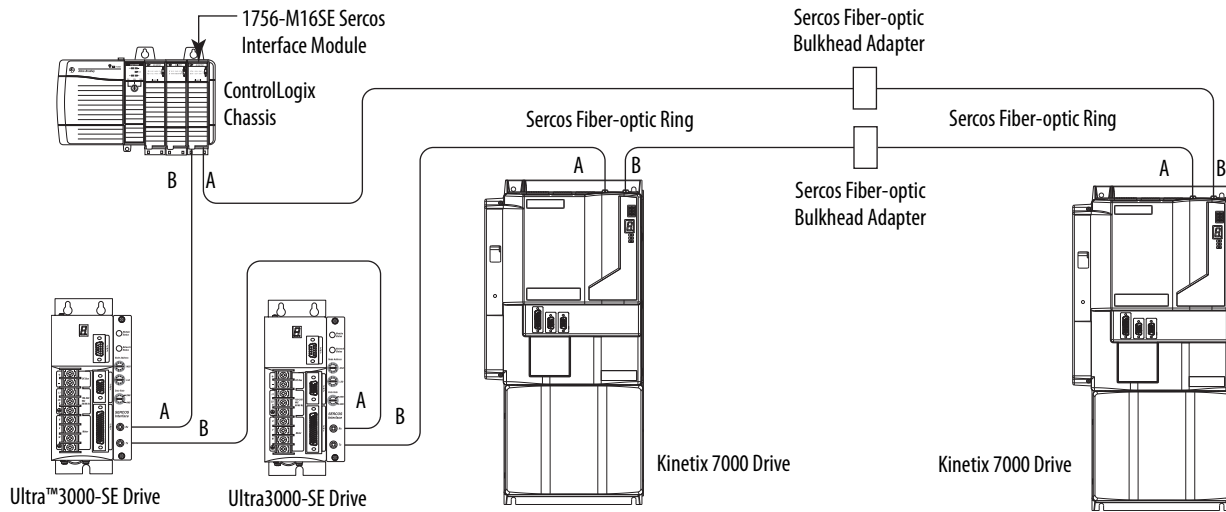


## Fiber-optic Cable Connection Examples

The length of each transmission section (point A to B) can be up to 32 m (105 ft) for plastic cable and 50...200 m (164.2...656.7 ft) for glass cable. In this example, the second Kinetix 7000 drive is mounted in a separate cabinet and connected with bulkhead adapters.

### Fiber-optic Cable Example for Single-axis Connections



**IMPORTANT** To avoid signal loss, do not use bulkhead adapters to connect glass cables. Use bulkhead adapters only for making plastic-to-plastic cable connections.

Multi-axis servo drives with sercos interface have specific cable lengths for making drive-to-drive connections for single-wide and double-wide modules.

### Drive-to-Drive Cable Length for Multi-axis Drive Families

IAM Module	Adjacent Drive Module		Cable Cat. No.	Cable Length m (in.)
Kinetix 2000	2093-AMP1, 2093-AMP2, or 2093-AMP5	Single-wide	2090-SCEP0-1	0.1 (5.1)
	2093-AM01 or 2093-AM02	Double-wide	2090-SCEP0-2	0.2 (7.1)
Kinetix 6000	2094-AMxx-S, 2094-BMP5-S, 2094-BM01-S, or 2094-BM02-S	Single-wide	2090-SCEP0-1	0.1 (5.1)
	2094-SEPM-B24-S		2090-SCEP0-2	0.2 (7.1)
	2094-BMP5-M, 2094-BM01-M, or 2094-BM02-M	Double-wide		
Kinetix 6200	2094-BM03-S and 2094-BM05-S			
	2094-BMP5-M, 2094-BM01-M, or 2094-BM02-M	Single-wide	2090-SCEP0-2	0.2 (7.1)
	2094-SEPM-B24-S		2090-SCEP0-1	0.1 (5.1)
	2094-BMP5-S, 2094-BM01-S, or 2094-BM02-S	Double-wide		

## Technical Specifications - Interface Cables

### Applications and Standard Lengths

Cat. No.	Descriptions	Standard Cable Lengths m (ft)
2090-SCEPx-x	Sercos fiber-optic plastic cables suitable for in-cabinet duty only. Connectors are provided at both ends	0-1 (5.1 in.) <sup>(1)</sup> 3-0 (9.8)    15-0 (49.2)
2090-SCNPx-x	Sercos fiber-optic plastic cables suitable for On-Machine™ duty. Connectors are provided at both ends	0-2 (7.1 in.) <sup>(1)</sup> 5-0 (16.4)    20-0 (65.5) 0-3 (1.0) <sup>(1)</sup> 8-0 (26.2)    25-0 (82.0)
2090-SCVPx-x	Sercos fiber-optic plastic cables suitable for outdoor and conduit duty. Connectors are provided at both ends	1-0 (3.2)    10-0 (32.8)    32-0 (105.0)
2090-SCVGx-x	Sercos fiber-optic glass cables suitable for outdoor and conduit duty. Connectors are provided at both ends	50-0 (164.2) 100-0 (328.3) 150-0 (492.5) 200-0 (656.7)
2090-S-BLHD	Sercos fiber-optic cable bulkhead adapter (2 per pack)	
1585J-M8CBJM-x <sup>(2)</sup>	Double-ended (shielded) Ethernet cables for use when programming the safety configuration and the Logix5000 EtherNet/IP network module	OM15 = 0.15 (6 in.)    1 (3.2) OM3 = 0.3 (1.0)    2 (6.6)
1585J-M8UBJM-x <sup>(2)</sup>	Double-ended (shielded) Ethernet cables for use in high-flex applications	OM4 = 0.4 (1.3)    5 (16.4) OM6 = 0.6 (2.0)    10 (32.8)
1585J-M8CB-x <sup>(2)</sup>	Single-ended (shielded) Ethernet cables for use when programming the safety configuration and the Logix5000 EtherNet/IP network module	2 (6.6) 5 (16.4) 10 (32.8)
1585J-M8CC-H <sup>(2)</sup>	RJ45 insulation displacement connector (IDC) for use when making your own cables	100 (328) 300 (984) 600 (1968)
1585J-C8CB-Sxxx <sup>(2)</sup>	Shielded Ethernet (bulk) cable for use when making your own cables	
2090-CCMDSDS-48AAxx	Kinetix 3 control interface cable for drive-to-drive configurations	01 = 1.0 (3.2) P3 = 0.3 (0.98)
2090-CCMPCDS-23AAxx	Kinetix 3 serial interface cable to personal computer	
2090-CCMCNDS-48AAxx	Kinetix 3 control interface cable to MicroLogix controller	01 = 1.0 (3.2) 03 = 3.0 (9.8)
2090-CCMUSDS-48AAxx	Kinetix 3 control interface for drive-to-1203-USB converter	
2090-DAIO-D50xxx	Kinetix 3 control interface I/O cable (flying leads)	
2090-CS0SDS-AAxx	Kinetix 6200/6500 interface cables for I/O and cascading safe torque-off signals from drive-to-drive	02 = 0.2 (7.1 in.) 03 = 0.3 (1.0) 10 = 1.0 (3.2)
1202-C02	Drive-to-drive safety cable for connecting single-wide Kinetix 6000 axis modules	200 mm (7.9 in.)
1202-C03	Drive-to-drive safety cable for connecting double-wide Kinetix 6000 axis modules	350 mm (13.8 in.)
1202-C10	Drive-to-drive safety cable for connections between two Kinetix 6000 power rails, two Kinetix 7000 drives, or from the Kinetix 6000 power rail to Kinetix 7000 drive	1050 mm (41.3 in.)
1202-C30	Drive-to-drive safety cable for any connections requiring additional cable length within the system enclosure.	30 (9.8)

(1) Only available as 2090-SCEPx-x.

(2) Refer to the Industrial Ethernet Media Brochure, publication [1585-BR001](#), for product specifications.

**Applications and Standard Lengths (continued)**

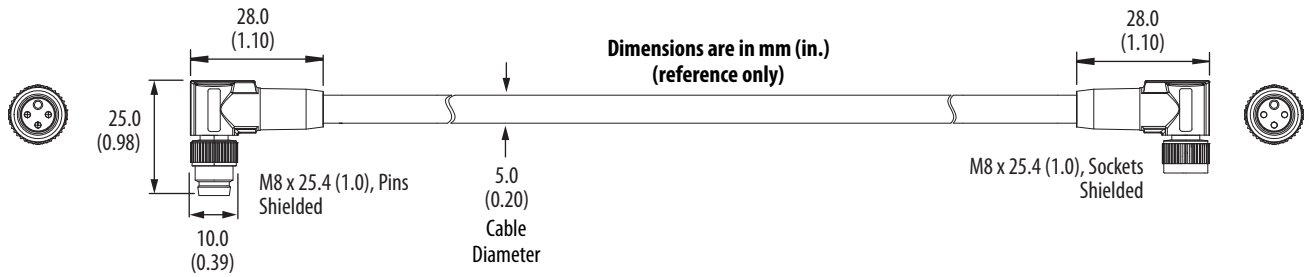
Cat. No.	Descriptions	Standard Cable Lengths m (ft)
2090-UXPC-D09xx	Ultra3000 serial interface cable to computer	01 = 1.0 (3.2)
2090-U3CC-D44xx <sup>(1)</sup>	Single-axis flying-lead cable, Ultra3000 drive to 1756-M02AE module	03 = 3.0 (9.8) 09 = 9.0 (29.5)
2090-U3AE-D44xx <sup>(1)</sup>	Two-axis pre-wired cable, Ultra3000 drive to 1756-M02AE module	15 = 15 (49.2)
2090-XXNRB-10F0P5	Resistive Brake Module (RBM) to Kinetix 6000 and Kinetix 6200/6500 drives	10 AWG
2090-XXNRB-8F0P6		8 AWG
2090-UXNRB-10F1P3	Resistive Brake Module (RBM) to Ultra3000 drives	10 AWG
2090-UXNRB-8F1P4		8 AWG
2090-UXNRB-6F1P5		6 AWG

(1) This cable does not carry the unbuffered motor encoder signals (CN1 pins 10-15). Contact your Rockwell Automation sales representative if these signals are required for your application.

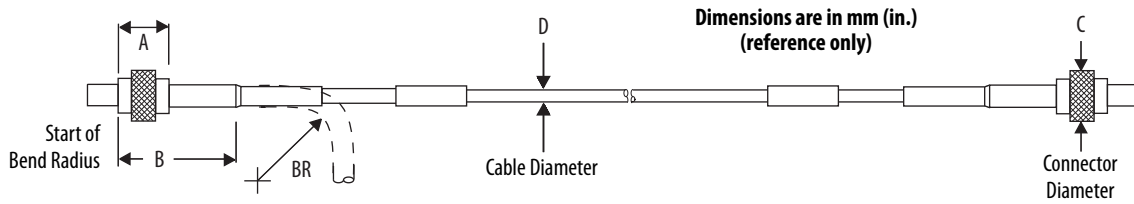
**Interface Cable Specifications**

Interface Cable Cat. No.	Description	Specifications		
		Ratings	Shield	Jacket Material
2090-UXPC-D09xx	Ultra3000 serial interface to computer	90 °C (194 °F), 30V	Aluminum Polyester 100% coverage Braid shield coverage, 85% min	TPE
2090-DAIO-D50xx	Kinetix 3 control interface I/O cable, flying leads			
2090-U3CC-D44xx	Single-axis flying lead Ultra3000 drive to 1756-M02AE module			
2090-U3AE-D44xx	Two-axis pre-wired Ultra3000 drive to 1756-M02AE module	80 °C (176 °F), 30V		PVC
2090-CCMPCDS-23AAxx	Kinetix 3 serial interface to personal computer			
2090-CCMCNDS-48AAxx	Kinetix 3 control interface to MicroLogix controller			
2090-CCMDSDS-48AAxx	Kinetix 3 control interface for drive-to-drive configurations	80 °C (176 °F), 300V	PVC	
2090-CCMUSDS-48AAxx	Kinetix 3 control interface for drive-to-1203-USB converter			
2090-XXNRB-xxFxxx	Resistive Brake Module (RBM) to drive interface	105 °C (221 °F), 600V		TPE
2090-SCEPx-x	Sercos interface fiber-optic cable (drive to drive, drive to 1756-MxxSE module, or drive to 1768-M04SE module)	-55...85 °C (-67...185 °F)		Chlorinated Polyethylene
2090-SCNPx-x				Nylon
2090-SCVPx-x				Polyethylene/Kevlar covered by PVC
2090-SCVGx-x			Kevlar and PVC	
		-20...75 °C (-4...67 °F)		

**Cascading Safe Torque-off Interface Cable Dimensions (catalog number 2090-CS0SDS-AAxx)**

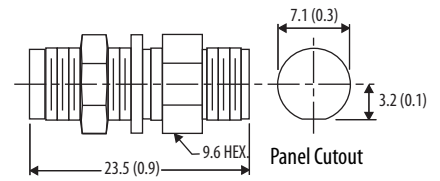


**Sercos interface Fiber-optic Cable Dimensions**



Fiber-optic Cable Cat. No.	A mm (in.)	B mm (in.)	BR <sup>(1)</sup> mm (in.)	C mm (in.)	D mm (in.)
2090-SCEPx-x	7 (0.27)	25 (1.0)	25 (1.0)	10 (0.39)	2.2 (0.09)
2090-SCNPx-x			40 (1.6)		
2090-SCVPx-x			30 (1.2)	5.0 (0.2)	
2090-SCVGx-x					

**Bulkhead Adapter Dimensions (2090-S-BLHD)**



(1) Standard (non-flex) cables have a regular maintenance and installation bend radius of 10 times (10x) the cable diameter.

**Serial Interface Cable Dimensions (catalog number 2090-UXPC-D09xx)**

