

Feedback and I/O Cable Connections

Factory made cables with premolded connectors are designed to minimize EMI and are recommended over hand-built cables to improve system performance. However, other options are available for building your own feedback and I/O cables.

Options for Connecting Motor Feedback and I/O

Connection Option	Connector Kit Catalog Number	Cable	Using this Type of Cable
Premolded connectors	N/A	Motor feedback	Refer to the table below for the premolded motor feedback cable available for your motor.
Low-profile connector	2090-K2CK-D15M	Motor feedback	Refer to the table below for the flying-lead cable available for your motor.
Panel-mounted breakout kits	2090-UXBK-D15xx	Motor feedback	Refer to Wiring 15-pin Panel-mounted Breakout Kit on page 97.
	2090-U3BK-D44xx	I/O and auxiliary feedback	Refer to Wiring 44-pin Panel-mounted Breakout Kit on page 97.

Motor Feedback Cables for Specific Motor/Feedback Combinations

Motor Series	Feedback Type	Feedback Cable		Pinout
		Premolded	Flying-lead	
MPL-AxxxxS/M	High-resolution encoder	2090-UXNFBMP-Sxx	2090-XXNFMF-Sxx	Page 93
MPL-A3xxx-H MPL-A4xxx-H MPL-A45xxx-H MPL-A5xxx-H	Incremental encoder			
MPG-Axxxx-S/M	High-resolution encoder			
MPL-A15xxx-H MPL-A2xxx-H	Incremental encoder	N/A	2090-XXNFMF-Sxx	Page 93
MPL-Axxxx-V/E	High-resolution encoder			
MPF-Axxxx-S/M				
MPS-Axxxx-S/M				
TL-Axxxx-H	Incremental encoder	2090-XXNFT-Sxx	2090-XXNFLT-Sxx	Page 93
Y-Series	Incremental encoder	2090-UXNFBY-Sxx	2090-XXNFY-Sxx	Page 94

Flying-lead Feedback Cable Pin-outs

2090-XXNFMP-Sxx Feedback Cable

Motor Connector Pin	Motors with High Resolution Feedback		Motors with Incremental Encoder Feedback	Drive MF Connector Pin
	MPL-A5xxx-M/-S	MPL-A3xxx-M/-S MPL-A4xxx-M/-S MPL-A45xxx-M/-S MPG-Axxx-M/-S	MPL-A3xxx-H MPL-A4xxx-H MPL-A45xxx-H MPL-A5xxx-H	
A	Sine+	Sine+	AM+	1
B	Sine-	Sine-	AM-	2
C	Cos+	Cos+	BM+	3
D	Cos-	Cos-	BM-	4
E	Data+	Data+	IM+	5
F	Data-	Data-	IM-	10
K	Reserved	EPWR_5V	EPWR_5V	14
L	Reserved	ECOM	ECOM	6
N	EPWR_9V	Reserved	Reserved	7
P	ECOM	Reserved	Reserved	6
R	TS+	TS+	TS+	11
S	TS-	TS-	TS-	—
T	Reserved	Reserved	S1	12
U	Reserved	Reserved	S2	13
V	Reserved	Reserved	S3	8

2090-XXNFMF-Sxx Feedback Cable

Motor Connector Pin	Motors with High Resolution Feedback		Motors with Incremental Encoder Feedback	Drive MF Connector Pin
	MPF-A5xx-M/-S	MPL-A15xxx-V/-E MPL-A2xxx-V/-E MPF/MPS-A3xx-M/-S MPF/MPS-A4xx-M/-S MPF/MPS-A45xx-M/-S MPS-A5xx-M/-S	MPL-A15xxx-H MPL-A2xxx-H	
1	Sine+	Sine+	AM+	1
2	Sine-	Sine-	AM-	2
3	Cos+	Cos+	BM+	3
4	Cos-	Cos-	BM-	4
5	Data+	Data+	IM+	5
6	Data-	Data-	IM-	10
9	Reserved	EPWR_5V	EPWR_5V	14
10	Reserved	ECOM	ECOM	6
11	EPWR_9V	Reserved	Reserved	7
12	ECOM	Reserved	Reserved	6

Motor Connector Pin	Motors with High Resolution Feedback		Motors with Incremental Encoder Feedback	Drive MF Connector Pin
	MPF-A5xx-M/-S	MPL-A15xxx-V/-E MPL-A2xxx-V/-E MPF/MPS-A3xx-M/-S MPF/MPS-A4xx-M/-S MPF/MPS-A45xx-M/-S MPS-A5xx-M/-S	MPL-A15xxx-H MPL-A2xxx-H	
13	TS+	TS+	TS+	11
14	TS-	TS-	TS-	—
15	Reserved	Reserved	S1	12
16	Reserved	Reserved	S2	13
17	Reserved	Reserved	S3	8

2090-XXNFY-Sxx Feedback Cable

Motor Connector Pin	Incremental Encoder Feedback	Drive MF Connector Pin
	Y-Series Motors	
9	AM+	1
10	AM-	2
11	BM+	3
12	BM-	4
13	IM+	5
14	IM-	10
15	S1	12
17	S2	13
19	S3	8
22	EPWR_5VM	14
23	ECOMM	6
24	Drain	Connector Housing
Reserved	Reserved	7
Reserved	Reserved	9
Reserved	Reserved	11
Reserved	Reserved	15

Wiring Feedback and I/O Connectors

These procedures assume you have mounted your Kinetix 2000 system, completed all power wiring, and are ready to connect your feedback and I/O cables.

For this connection	Go To
Premolded cable	Connecting Premolded Motor Feedback Cables on page 95.
Low-profile connector	Wiring Low-profile Connector Kits on page 95.
Panel-mounted breakout board	Wiring 15-pin Panel-mounted Breakout Kit on page 97.

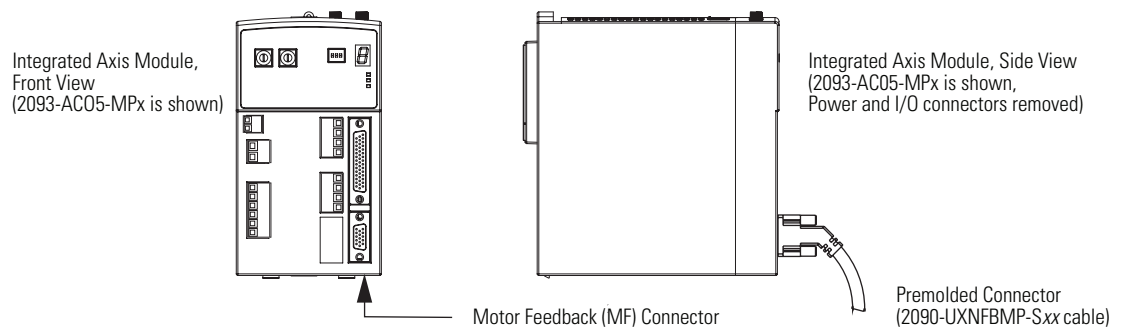
Connecting Premolded Motor Feedback Cables

Motor feedback cables with premolded connectors plug directly into 15-pin motor feedback (MF) connectors on either the IAM or AM (no wiring is necessary).

IMPORTANT

When using Bulletin 2090 cables with premolded connectors, tighten the mounting screws (finger tight) to improve system performance.

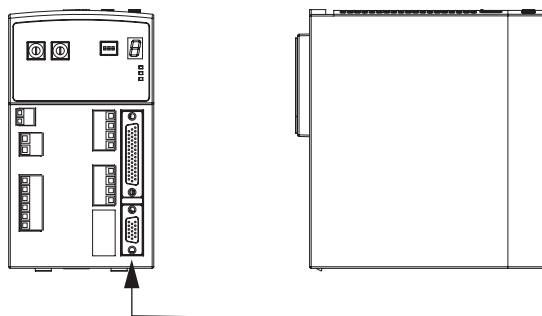
Premolded Feedback Cable Attached to MF Connector



Wiring Low-profile Connector Kits

Low-profile connector kits (2090-K2CK-D15M) are suitable for motor feedback (MF), connections on any IAM or AM.

15-pin Connector Kit and Flying Lead Cable attached to MF Connector)

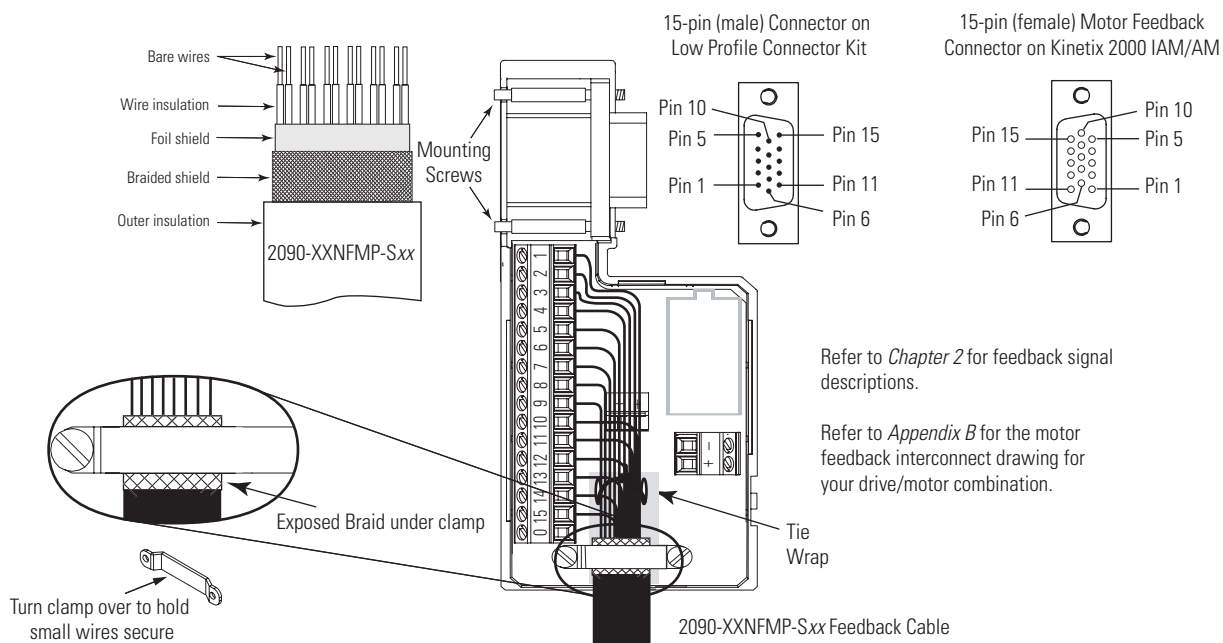


IMPORTANT

Torque the screws on the connector cover to 0.4 Nm (3.5 lb-in.).

Tightening the cover mounting screws is essential for shield integrity.

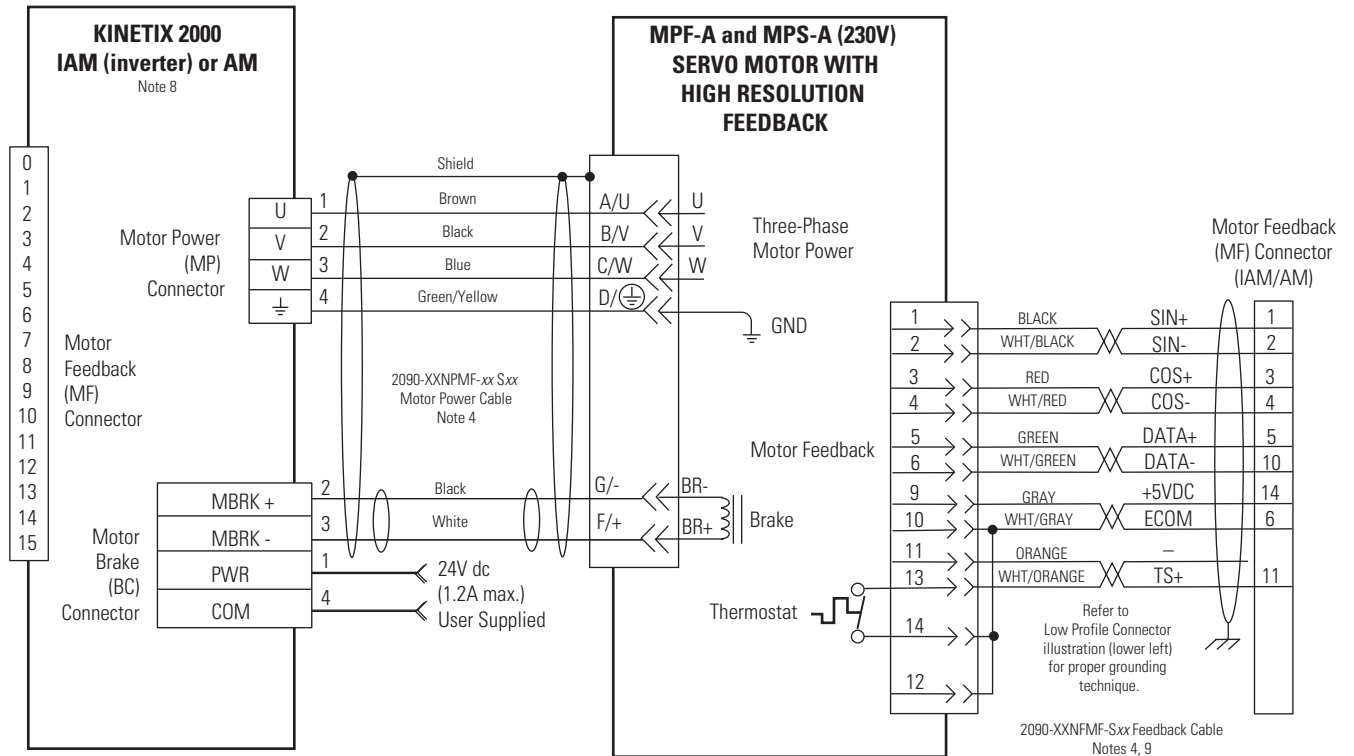
Wiring (15-pin) Flying-lead Feedback Cable Connections 2090-XXNFxx-Sxx Feedback Cable



IMPORTANT

Clamping the exposed area of the cable braid, and any shield or drain wires under the shield clamp is critical. Turn clamp over, if necessary, to achieve a proper ground connection.

Wiring Example for MP-Series Food Grade and Stainless Steel Motor (MPF-A and MPS-A) with 230V Axis Module (IAM or AM)



Grounding Technique for Feedback Cable Shield

