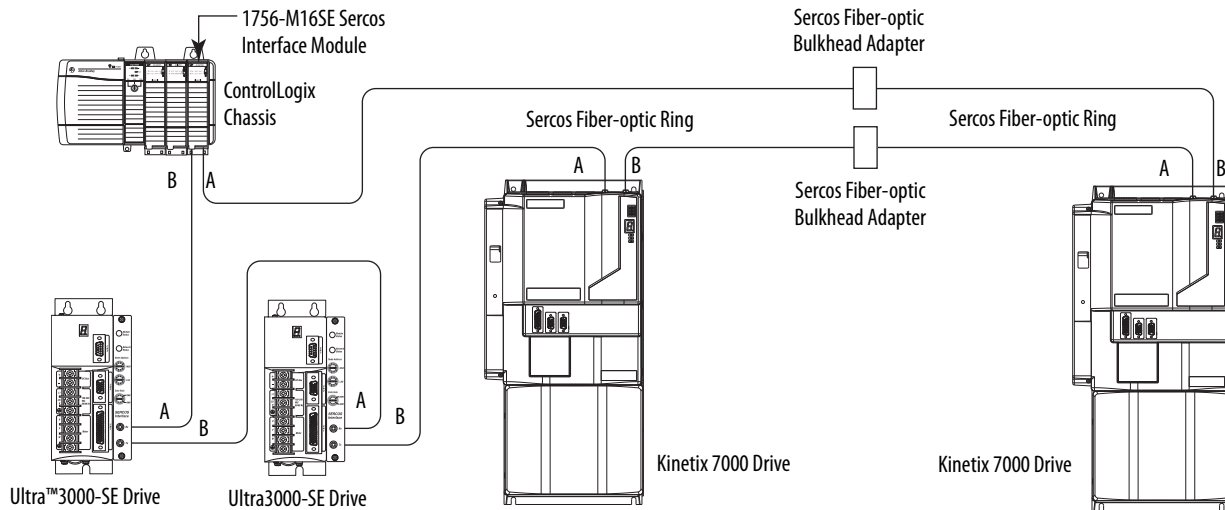


Fiber-optic Cable Connection Examples

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		

Bulletin 2094 Power Rail

The Bulletin 2094 power rail is compatible with Kinetix 6000, Kinetix 6000M, Kinetix 6200, and Kinetix 6500 drive families. This section contains selection information, mounting dimensions, and catalog numbers for the 2094-PRS x (slim) power rails. Bulletin 2094 power rails are compatible with all 200V-class and 400V-class drive modules.

Catalog Numbers - Bulletin 2094 Power Rails

Power Rail Cat. No.	Description ⁽¹⁾
2094-PRS1	1 axis power rail. Bulletin 2094 IAM module without any additional drive modules.
2094-PRS2	2 axis power rail. Bulletin 2094 IAM module with up to one additional drive module.
2094-PRS3	3 axis power rail. Bulletin 2094 IAM module with up to two additional drive modules.
2094-PRS4	4 axis power rail. Bulletin 2094 IAM module with up to three additional drive modules.
2094-PRS5	5 axis power rail. Bulletin 2094 IAM module with up to four additional drive modules.
2094-PRS6	6 axis power rail. Bulletin 2094 IAM module with up to five additional drive modules.
2094-PRS7	7 axis power rail. Bulletin 2094 IAM module with up to six additional drive modules.
2094-PRS8	8 axis power rail. Bulletin 2094 IAM module with up to seven additional drive modules.

(1) Bulletin 2094 drive modules include axis modules, shunt module, and slot-filler modules.

Technical Specifications - Bulletin 2094 Power Rails

IAM, AM, and Shunt Module Slot Requirements

IAM Module Cat. No.	Converter Slot Used	Inverter Slots Used	
2094-AC05-MP5-S	200V-class	1	
2094-AC05-M01-S		1	
2094-AC09-M02-S		1	
2094-AC16-M03-S		1	
2094-AC32-M05-S		2	
2094-BC01-MP5-S 2094-BC01-MP5-M	400V-class	1	
2094-BC01-M01-S 2094-BC01-M01-M		1	
2094-BC02-M02-S 2094-BC02-M02-M		1	
2094-BC04-M03-S 2094-BC04-M03-M		2	
2094-BC07-M05-S 2094-BC07-M05-M		2	
Shunt Module Cat. No.		Converter Slot Used	Inverter Slots Used
2094-BSP2		200/400V-class	0

AM Module Cat. No.	Converter Slot Used	Inverter Slots Used
2094-AMP5-S	200V-class	1
2094-AM01-S		1
2094-AM02-S		1
2094-AM03-S		1
2094-AM05-S		1
2094-BMP5-S 2094-BMP5-M	400V-class	1
2094-BM01-S 2094-BM01-M		1
2094-BM02-S 2094-BM02-M		1
2094-BM03-S 2094-BM03-M		2
2094-BM05-S 2094-BM05-M		2
IPIM Module Cat. No.		Converter Slot Used
2094-SEPM-B24-S	400V-class	0

IAM modules (catalog numbers 2094-AC32-M05-S, 2094-BC04-M03- x , and 2094-BC07-M05- x) and AM modules (catalog numbers 2094-BM03- x and 2094-BM05- x) are double-wide modules and require two slots on the power rail.

Connector Sets

Kinetix 6000, Kinetix 6200, Kinetix 6500 Drive Families

Drive Module	Drive Cat. No.	Description	Cat. No.
IAM module (converter connectors)	2094-AC05-Mxx-S and 2094-AC09-M02-S	Includes control power (CPD), DC bus/AC input (IPD), and contactor enable (CED) replacement connectors for the IAM (converter) module.	2094-ANCON-1
	2094-AC16-M03-S and 2094-AC32-M05-S		2094-XNCON-2
	2094-BC01-Mxx-S and 2094-BC02-M02-S 2094-BC01-Mxx-M and 2094-BC02-M02-M		2094-BNCON-1
	2094-BC04-M03-S and 2094-BC07-M05-S 2094-BC04-M03-M and 2094-BC07-M05-M		2094-XNCON-2
IAM/AM module (inverter connectors)	2094-AC05-Mxx-S, 2094-AC09-M02-S, 2094-AMP5-S, 2094-AM01-S, 2094-AM02-S	Includes motor power (MP), motor/resistive brake (BC), and safe-off (SO), replacement connectors for the IAM and AM (inverter) modules. Also includes bracket kit for sercos fiber-optic cable connectors.	2094-XNINV-1
	2094-AC16-M03-S and 2094-AC32-M05-S 2094-AM03-S, 2094-AM05-S 2094-BC04-M03-S, 2094-BM03-S 2094-BC04-M03-M, 2094-BM03-M		2094-ANINV-2
	2094-BC01-Mxx-S and 2094-BC02-M02-S 2094-BC01-Mxx-M and 2094-BC02-M02-M 2094-BMP5-S, 2094-BM01-S, 2094-BM02-S 2094-BMP5-M, 2094-BM01-M, 2094-BM02-M		2094-XNINV-1
	2094-BC07-M05-S, 2094-BM05-S 2094-BC07-M05-M, 2094-BM05-M		2094-BNINV-2
Shunt module	2094-BSP2	Includes external shunt resistor (RC) and external thermal switch (TS) replacement connectors for the shunt module.	2094-XNSHT-1

Kinetix 3, Kinetix 300, Kinetix 350, and Kinetix 7000 Drive Families

Drive Family	Drive Cat. No.	Description	Cat. No.
Kinetix 3	2071-Axx	Includes general purpose input power (IPD), analog output (A.out), shunt resistor (BC), and motor power (MP) replacement connectors for Kinetix 3 drives.	2071-CONN1
Kinetix 300	2097-V3xPRx or	Includes AC input power (IPD), back-up power (CPD), shunt and DC bus (BC), motor power (MP), and safe-off (STO) replacement connectors for Kinetix 300/350 drives.	2097-CONN1
Kinetix 350	2097-V3xPRx-LM		
Kinetix 7000	2099-BMxx-S	Includes safe-off (SO), general purpose I/O (GPIO), general purpose relay (GPR), and control power (CP) replacement connectors for Kinetix 7000 drives.	2099-K7KCK-1

Line Interface Module (LIM) and Resistive Brake Module (RBM)

Module	Cat. No.	Description	Cat. No.
Line interface module (LIM)	2094-AL09 and 2094-BL02	Includes VAC line (IPL), VAC load (OPL), control power (CPL), and 24V brake power (PSL) replacement connectors.	2094-XNLIM-1
	2094-ALxxS, 2094-BLxxS, and 2094-XL75S-Cx	Includes I/O (IOL), VAC line (IPL), VAC load (OPL), control power (CPL), 230V auxiliary output (P2L), 24V brake power (P1L), and 230V auxiliary input (APL) replacement connectors.	2094-XNLIM-2
Resistive brake module (RBM)	2090-XB33-xx	Includes I/O connector (TB3), drive connector (TB1), and motor connector (TB2).	2090-XNRBM-1
	2090-XB120-xx	Includes I/O connector (TB3), 230V input power connector (TB4), drive connector (TB1), and motor connector (TB2).	2090-XNRBM-2

2090-Series Motor/Actuator Cable Selection

These tables provide motor power and feedback cable catalog numbers for use with Allen-Bradley servo motors. Most motor brake wires are in the power cable, so a separate brake cable is not required (except where noted). The IP rating is dependent on the use of Allen-Bradley Bulletin 2090 cables as listed in these tables.

IMPORTANT The MP-Series low-inertia motors on this page are equipped with DIN connectors (specified by 7 in the catalog number) and are not compatible with cables designed for motors equipped with bayonet connectors (specified by 2 in the catalog number). The motors with bayonet connectors (for example, MPL-A310P-xx2xAA) are being discontinued and require 2090-XXNFMP-Sxx (bayonet) cables. For help with migration or to select bayonet cables, contact your Rockwell Automation sales representative.

MP-Series (Bulletin MPL) Motor Feedback Cables

Motor Cat. No.	Compatible Drive Cat. No.	Feedback Type	Feedback Cable Cat. No.	IP Rating
MPL-A15xxx-V/Ex7xAA, MPL-A2xxx-V/Ex7xAA	2198-Hxxx-ERS or 2198-Hxxx-ERS2 2093-AC05-MPx or 2093-AMxx 2094-ACxx-Mxx-S or 2094-AMxx-S 2097-V3xPRx or 2097-V3xPRx-LM 2098-DSD-xxx	Multi-turn High-resolution Absolute or Single-turn High-resolution Encoder Feedback	2090-CFBM7DF-CEAAxx or 2090-CFBM7DD-CEAAxx (standard, non-flex) 2090-CFBM7DF-CEAFxx 2090-CFBM7DD-CEAFxx (continuous-flex)	Shaft seal is optional: IP50 without shaft seal IP66 with shaft seal
MPL-B15xxx-V/Ex7xAA, MPL-B2xxx-V/Ex7xAA	2198-Hxxx-ERS or 2198-Hxxx-ERS2 2198-Dxxx-ERS3 2094-BCxx-Mxx-S or 2094-BMxx-S 2094-BCxx-Mxx-M or 2094-BMxx-M 2097-V34PRx or 2097-V34PRx-LM 2098-DSD-HVxxx			
MPL-A3xxx-M/Sx7xAA, MPL-A4xxx-M/Sx7xAA, MPL-A45xxx-M/Sx7xAA, MPL-A5xxx-M/Sx7xAA	2198-Hxxx-ERS or 2198-Hxxx-ERS2 2093-AC05-MPx or 2093-AMxx 2094-ACxx-Mxx-S or 2094-AMxx-S 2097-V3xPRx or 2097-V3xPRx-LM 2098-DSD-xxx			
MPL-B3xxx-M/Sx7xAA, MPL-B4xxx-M/Sx7xAA, MPL-B45xxx-M/Sx7xAA, MPL-B5xxx-M/Sx7xAA, MPL-B6xxx-M/Sx7xAA, MPL-B8xxx-M/Sx7xAA, MPL-B9xxx-M/Sx7xAA	2198-Hxxx-ERS or 2198-Hxxx-ERS2 2198-Dxxx-ERS3 or 2198-Sxxx-ERS3 2094-BCxx-Mxx-S or 2094-BMxx-S 2094-BCxx-Mxx-M or 2094-BMxx-M 2097-V34PRx or 2097-V34PRx-LM 2098-DSD-HVxxx 2099-BMxx-S			
MPL-A15xxx-Hx7xAA, MPL-A2xxx-Hx7xAA	2093-AC05-MPx or 2093-AMxx 2094-ACxx-Mxx-S or 2094-AMxx-S 2097-V3xPRx or 2097-V3xPRx-LM 2098-DSD-xxx			
MPL-B15xxx-Hx7xAA, MPL-B2xxx-Hx7xAA	2198-Dxxx-ERS3 2094-BCxx-Mxx-S or 2094-BMxx-S 2094-BCxx-Mxx-M or 2094-BMxx-M 2097-V34PRx or 2097-V34PRx-LM 2098-DSD-HVxxx	Incremental ⁽¹⁾ Feedback	2090-XXNFMP-Sxx (standard, non-flex) 2090-CFBM7DF-CDAFxx (continuous-flex) 2090-XXNFMP-Sxx (standard, non-flex) 2090-CFBM7DF-CDAFxx (continuous-flex)	Shaft seal is optional: IP50 without shaft seal IP66 with shaft seal
MPL-A3xxx-Hx7xAA, MPL-A4xxx-Hx7xAA, MPL-A45xxx-Hx7xAA	2093-AC05-MPx or 2093-AMxx 2094-ACxx-Mxx-S or 2094-AMxx-S 2097-V3xPRx or 2097-V3xPRx-LM 2098-DSD-xxx			
MPL-B3xxx-Hx7xAA, MPL-B4xxx-Hx7xAA, MPL-B45xxx-Hx7xAA	2198-Dxxx-ERS3 2094-BCxx-Mxx-S or 2094-BMxx-S 2094-BCxx-Mxx-M or 2094-BMxx-M 2097-V34PRx or 2097-V34PRx-LM 2098-DSD-HVxxx			
MPL-Bxxx-Rx7xAA	2094-BCxx-Mxx-S or 2094-BMxx-S	Resolver Feedback ⁽¹⁾	2090-CFBM7DF-CEAAxx (standard, non-flex) 2090-CFBM7DF-CEAFxx (continuous-flex)	

(1) Not all MP-Series low-inertia motors are available with incremental and resolver feedback options.

For cable configuration illustrations and feature descriptions, by catalog number, refer to 2090-Series Motor/Actuator Cables Overview beginning on [page 13](#).

Cable length *xx* is in meters. Refer to Technical Specifications - 2090-Series Motor/Actuator Cables beginning on [page 30](#).

MP-Series Medium Inertia Motors

Motor Cat. No.	Drive Compatibility	Feedback Type	Feedback Cable Cat. No.	IP Rating
MPM-Axxxx-M/S	2198-Hxxx-ERS or 2198-Hxxx-ERS2 2093-AC05-MPx or 2093-AMxx 2094-ACxx-Mxx-S or 2094-AMxx-S 2097-V3xPRx or 2097-V3xPRx-LM 2098-DSD-xxx	Multi-turn High Resolution Absolute or Single-turn High Resolution Encoder Feedback	2090-CFBM7DF-CEAAxx or 2090-CFBM7DD-CEAAxx (standard, non-flex)	Shaft seal is optional: • IP50 without shaft seal • IP66/67 with shaft seal
MPM-Bxxxx-M/S	2198-Hxxx-ERS or 2198-Hxxx-ERS2 2198-Dxxx-ERS3 or 2198-Sxxx-ERS3 2094-BCxx-Mxx-S or 2094-BMxx-S 2094-BCxx-Mxx-M or 2094-BMxx-M 2097-V34PRx or 2097-V34PRx-LM 2098-DSD-HVxxx 2099-BMxx-S		2090-CFBM7DF-CEAFxx 2090-CFBM7DD-CEAFxx (continuous-flex)	
MPM-Axxxx-2	2094-ACxx-Mxx-S or 2094-AMxx-S	Resolver Feedback ⁽¹⁾	2090-CFBM7DF-CEAAxx (standard, non-flex)	
MPM-Bxxxx-2	2094-BCxx-Mxx-S or 2094-BMxx-S		2090-CFBM7DF-CEAFxx (continuous-flex)	

(1) Not all MP-Series medium-inertia motors are available with the resolver feedback option.

MP-Series (200V-class) Medium Inertia Motors	Power Cable Cat. No.	IP Rating
MPM-A115xx	2090-CPxM7DF-16AAxx (standard, non-flex) 2090-CPxM7DF-16AFxx (continuous-flex)	Shaft seal is optional: • IP50 without shaft seal • IP66/67 with shaft seal
MPM-A1302F	2090-CPxM7DF-14AAxx (standard, non-flex) 2090-CPxM7DF-14AFxx (continuous-flex)	
MPM-A1304F	2090-CPxM7DF-12AAxx (standard, non-flex)	
MPM-A1651F	2090-CPxM7DF-10AAxx (standard, non-flex) 2090-CPxM7DF-10AFxx (continuous-flex)	
MPM-A1652F, MPM-A1653F	2090-CPxM7DF-08AAxx (standard, non-flex) 2090-CPxM7DF-08AFxx (continuous-flex)	
MPM-A215xx	2090-CPBM7DF-06AAxx (standard, non-flex)	

MP-Series (400V-class) Medium Inertia Motors	Power Cable Cat. No.	IP Rating
MPM-B1151x, MPM-B1152x	2090-CPxM7DF-16AAxx (standard, non-flex) 2090-CPxM7DF-16AFxx (continuous-flex)	Shaft seal is optional: • IP50 without shaft seal • IP66/67 with shaft seal
MPM-B1153E, MPM-B1153F		
MPM-B1302F, MPM-B1302M, MPM-B1304C, MPM-B1304E		
MPM-B1651C, MPM-B1652C		
MPM-B1153T	2090-CPxM7DF-14AAxx (standard, non-flex) 2090-CPxM7DF-14AFxx (continuous-flex)	
MPM-B1302T, MPM-B1304M		
MPM-B1651F, MPM-B1653C		
MPM-B1651M, MPM-B1652E, MPM-B1652F, MPM-B1653E	2090-CPxM7DF-10AAxx (standard, non-flex) 2090-CPxM7DF-10AFxx (continuous-flex)	
MPM-B2152C, MPM-B2153B		
MPM-B1653F	2090-CPxM7DF-08AAxx (standard, non-flex) 2090-CPxM7DF-08AFxx (continuous-flex)	
MPM-B2152F, MPM-B2152M, MPM-B2153E, MPM-B2153F, MPM-B2154B, MPM-B2154E, MPM-B2154F		

For cable configuration illustrations and feature descriptions, by catalog number, refer to 2090-Series Motor/Actuator Cables Overview beginning on [page 13](#). Cable length xx is in meters. Refer to Technical Specifications - 2090-Series Motor/Actuator Cables beginning on [page 30](#).

MP-Series Food Grade Motors

Motor Cat. No.	Drive Compatibility	Feedback Type	Feedback Cable Cat. No.	IP Rating
MPF-Axxxx-M/S	2198-Hxxx-ERS or 2198-Hxxx-ERS2 2093-AC05-MPx or 2093-AMxx 2094-ACxx-Mxx-S or 2094-AMxx-S 2097-V3xPRx or 2097-V3xPRx-LM 2098-DSD-xxx	Multi-turn High Resolution Absolute or Single-turn High Resolution Encoder Feedback	2090-CFBM7DF-CEAAxx or 2090-CFBM7DD-CEAAxx (standard, non-flex)	Shaft seal is standard. IP66/67 with shaft seal.
MPF-Bxxxx-M/S	2198-Hxxx-ERS or 2198-Hxxx-ERS2 2198-Dxxx-ERS3 2094-BCxx-Mxx-S or 2094-BMxx-S 2094-BCxx-Mxx-M or 2094-BMxx-M 2097-V34PRx or 2097-V34PRx-LM 2098-DSD-HVxxx		2090-CFBM7DF-CEAFxx 2090-CFBM7DD-CEAFxx (continuous-flex)	

MP-Series (200V-class) Food Grade Motors	Power Cable Cat. No.	IP Rating
MPF-A310P, MPF-A320H, MPF-A320P, and MPF-A330P	2090-CPxM7DF-16AAxx (standard, non-flex) 2090-CPxM7DF-16AFxx (continuous-flex)	Shaft seal is standard. IP66/67 with shaft seal.
MPF-A430H		
MPF-A430P, MPF-A4530K and MPF-A4540F	2090-CPxM7DF-14AAxx (standard, non-flex) 2090-CPxM7DF-14AFxx (continuous-flex)	
MPF-A540K	2090-CPxM7DF-08AAxx (standard, non-flex) 2090-CPxM7DF-08AFxx (continuous-flex)	

MP-Series (400V-class) Food Grade Motors	Power Cable Cat. No.	IP Rating
MPF-B310P, MPF-B320P, and MPF-B330P	2090-CPxM7DF-16AAxx (standard, non-flex) 2090-CPxM7DF-16AFxx (continuous-flex)	Shaft seal is standard. IP66/67 with shaft seal.
MPF-B430P, MPF-B4530K, and MPF-B4540F		
MPF-B540K	2090-CPxM7DF-10AAxx (standard, non-flex) 2090-CPxM7DF-10AFxx (continuous-flex)	

MP-Series Stainless Steel Motors

Motor Cat. No.	Drive Compatibility	Feedback Type	Feedback Cable Cat. No.	IP Rating
MPS-Axxxx-M/S	2198-Hxxx-ERS or 2198-Hxxx-ERS2 2093-AC05-MPx or 2093-AMxx 2094-ACxx-Mxx-S or 2094-AMxx-S 2097-V3xPRx or 2097-V3xPRx-LM 2098-DSD-xxx	Multi-turn High Resolution Absolute or Single-turn High Resolution Encoder Feedback	2090-CFBM7DF-CEAAxx or 2090-CFBM7DD-CEAAxx (standard, non-flex)	Shaft seal is standard. IP66/67/IP69K with shaft seal and slinger.
MPS-Bxxxx-M/S	2198-Hxxx-ERS or 2198-Hxxx-ERS2 2198-Dxxx-ERS3 2094-BCxx-Mxx-S or 2094-BMxx-S 2094-BCxx-Mxx-M or 2094-BMxx-M 2097-V34PRx or 2097-V34PRx-LM 2098-DSD-HVxxx		2090-CFBM7DF-CEAFxx 2090-CFBM7DD-CEAFxx (continuous-flex)	

MP-Series (200V-class) Stainless Steel Motors	Power Cable Cat. No.	IP Rating
MPS-A330P	2090-CPxM7DF-16AAxx (standard, non-flex) 2090-CPxM7DF-16AFxx (continuous-flex)	Shaft seal is standard. IP66/67/IP69K with shaft seal and slinger.
MPS-A4540F		

MP-Series (400V-class) Stainless Steel Motors	Power Cable Cat. No.	IP Rating
MPS-B330P	2090-CPxM7DF-16AAxx (standard, non-flex) 2090-CPxM7DF-16AFxx (continuous-flex)	Shaft seal is standard. IP66/67/IP69K with shaft seal and slinger.
MPS-B4540F		
MPS-B560F	2090-CPxM7DF-14AAxx (standard, non-flex) 2090-CPxM7DF-14AFxx (continuous-flex)	

For cable configuration illustrations and feature descriptions, by catalog number, refer to 2090-Series Motor/Actuator Cables Overview beginning on [page 13](#).

Cable length xx is in meters. Refer to Technical Specifications - 2090-Series Motor/Actuator Cables beginning on [page 30](#).

RDD-Series Direct Drive Motors

Motor Cat. No.	Drive Compatibility	Feedback Type	Feedback Cable Cat. No.	IP Rating
RDB-Bxxxx-7/3	2094-BCxx-Mxx-S or 2094-BMxx-S 2094-BCxx-Mxx-M or 2094-BMxx-M 2099-BMxx-S	Multi-turn High Resolution Absolute or Single-turn High Resolution Encoder Feedback	2090-XXNFMF-Sxx (standard, non-flex) 2090-CFBM7DF-CDAFxx (continuous-flex)	Shaft seal is N/A. IP65 with specified cables.

RDD-Series (400V-class) Direct Drive Motors			Power Cable Cat. No.	IP Rating
RDB-B21519, RDB-B21529			2090-CPWM7DF-16AAxx (standard, non-flex) 2090-CPWM7DF-16AFxx (continuous-flex)	Shaft seal is N/A. IP65 with specified cables.
RDB-B29014, RDB-B29016, RDB-B29024				
RDB-B2151C, RDB-B21539			2090-CPWM7DF-14AAxx (standard, non-flex) 2090-CPWM7DF-14AFxx (continuous-flex)	
RDB-B29019, RDB-B29034				
RDB-B2152C			2090-CPWM7DF-12AAxx (standard, non-flex)	
RDB-B29026				
RDB-B2153C			2090-CPWM7DF-10AAxx (standard, non-flex) 2090-CPWM7DF-10AFxx (continuous-flex)	
RDB-B29036, RDB-B41014				
RDB-B29029, RDB-B41016, RDB-B41024			2090-CPWM7DF-08AAxx (standard, non-flex) 2090-CPWM7DF-08AFxx (continuous-flex)	
RDB-B29039, RDB-B41018, RDB-B41026, RDB-B41035			2090-CPBM7DF-06AAxx (standard, non-flex)	

For cable configuration illustrations and feature descriptions, by catalog number, refer to 2090-Series Motor/Actuator Cables Overview beginning on [page 13](#).
Cable length xx is in meters. Refer to Technical Specifications - 2090-Series Motor/Actuator Cables beginning on [page 30](#).

HPK-Series Asynchronous Servo Motors

Cat. No.	Drive Compatibility	Feedback Type	Feedback Cable Cat. No.	IP Rating
HPK-Bxxxx-M/S HPK-Exxxx-M/S	2198-Sxxx-ERS3 2099-BMxx-S	Multi-turn High Resolution Absolute or Single-turn High Resolution Encoder Feedback	2090-CFBM7DF-CEAAxx or 2090-CFBM7DD-CEAAxx (standard, non-flex) 2090-CFBM7DF-CEAFxx 2090-CFBM7DD-CEAFxx (continuous-flex)	Shaft seal is N/A. IP65 with specified cables.

HPK-Series Asynchronous Servo Motors			Power Cable Cat. No.
All HPK-Bxxxx or HPK-Exxxx motors			Customer Supplied

For cable configuration illustrations and feature descriptions, by catalog number, refer to 2090-Series Motor/Actuator Cables Overview beginning on [page 13](#).
Cable length xx is in meters. Refer to Technical Specifications - 2090-Series Motor/Actuator Cables beginning on [page 30](#).

MP-Series Integrated Linear Stages

Actuator Cat. No.	Drive Compatibility	Feedback Type	Feedback Cable Cat. No.	IP Rating
MPAS-Axxxx-VxxSxA (ball screw) MPMA-A (ball screw)	2198-Hxxx-ERS or 2198-Hxxx-ERS2 2093-AC05-MPx or 2093-AMxx 2094-ACxx-Mxx-S or 2094-AMxx-S 2097-V3xPRx 2097-V34PRx-LM 2098-DSD-xxx	Multi-turn High Resolution Absolute Encoder Feedback	2090-CFBM7DF-CEAAxx or 2090-CFBM7DD-CEAAxx (standard, non-flex) 2090-CFBM7DF-CEAFxx 2090-CFBM7DD-CEAFxx (continuous-flex)	IP30
MPAS-Axxxx-ALMx2C (direct drive) MPMA-A (direct drive)	2093-AC05-MPx or 2093-AMxx 2094-ACxx-Mxx-S or 2094-AMxx-S 2097-V3xPRx 2098-DSD-xxx 2071-Axx	Incremental Encoder Feedback	2090-XXNFMF-Sxx (standard, non-flex) 2090-CFBM7DF-CDAFxx (continuous-flex)	
MPAS-Bxxxx-VxxSxA (ball screw) MPMA-B (ball screw)	2198-Hxxx-ERS or 2198-Hxxx-ERS2 2198-Dxxx-ERS3 2094-BCxx-Mxx-S or 2094-BMxx-S 2094-BCxx-Mxx-M or 2094-BMxx-M 2097-V3xPRx 2097-V34PRx-LM 2098-DSD-xxx	Multi-turn High Resolution Absolute Encoder Feedback	2090-CFBM7DF-CEAAxx or 2090-CFBM7DD-CEAAxx (standard, non-flex) 2090-CFBM7DF-CEAFxx 2090-CFBM7DD-CEAFxx (continuous-flex)	
MPAS-Bxxxx-ALMx2C (direct drive) MPMA-B (direct drive)	2198-Dxxx-ERS3 2094-BCxx-Mxx-S or 2094-BMxx-S 2094-BCxx-Mxx-M or 2094-BMxx-M 2097-V3xPRx 2098-DSD-xxx	Incremental Encoder Feedback	2090-XXNFMF-Sxx (standard, non-flex) 2090-CFBM7DF-CDAFxx (continuous-flex)	

MP-Series (200V-class) Integrated Linear Stages	Power Cable Cat. No.	IP Rating
MPAS-Axxxx-VxxSxA (ball screw) or MPMA-A	2090-CPxM7DF-16AAxx (standard, non-flex) 2090-CPxM7DF-16AFxx (continuous-flex)	IP30
MPAS-Axxxx-ALMx2C (direct drive) or MPMA-A	2090-CPWM7DF-16AAxx (standard, non-flex) 2090-CPWM7DF-16AFxx (continuous-flex)	

MP-Series (400V-class) Integrated Linear Stages	Power Cable Cat. No.	IP Rating
MPAS-Bxxxx-VxxSxA (ball screw) or MPMA-B	2090-CPxM7DF-16AAxx (standard, non-flex) 2090-CPxM7DF-16AFxx (continuous-flex)	IP30
MPAS-Bxxxx-ALMx2C (direct drive) or MPMA-B	2090-CPWM7DF-16AAxx (standard, non-flex) 2090-CPWM7DF-16AFxx (continuous-flex)	

For cable configuration illustrations and feature descriptions, by catalog number, refer to 2090-Series Motor/Actuator Cables Overview beginning on [page 13](#).

Cable length xx is in meters. Refer to Technical Specifications - 2090-Series Motor/Actuator Cables beginning on [page 30](#).

LDAT-Series Integrated Linear Thrusters

Actuator Cat. No.	Drive Compatibility	Feedback Type	Feedback Cable Cat. No.	IP Rating
LDAT-Sxxxxxx-xDx (230V operation)	2198-Hxxx-ERS or 2198-Hxxx-ERS2 2097-V3xPRx	Absolute Linear Encoder Feedback	2090-CFBM7DF-CEAAxx or 2090-CFBM7DD-CEAAxx (standard, non-flex)	IP30
LDAT-Sxxxxxx-xDx (460V operation)	2198-Hxxx-ERS or 2198-Hxxx-ERS2 2198-Dxxx-ERS3 2097-V34PRx		2090-CFBM7DF-CEAFxx 2090-CFBM7DD-CEAFxx (continuous-flex)	
LDAT-Sxxxxxx-xBx (230V operation)	2093-AC05-MPx or 2093-AMxx 2094-ACxx-Mxx-S or 2094-AMxx-S 2097-V3xPRx 2098-DSD-xxx 2071-Axx	Incremental Encoder Feedback	2090-XXNFMF-Sxx (standard, non-flex) 2090-CFBM7DF-CDAFxx (continuous-flex)	
LDAT-Sxxxxxx-xBx (460V operation)	2198-Dxxx-ERS3 2094-BCxx-Mxx-S or 2094-BMxx-S 2094-BCxx-Mxx-M or 2094-BMxx-M 2097-V34PRx 2098-DSD-HVxxx			

LDAT-Series (230V or 460V operation) Linear Thrusters	Power Cable Cat. No.	IP Rating
LDAT-S031xxx, LDAT-S032xxx, LDAT-S033xxx	2090-CPWM7DF-16AAxx (standard, non-flex) 2090-CPWM7DF-16AFxx (continuous-flex)	IP30
LDAT-S051xxx, LDAT-S052xxx, LDAT-S053xxx, LDAT-S054xxx		
LDAT-S072xxx, LDAT-S073xxx, LDAT-S074xxx, LDAT-S076xxx-Exx		
LDAT-S102xxx, LDAT-S103xxx, LDAT-S104xxx, LDAT-S106xxx-Exx		
LDAT-S152xxx, LDAT-S153xxx, LDAT-S154xxx, LDAT-S156xxx-Exx		
LDAT-S076xxx-Dxx	2090-CPWM7DF-14AAxx (standard, non-flex) 2090-CPWM7DF-14AFxx (continuous-flex)	
LDAT-S106xxx-Dxx		
LDAT-S156xxx-Dxx		

For cable configuration illustrations and feature descriptions, by catalog number, refer to 2090-Series Motor/Actuator Cables Overview beginning on [page 13](#).

Cable length xx is in meters. Refer to Technical Specifications - 2090-Series Motor/Actuator Cables beginning on [page 30](#).

TL-Series Electric Cylinders

Actuator Cat. No.	Drive Compatibility	Feedback Type	Motor Feedback Cable	IP Rating
TLAR-Axxxxx	2093-AC05-MPx or 2093-AMxx 2097-V3xPRx or 2097-V3xPRx-LM 2071-Axx	Multi-turn High Resolution Absolute Encoder Feedback	2090-CFBM6DF-CBAAxx (flying-lead) standard, non-flex	IP40 ⁽¹⁾

TL-Series (200V-class) Electric Cylinders	Motor Power Cable	IP Rating
TLAR-Axxxxx	2090-CPBM6DF-16AAxx (power and brake) standard, non-flex 2090-CPWM6DF-16AAxx (power without brake) standard, non-flex	IP40 ⁽¹⁾

(1) Applies to complete unit, including rod-end seal and breather port.

For cable configuration illustrations and feature descriptions, by catalog number, refer to 2090-Series Motor/Actuator Cables Overview beginning on [page 13](#).

Cable length xx is in meters. Refer to Technical Specifications - 2090-Series Motor/Actuator Cables beginning on [page 30](#).

MP-Series Electric Cylinders

Actuator Cat. No.	Drive Compatibility	Feedback Type	Feedback Cable Cat. No.	IP Rating
MPAR-A1xxxx MPAR-A2xxxx MPAR-A3xxxx	2198-Hxxx-ERS or 2198-Hxxx-ERS2 2093-AC05-MPx or 2093-AMxx 2094-ACxx-Mxx-S or 2094-AMxx-S 2097-V3xPRx or 2097-V3xPRx-LM 2098-DSD-xxx	Multi-turn High Resolution Absolute Encoder Feedback	2090-CFBM7DF-CEAAxx or 2090-CFBM7DD-CEAAxx (standard, non-flex)	IP40 ⁽¹⁾ IP66 ⁽²⁾
MPAR-B1xxxx MPAR-B2xxxx MPAR-B3xxxx	2198-Hxxx-ERS or 2198-Hxxx-ERS2 2198-Dxxx-ERS3 2094-BCxx-Mxx-S or 2094-BMxx-S 2094-BCxx-Mxx-M or 2094-BMxx-M 2097-V34PRx or 2097-V34PRx-LM 2098-DSD-HVxxx		2090-CFBM7DF-CEAFxx or 2090-CFBM7DD-CEAFxx (continuous-flex)	

MP-Series (200V-class) Electric Cylinders	Power Cable Cat. No.	IP Rating
MPAR-A1xxxx MPAR-A2xxxx MPAR-A3xxxx	2090-CPxM7DF-16AAxx (standard, non-flex) 2090-CPxM7DF-16AFxx (continuous-flex)	IP40 ⁽¹⁾ IP66 ⁽²⁾

MP-Series (400V-class) Electric Cylinders	Power Cable Cat. No.	IP Rating
MPAR-B1xxxx MPAR-B2xxxx MPAR-B3xxxx	2090-CPxM7DF-16AAxx (standard, non-flex) 2090-CPxM7DF-16AFxx (continuous-flex)	IP40 ⁽¹⁾ IP66 ⁽²⁾

- (1) Applies to complete unit, including rod-end seal and breather port.
- (2) Applies to electronic components.

MP-Series Heavy Duty Electric Cylinders

Actuator Cat. No.	Drive Compatibility	Feedback Type	Feedback Cable Cat. No.	IP Rating
MPAI-A2xxxx MPAI-A3xxxx MPAI-A4xxxx MPAI-A5xxxx	2198-Hxxx-ERS or 2198-Hxxx-ERS2 2093-AC05-MPx or 2093-AMxx 2094-ACxx-Mxx-S or 2094-AMxx-S 2097-V3xPRx or 2097-V3xPRx-LM 2098-DSD-xxx	Multi-turn High Resolution Absolute Encoder Feedback	2090-CFBM7DF-CEAAxx or 2090-CFBM7DD-CEAAxx (standard, non-flex)	IP67 (with specified cables)
MPAI-B2xxxx MPAI-B3xxxx MPAI-B4xxxx MPAI-B5xxxx	2198-Hxxx-ERS or 2198-Hxxx-ERS2 2198-Dxxx-ERS3 2094-BCxx-Mxx-S or 2094-BMxx-S 2094-BCxx-Mxx-M or 2094-BMxx-M 2097-V34PRx or 2097-V34PRx-LM 2098-DSD-HVxxx		2090-CFBM7DF-CEAFxx or 2090-CFBM7DD-CEAFxx (continuous-flex)	

MP-Series (200V-class) Heavy Duty Electric Cylinders	Power Cable Cat. No.	IP Rating
MPAI-A2xxxx, MPAI-A3xxxx, MPAI-A4xxxx	2090-CPxM7DF-16AAxx (standard, non-flex) 2090-CPxM7DF-16AFxx (continuous-flex)	IP67 (with specified cables)
MPAI-A5xxxx	2090-CPxM7DF-14AAxx (standard, non-flex) 2090-CPxM7DF-14AFxx (continuous-flex)	

MP-Series (400V-class) Heavy Duty Electric Cylinders	Power Cable Cat. No.	IP Rating
MPAI-B2xxxx, MPAI-B3xxxx, MPAI-B4xxxx, MPAI-B5xxxx	2090-CPxM7DF-16AAxx (standard, non-flex) 2090-CPxM7DF-16AFxx (continuous-flex)	IP67 (with specified cables)

For cable configuration illustrations and feature descriptions, by catalog number, refer to 2090-Series Motor/Actuator Cables Overview beginning on [page 13](#).
Cable length xx is in meters. Refer to Technical Specifications - 2090-Series Motor/Actuator Cables beginning on [page 30](#).

LDC-Series Linear Motors

Cat. No.	Drive Compatibility	Feedback Type	Feedback Cable Cat. No.	IP Rating
LDC-Cxxxxxx-xxTx1 (230V operation)	2093-AC05-MPx or 2093-AMxx 2094-ACxx-Mxx-S or 2094-AMxx-S 2097-V3xPRx 2098-DSD-xxx 2071-Axx	Sin/Cos or TTL Encoder Feedback	2090-XXNFMF-Sxx (standard, non-flex) 2090-CFBM7DF-CDAFxx (continuous-flex)	IP65
LDC-Cxxxxxx-xxTx1 (460V operation)	2198-Dxxx-ERS3 2094-BCxx-Mxx-S or 2094-BMxx-S 2094-BCxx-Mxx-M or 2094-BMxx-M 2097-V34PRx 2098-DSD-HVxxx			

LDC-Series (230V or 460V operation) Linear Motors		Power Cable Cat. No.	IP Rating
LDC-Cxxxxxx-xxTx1		2090-CPWM7DF-16AAxx (standard, non-flex) 2090-CPWM7DF-16AFxx (continuous-flex)	IP65

For cable configuration illustrations and feature descriptions, by catalog number, refer to 2090-Series Motor/Actuator Cables Overview beginning on [page 13](#).
Cable length xx is in meters. Refer to Technical Specifications - 2090-Series Motor/Actuator Cables beginning on [page 30](#).

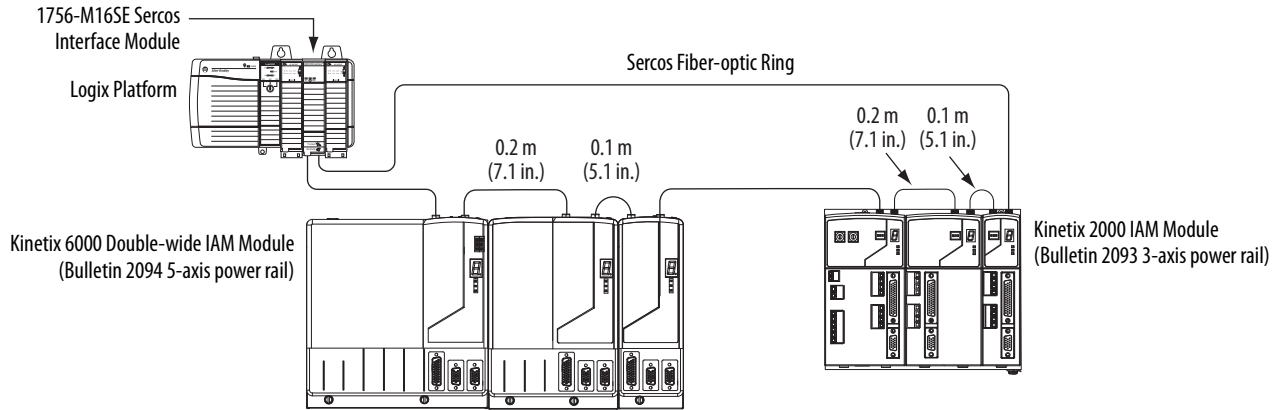
LDL-Series Linear Motors

Cat. No.	Drive Compatibility	Feedback Type	Feedback Cable Cat. No.	IP Rating
LDL-xxxxxxx-xxTx1	2093-AC05-MPx or 2093-AMxx 2094-ACxx-Mxx-S or 2094-AMxx-S 2097-V3xPRx 2098-DSD-xxx 2071-Axx	Sin/Cos or TTL Encoder Feedback	2090-XXNFMF-Sxx (standard, non-flex) 2090-CFBM7DF-CDAFxx (continuous-flex)	IP65

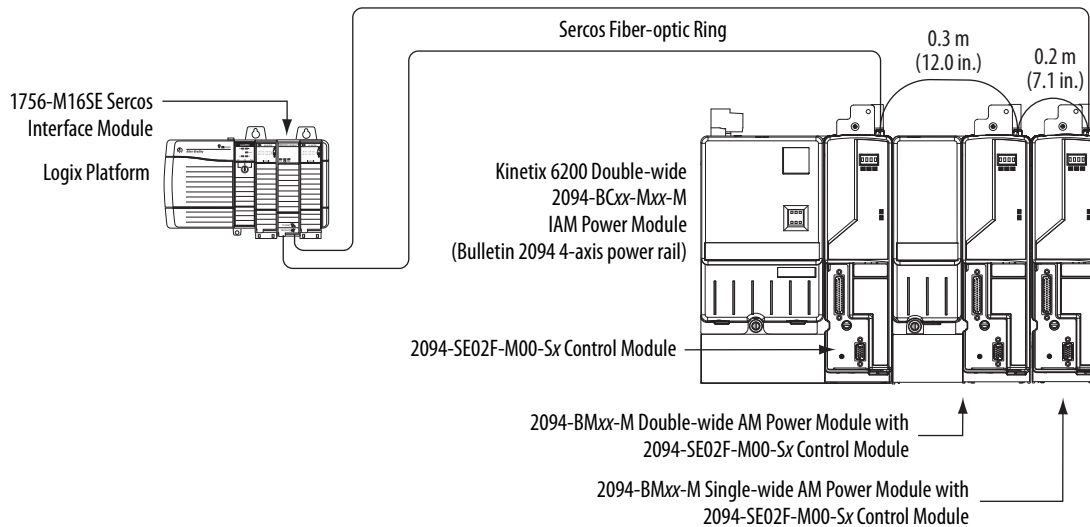
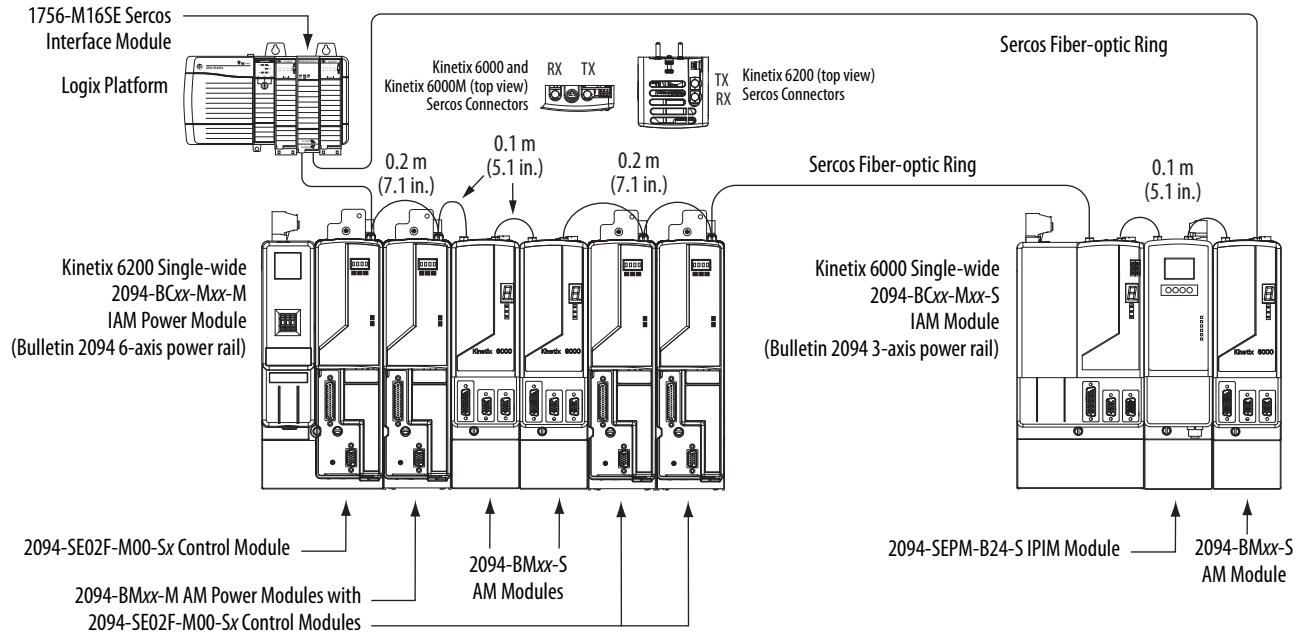
LDL-Series Linear Motors		Power Cable Cat. No.	IP Rating
LDL-xxxxxxx-xxTx1		2090-CPWM7DF-16AAxx (standard, non-flex) 2090-CPWM7DF-16AFxx (continuous-flex)	IP65

For cable configuration illustrations and feature descriptions, by catalog number, refer to 2090-Series Motor/Actuator Cables Overview beginning on [page 13](#).
Cable length xx is in meters. Refer to Technical Specifications - 2090-Series Motor/Actuator Cables beginning on [page 30](#).

Drive-to-Drive Fiber-optic Cable Length Example (Kinetix 2000 and Kinetix 6000 drives)



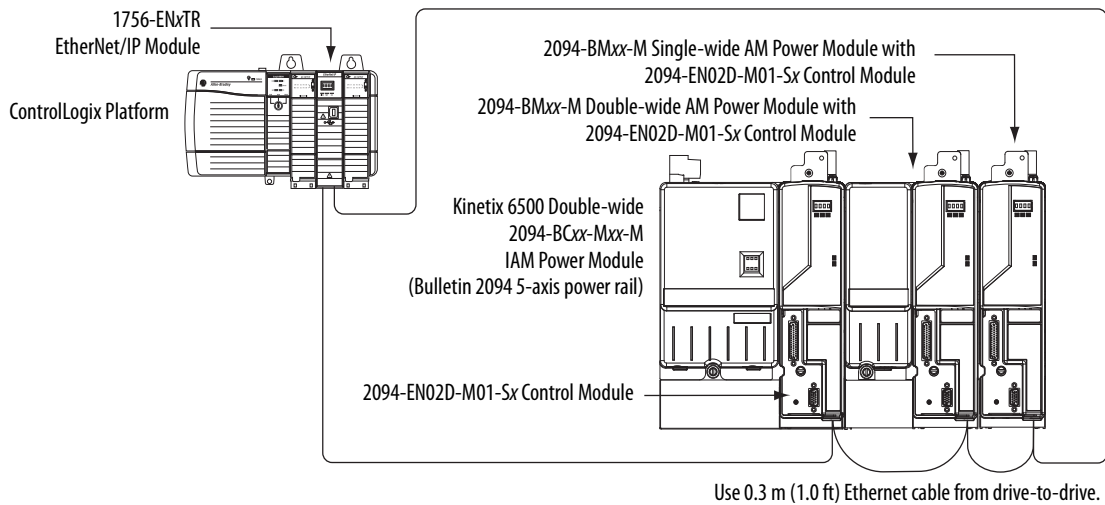
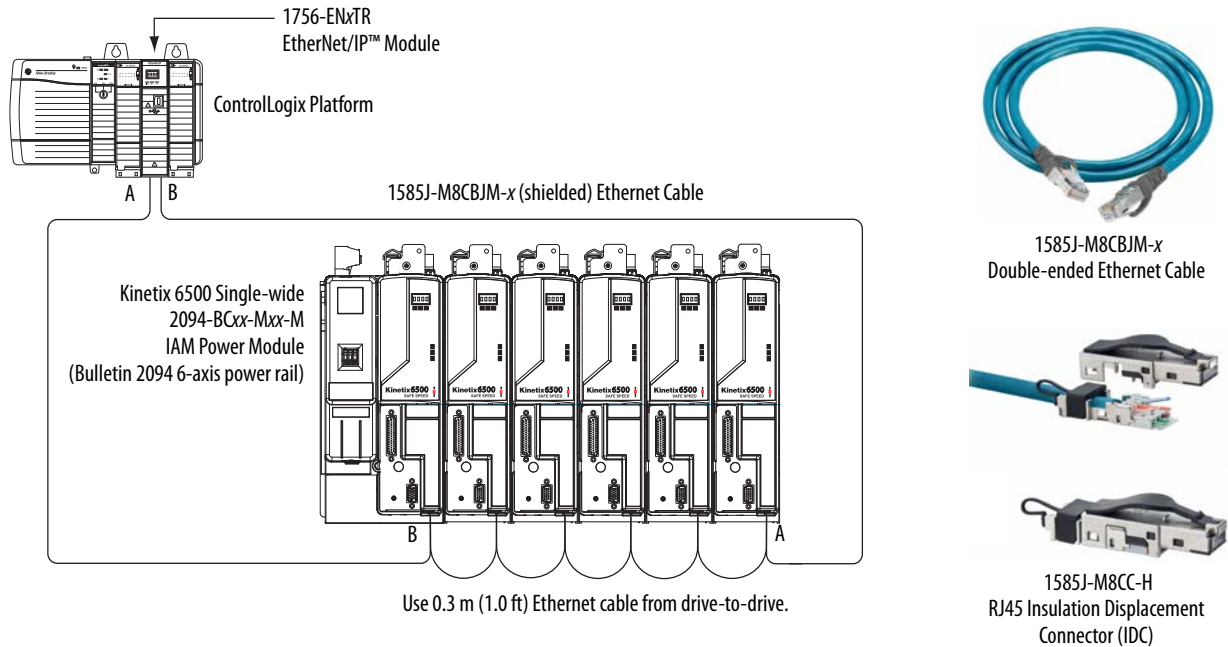
Drive-to-Drive Fiber-optic Cable Length Example (Kinetix 6000, Kinetix 6000M, and Kinetix 6200 drives)



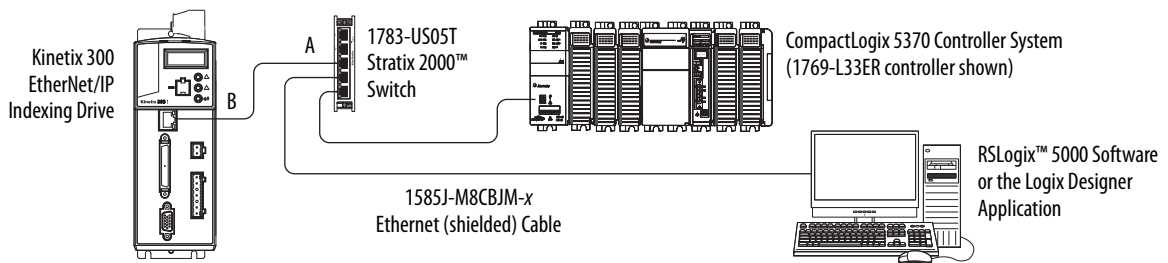
Ethernet Cable Connection Examples

Shielded Ethernet cable is available in lengths up to 78 m (256 ft). However, the total length of Ethernet cable (point A to point B) connecting drive-to-drive, drive-to-controller, or drive-to-switch must not exceed 100 m (328 ft).

Drive-to-Drive Ethernet Cable Length Example (Kinetix 6500 drives)



Ethernet Cable Example for Single-axis Connections (Kinetix 300/350 drives)



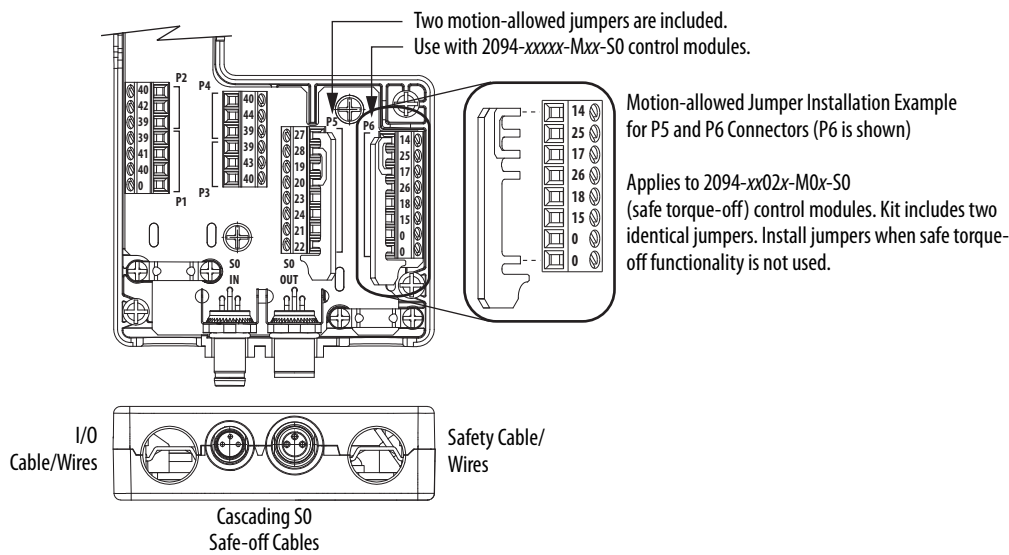
Kinetix 6200 and Kinetix 6500 Safe-off Components

Kinetix 6200 and Kinetix 6500 drive families share these safe torque-off connector kits and cables.

Catalog Numbers - Kinetix 6200 and Kinetix 6500 Safe Torque-off Components

Cat. No.	Description
2090-K6CK-D44S0	Low-profile connector kit for I/O and cascading safe torque-off connections from drive-to-drive (44-pin, male, D-sub). For use with any Kinetix 6200 or Kinetix 6500 safe torque-off (catalog number 2094-xx02x-M0x-S0) control module.
2090-CS0SDS-AA02	Drive-to-drive safety cable for connecting single-wide Kinetix 6200 and Kinetix 6500 drives.
2090-CS0SDS-AA03	Drive-to-drive safety cable for connecting double-wide Kinetix 6200 and Kinetix 6500 drives.
2090-CS0SDS-AA10	Drive-to-drive safety cable for connections between two Bulletin 2094 power rails with Kinetix 6200 and Kinetix 6500 drives.

Kinetix 6200/6500 I/O and Cascading Safe Torque-off Low-profile Connector Kit Example



In this example, three safe torque-off drives are shown using the Bulletin 2090 low-profile connector kit and cables. The right-angled cable connectors are keyed to exit left as shown. Cables loop back and cascade to the next drive or other cascading device. Refer to Low-profile Connector Kit Components on [page 67](#) for more information.

Kinetix 6200/6500 Cascading Safe Torque-off Cable Example

