SEL-C804 Multimode Arc-Flash Detection Fiber-Optic Cables

Key Features and Benefits

SEL-C804 Multimode Arc-Flash Detection (AFD) Fiber-Optic Cable Assemblies

- Enable SEL relays with a reliable combination of light-sensing technology with fast overcurrent protection to trip at high-speed during an arc-flash event.
- Provide high-quality, SEL-manufactured, cables and sensors for AFD.
- Order cables in specific lengths to meet your needs.
- Allow for reliability and proper operation through quality-testing.
- Provide reliable AFD using the SEL-C804 cable with point or fiber sensor assembly with the arc-flash input card in SEL-751, SEL-751A, and SEL-851 Feeder Protection Relays and in SEL-710-5 Motor Protection Relays.

SEL-C814 AFD Cables and Accessories

- Use the SEL-C814 cable to configure AFD cables to add additional splices to an existing SEL-C804 point sensor or fiber sensor assembly.
- Configure the SEL-C814 cable with your choice of black-jacketed zipcord or clear-jacketed simplex fiber and your choice of ST® or V-pin connectors to replace a damaged or incorrect length on an existing SEL-C804 fiber-optic cable loop assembly.
- Order connectors, a termination kit, and bulk black-jacketed zipcord or clear-jacketed simplex arc-flash fiber in lengths as long as 500 meters to build arc-flash cable assemblies onsite and to length.

Technical Specifications

Parameters	SEL-C804/SEL-C814	
	Black Jacket, Zipcord	Clear Jacket, Simplex
Operating Temperature Range	–55° to +85°C (–67° to 185°C)	–55° to +85°C (–67° to 185°C)
Core Material	PMMA	PMMA
Cladding Material	Fluorinated Polymer	Fluorinated Polymer
Core Diameter	980 µm	980 µm
Cladding Diameter	1000 µm	1000 µm
Jacket Material	PVC	Polyethylene
Outside Cable Dimensions	2.2 mm x 4.3 mm (0.087 in x 0.17 in)	2.2 mm (0.807 in)
Nominal Weight	11g/m (0.008 lb/ft)	4 g/m (0.003 lb/ft)
Tensile Force at Yield Point	140 N (9.6 lb/ft)	70 N (4.8 lb/ft)
Maximum Connector Pull Tension	43.8 N (3.0 lb/ft)	43.8 N (3.0 lb/ft)
Minimum Bend Radius	25 mm (0.98 in)	25 mm (0.98 in)
Attenuation (Loss) at 650 nm	0.175 dB/m	0.175 dB/m
Flame Test	UL1581	No

Sensor Dimensions

Point Sensor

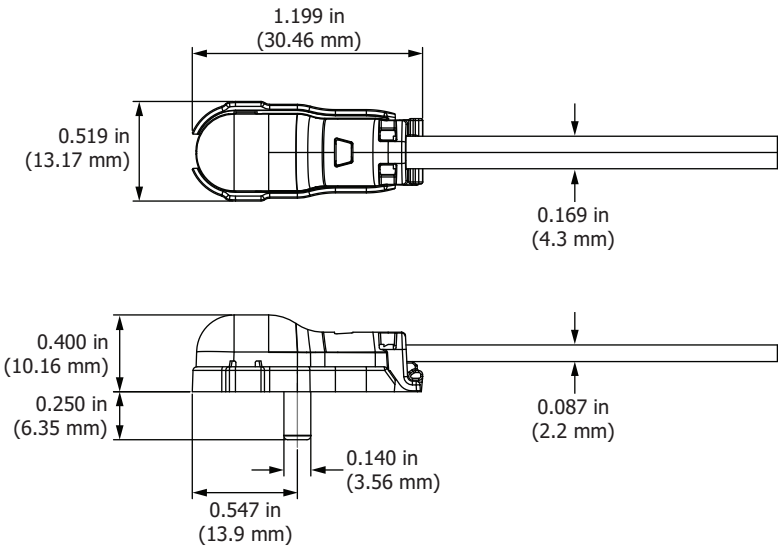

Figure 1 Standard Point-Sensor Dimensions

Window Point Sensor

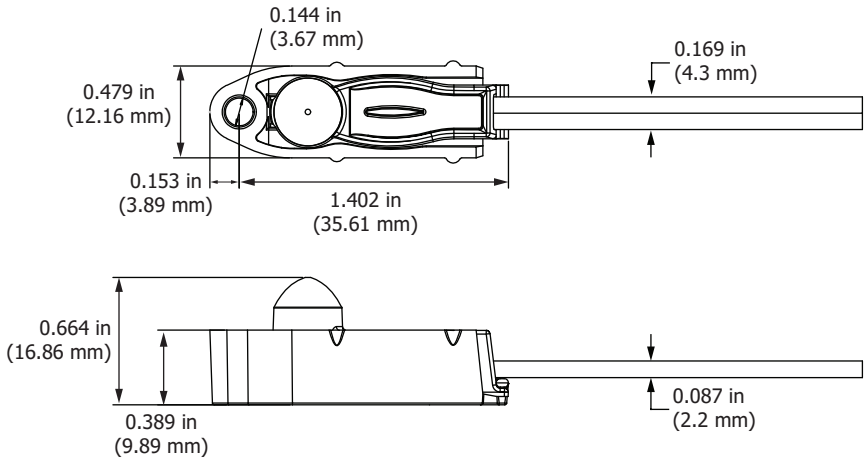

Figure 2 Window Point-Sensor Dimensions

Link Optical Loss Calculation Examples

1. Bare-Fiber Sensor with two V-pin or ST splice connectors and an "A" dimension of 15 meters and "B" dimension of 40 meters — two connectors are the standard configuration as shown in *Figure 1*.

Link Budget	17 dB
–(2 dB x # of connector splices)	–4 dB
–(0.175 dB/m x "A" dimension x 2)	–5.25 dB
–(0.175 dB/m x "B" dimension)	–7 dB
Total Link Losses	–16.25 dB

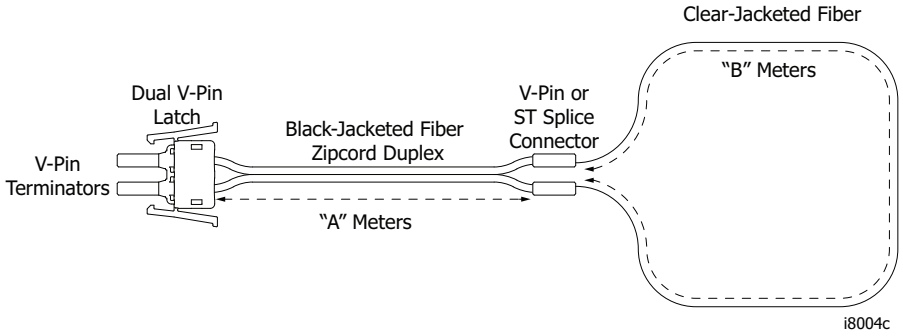

Figure 3 Bare-Fiber Sensor Assembly With Two Splices

2. Point Sensor with "A" dimension of 30 meters as shown in *Figure 2*.

Link Budget	12.25 dB
–(0.175 dB/m x "A" dimension x 2)	–10.5 dB
Total Link Losses	–10.5 dB

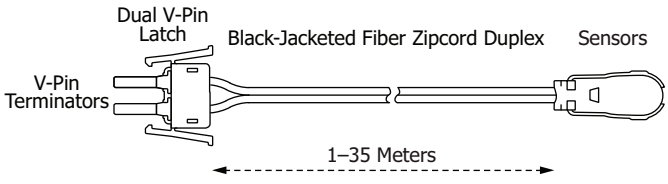

Figure 4 Point Sensor Assembly

Installation

You can find installation recommendations for SEL-C804 cable assemblies in the SEL Application Guide *Using SEL Relays for Arc-Flash Detection* (AG2011-01), available at selinc.com.

You can find additional information for building SEL-C804 cable assemblies in the *Arc-Flash Fiber Sensor Assembly Instructions* and *Arc-Flash Fiber Sensor Assembly Instructions*, available at selinc.com.

SEL-C804 Cables and Accessories

Table 1 Custom Sensor Accessories

Accessory	SEL Part Number
V-Pin/ST Termination Tool Kit – 1.0 mm POF	915900146
V-Pin Connector (Quantity: 25) – 1.0 mm POF	915900147
V-Pin Connector Splice Bushing (Quantity: 1) – 1.0 mm POF	915900148
Dual V-Pin Latching Kit (Quantity: 12) – 1.0 mm POF	915900149
ST-Connector (Quantity: 1) – 1.0 mm POF	915900150
ST-Connector Splice Bushing (Quantity: 1) – 1.0 mm POF	915900151
1.0 mm Clear-Jacketed Fiber Spool – 500 m	915900234
1.0 mm Black-Jacketed Fiber Spool (zipcord duplex) – 500 m	915900154

Figure 5 V-Pin/ST Termination Tool Kit - 1.0 mm POF (915900146)

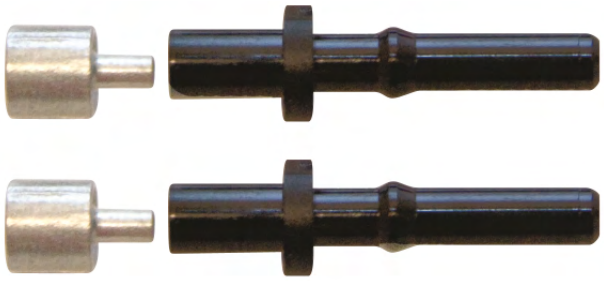

Figure 6 V-Pin Connector - 1.0 mm POF (915900147)

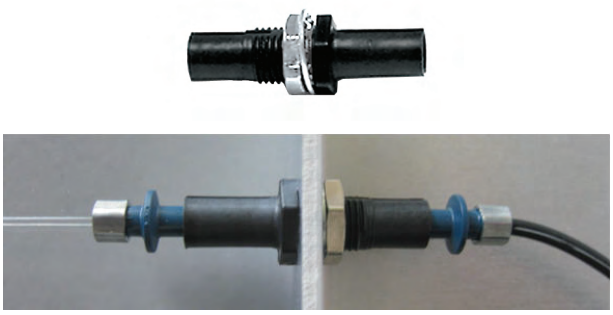

Figure 7 V-Pin Connector Splice Bushing - 1.0 mm POF (915900148)

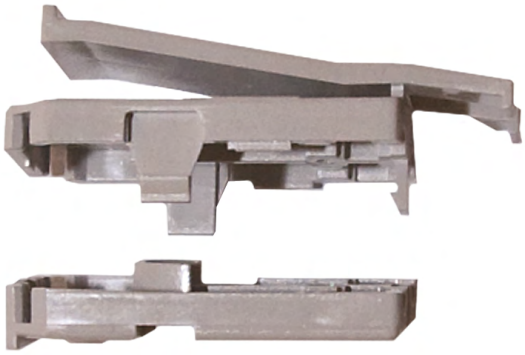

Figure 8 Dual V-Pin Latching Kit - 1.0 mm POF (915900149)

Figure 9 ST-Connector – 1.0 mm POF (915900150)

Figure 10 ST-Connector Splice Bushing – 1.0 mm POF (915900151)

SEL-C814 Cable Ordering Options

Table 2 SEL-C814 Cable Ordering Options

Cable Configuration	Jacket Type	Length
Bulk (No Connectors)	1.0 mm Clear-Jacketed Fiber, Simplex	≤500 m
Clear V-Pin to V-Pin Connector	1.0 mm Clear-Jacketed Fiber, Simplex	1 to 50 m
Clear ST to ST Connector	1.0 mm Clear-Jacketed Fiber, Simplex	1 to 50 m
Clear V-Pin to ST Connector	1.0 mm Clear-Jacketed Fiber, Simplex	1 to 50 m
Black V-Pin to V-Pin Connector	1.0 mm Black-Jacketed Fiber, Zipcord Duplex	1 to 34 m
Black ST to ST Connector	1.0 mm Black-Jacketed Fiber, Zipcord Duplex	1 to 34 m
Black V-Pin to ST Connector	1.0 mm Black-Jacketed Fiber, Zipcord Duplex	1 to 34 m
Black V-Pin to Point Sensor	1.0 mm Black-Jacketed Fiber, Zipcord Duplex	1 to 34 m
Black ST to Point Sensor	1.0 mm Black-Jacketed Fiber, Zipcord Duplex	1 to 34 m
Black V-Pin to Window Sensor	1.0 mm Black-Jacketed Fiber, Zipcord Duplex	1 to 34 m
Black ST to Window Point Sensor	1.0 mm Black-Jacketed Fiber, Zipcord Duplex	1 to 34 m
Black V-Pin Latch V-Pin	1.0 mm Black-Jacketed Fiber, Zipcord Duplex	1 to 34 m
Black V-Pin Latch ST	1.0 mm Black-Jacketed Fiber, Zipcord Duplex	1 to 34 m

Technical Support

We appreciate your interest in SEL products and services. If you have questions or comments, please contact us at:

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Notes

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