp	80	160
20 amp	110	215
30 amp	135	270

## STRAIN RELIEF

### Mini Heated Filter Box Sample Line Strain Relief

The GA-107 strain relief is used with sample lines at the SB-2M during Flexible Method 5 sampling. Includes bracket that attaches to the SB-2M and standard mount with sample line clamp (specify size).

Model	Description
GA-107-9	Line Adapter (for SB-2M), includes Bracket and 3/8 inch ID Sample Line Clamp
GA-107-12	Line Adapter (for SB-2M), includes Bracket and 1/2 inch ID Sample Line Clamp
GA-107-32	Line Adapter (for SB-2M), includes Bracket and 1-1/4 inch ID Sample Line Clamp
GA-107-50	Line Adapter (for SB-2M), includes Bracket and 2 inch ID Sample Line Clamp
GA-107-57	Line Adapter (for SB-2M), includes Bracket and 2-1/4 inch ID Sample Line Clamp



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## HEATED SAMPLE LINES (JUMPERS)

Heated Sample Line Jumpers are used when source sampling site has limited access and insufficient space for a traditional, rigid sample train. Apex Instruments manufactures short heated sample lines/jumpers for use between the heated filter assembly and the first impinger inlet. For all Self-Regulating Heated Sample Lines, the National Electric Code requires ground fault protection of equipment for each branch circuit supplying electrical heating cables or devices.

HSL-□-□

HSRL- □ Diameter of each sample or cal gas tubing (4 = 1/4", 6 = 3/8", 8 = 1/2")

- □ Length of line in feet

### Heated Sample Line Jumper

Model	Description
HSL-6-10	10', 3/8" PFA Sample Line, with Insulation & Protective Sleeve, 120V, ~ 20 Watts / Per Ft.
HSL-6-15	15', 3/8" PFA Sample Line, with Insulation & Protective Sleeve, 120V, ~ 20 Watts / Per Ft.
HSL-6-20	20', 3/8" PFA Sample Line, with Insulation & Protective Sleeve, 120V, ~ 20 Watts / Per Ft.
HSL-6-25	25', 3/8" PFA Sample Line, with Insulation & Protective Sleeve, 120V, ~ 20 Watts / Per Ft.
HSL-6-10V	10', 3/8" PFA Sample Line, with Insulation & Protective Sleeve, 240V, ~ 20 Watts / Per Ft.
HSL-6-15V	15', 3/8" PFA Sample Line, with Insulation & Protective Sleeve, 240V, ~ 20 Watts / Per Ft.
HSL-6-20V	20', 3/8" PFA Sample Line, with Insulation & Protective Sleeve, 240V, ~ 20 Watts / Per Ft.
HSL-6-25V	25', 3/8" PFA Sample Line, with Insulation & Protective Sleeve, 240V, ~ 20 Watts / Per Ft.

Add "V" to end of part number for 240V at no extra cost. **Temperature Controller Required.**

## UNHEATED SAMPLE LINES

Unheated Sample Line jumpers are used between the probe liner or filter and the first impinger in "flexible" sampling arrangements. Jumpers are available in various lengths and configurations. Stainless steel overbraid 3/8" ID PFA tubing is standard.

USL-□-□

USL- □ Length in feet

□ SST (#28 socket elbow fitting) or

QST (1/2" quick connects/#28 socket elbow)

### Unheated Sample Line

Model	Description
USL-10-SS	10' Unheated Line, 3/8PTFE/Stainless Steel PTFE, SS overbraid, #28 Socket Elbow Fitting Both Ends
USL-10-SST	10' Unheated, PTFE/SS Overbraid, w/Thermocouple Assembly, #28 Stainless Steel, Socket Elbow Fittings
USL-15-SST	15' Unheated, PTFE/SS Overbraid, w/Thermocouple Assembly, #28 Stainless Steel, Socket Elbow Fittings
USL-25-SST	25' Unheated, PTFE/SS Overbraid, w/Thermocouple Assembly, #28 Stainless Steel, Socket Elbow Fitting
USL-10-QST	10' Unheated, PTFE/SS Overbraid, 1/2" Female Stainless Steel Quick Connect, w/Thermocouple Assembly, #28 Stainless Steel Socket Elbow
USL-15-QST	15' Unheated, PTFE/SS Overbraid, 1/2" Female Stainless Steel Quick Connect, w/Thermocouple Assembly, #28 Stainless Steel Socket Elbow
USL-25-QST	25' Unheated, PTFE/SS Overbraid, 1/2" Female Stainless Steel Quick Connect, w/Thermocouple Assembly, #28 Stainless Steel Socket Elbow



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