



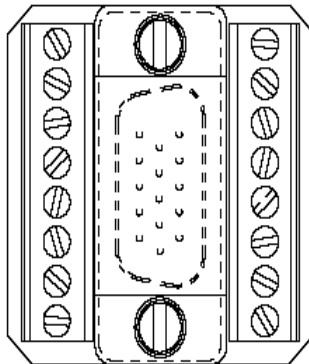
## FCBB-15-16 Low Profile Feedback Breakout Board

Ultra 3000/5000 Encoder Breakout Board

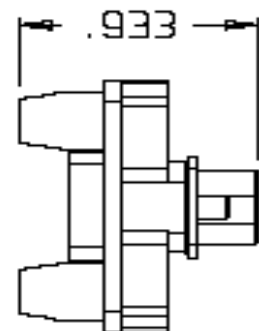
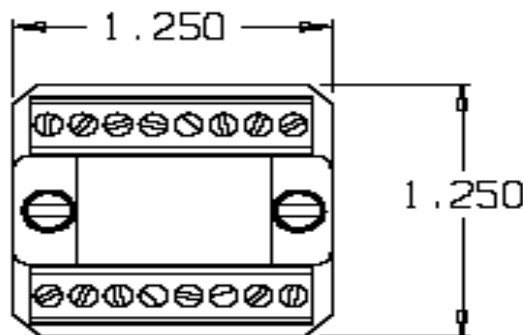
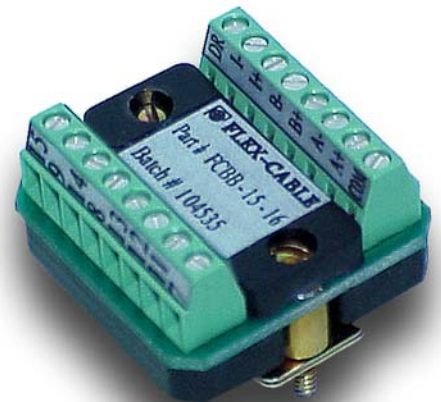
List Price: \$88.00 USD

The FCBB-15-16 is ideal for feedback cables that need to be run through conduit or seal tight and terminated at the drive. This eliminates additional panel space or wiring terminations, and allows feedback wires to be terminated directly on the CN2 connector. The FCBB-15-16 features protective molding on both sides with screw terminal signal descriptions and pin numbers for the CN2 connector.

LIMIT- : 15  
 LIMIT+ : 9  
 +5V : 14  
 S3 : 8  
 S2 : 13  
 S1 : 12  
 TS+ : 11  
 +9V : 7



SHELL : DRAIN  
 10 : I-  
 5 : I+  
 4 : B-  
 3 : B+  
 2 : A-  
 1 : A+  
 6 : COM





FCBB-15-16 for U3K & U5K Drives

CN2 Pin Number	Terminal Signal Description	Signal
1	Channel A+	A+
2	Channel A-	A-
3	Channel B+	B+
4	Channel B-	B-
5	Channel I+	I+
6	Aux. Common	Com
7	+9V	+9V
8	Commutation Channel 3	S3
9	Positive Overtravel Limit	L+
10	Channel I-	I-
11	Thermostat	TS+
12	Commutation Channel 1	S1
13	Commutation Channel 2	S2
14	Encoder Power (+5V)	+5V
15	Negative Overtravel Limit	L-

**TECHNICAL SPECIFICATIONS:**

Max. Voltage: 30VDC  
 Max. Current: 5 Amps  
 Wire Capacity: (UL) 30-16 AWG  
 Screw Terminals: (CSA) 28-16 AWG  
 L x W x H: 1.25" x 1.25" x .75"  
 Testing: 100% Cirrus  
 Signature 1000



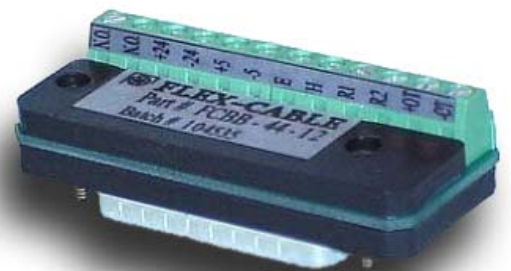
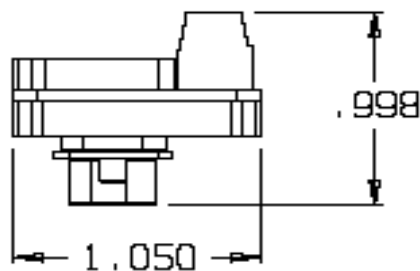
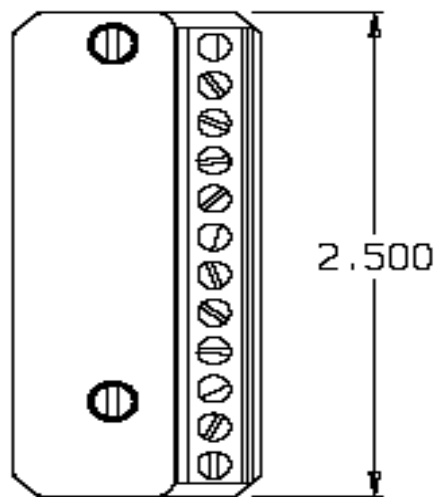
# FLEX-CABLE

## FCBB-44-12 Low Profile Breakout Board

Ultra 3000/5000 I/O Breakout Board for use on Allen Bradley® Type Servo Drives with the SERCOS interface.

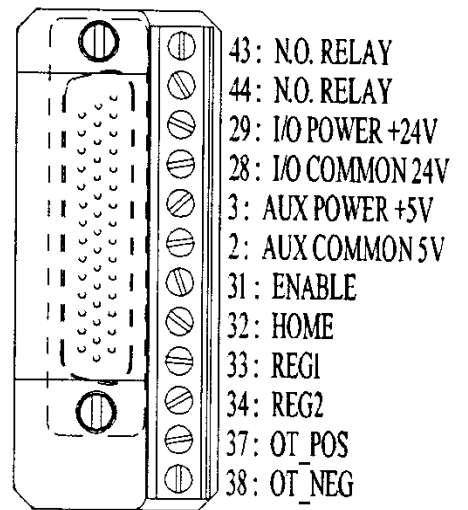
List Price: \$88.00 USD

The FCBB-44-12 eliminates additional panel space and wiring terminations, allowing field wiring to be terminated directly on the CN1 connector via screw terminals. The FCBB-44-12 features protective molding on both sides along with screw terminal signal descriptions and pin numbers for the CN1 connections.



[www.flexcable.com](http://www.flexcable.com)

CN1 Pin Number	Terminal Signal Description	Signal
1	NC	
2	Common	ECOM
3	Aux. Logic Power In +5V	AUXPWR
4	NC	
5	NC	
6	NC	
7	NC	
8	NC	
9	NC	
10	NC	
11	NC	
12	NC	
13	NC	
14	NC	
15	NC	
16	NC	
17	NC	
18	NC	
19	NC	
20	NC	
21	NC	
22	NC	
23	NC	
24	NC	
25	NC	
26	NC	
27	NC	
28	I/O Common	IOCOM
29	I/O Power	IOPWR
30	NC	
31	Drive Enable Input	ENABLE
32	Home Sensor Input	HOME
33	Registration Input 1	REG1
34	Registration Input 2	REG2
35	NC	
36	NC	
37	Positive Overtravel Limit	OT_POS
38	Negative Overtravel Limit	OT_NEG
39	NC	
40	NC	
41	NC	
42	NC	
43	Drive Ready Relay Output +	N.O.
44	Drive Ready Relay Output -	N.O.



<b>TECHNICAL SPECIFICATIONS:</b>	
Max. Voltage:	30VDC
Max. Current:	5 Amps
Wire Capacity:	(UL/CUL) 30-14 AWG
Screw Terminals:	(CSA) 28-14 AWG
L x W x H:	2.5" x 1.06" x .75"
Testing:	100% Cirrus Signature 1000

Allen Bradley® is a registered trademark of the Rockwell Corporation



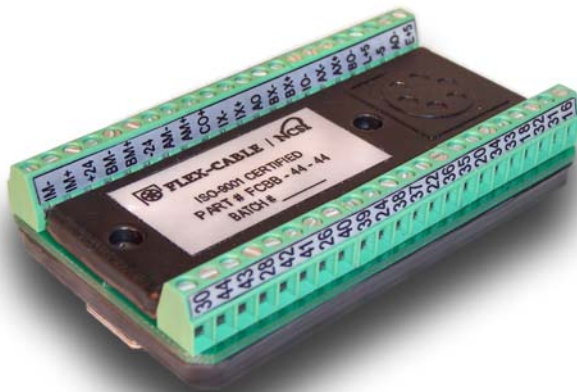
# FLEX-CABLE

## FCBB-44-44 Low Profile Breakout Board

For use on Ultra3000 and Ultra3000i Drives.

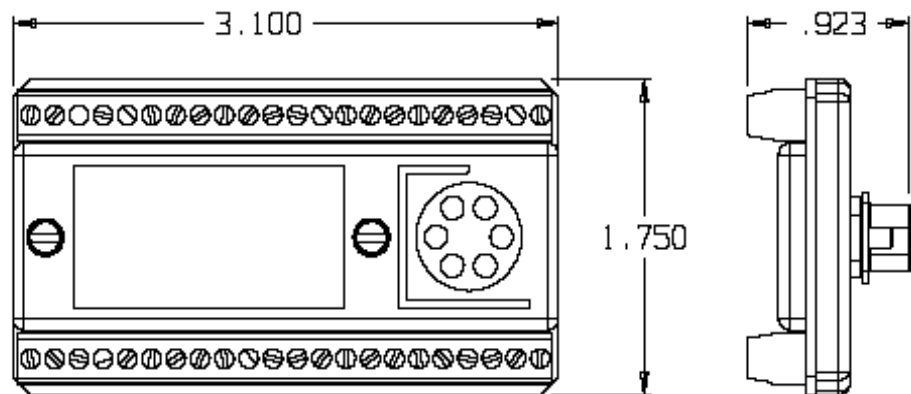
**LIST PRICE: \$96.00 US Dollars**

The FCBB-44-44 eliminates additional panel space and wiring terminations, allowing field wiring to be terminated directly on the CN1 connector via screw terminals. The FCBB-44-44 features protective molding on both sides along with screw terminal signal descriptions and pin numbers for the CN1 connections.



### TECHNICAL SPECIFICATIONS

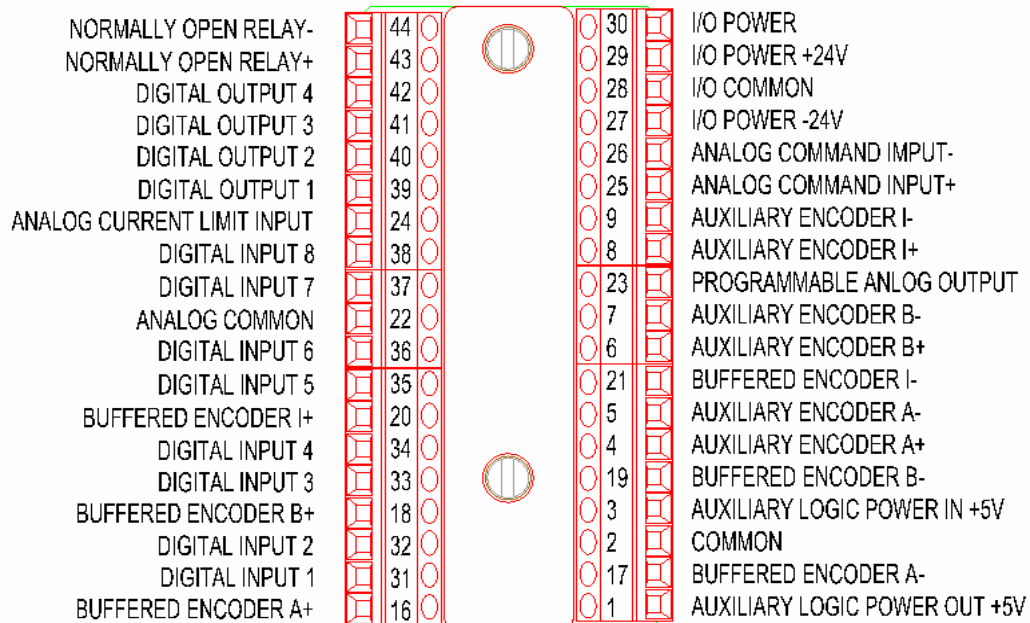
Max. Voltage:	30VDC
Max. Current:	5 Amps
Wire Capacity:	(UL/CUL) 30-16 AWG
Screw Terminals:	(CSA) 28-16 AWG
L x W x H:	3.06" x 1.75" x 1.0"
Testing:	100% Cirrus Signature 1000



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FCBB-44-44 for U3K drives		
CN1 Pin Number	Terminal Signal Description	Signal
1	Aux. Logic Power Out +5V	E+5
2	Common	-5
3	Aux. Logic Power In +5V	+5
4	Aux. Encoder Ch A+	AX+
5	Aux. Encoder Ch A-	AX-
6	Aux. Encoder Ch B+	BX+
7	Aux. Encoder Ch B-	BX-
8	Aux. Encoder Ch I+	IX+
9	Aux. Encoder Ch I-	IX-
10	No connection	
11	No connection	
12	No connection	
13	No connection	
14	No connection	
15	No connection	
16	Buffered Motor Encoder Ch A+	AO+
17	Buffered Motor Encoder Ch A+	AO-
18	Buffered Motor Encoder Ch B+	BO+
19	Buffered Motor Encoder Ch B-	BO-
20	Buffered Motor Encoder Ch I+	IO+
21	Buffered Motor Encoder Ch I-	IO-
22	Common	CA
23	Programmable Analog Output	AO
24	Analog Current Limit Input	IL
25	Command +	CO+
26	Command -	CO-
27	I/O Common	-24
28	I/O Common	-24
29	I/O Power	+24
30	I/O Power	+24
31	Drive Enable Input	E
32	Home Sensor Input	H
33	Registration Input 1	R1
34	Registration Input 2	R2
35	Digital Input 5	I5
36	Digital Input 6	I6
37	Positive Overtravel Limit	+OT
38	Negative Overtravel Limit	-OT
39	Digital Output 1	O1
40	Digital Output 2	O2
41	Digital Output 3	O3
42	Digital Output 4	O4
43	Drive Ready Relay Output +	N.O.
44	Drive Ready Relay Output -	N.O.





## FCBB-K6K-2 Break-out Board

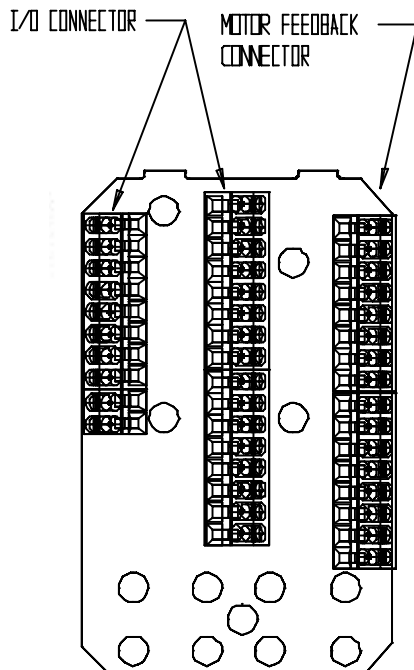
For use on Kinetix 6000 drives.

**LIST PRICE: \$104.00 US Dollars**

- Eliminates additional panel space and wiring terminations.
- Connects directly to :
  - I/O (IOD) Connector.
  - Motor Feedback (MF) Connector.
- Shielded housing and protective moldings.
- Pin numbers on each screw terminal.
- High quality Phoenix terminal blocks.
- Manufactured using UL Rated materials.



**SIMPLY REMOVE ONE SCREW AND ALL CONNECTIONS ARE ACCESSIBLE FOR EASY TROUBLESHOOTING.**



### TECHNICAL SPECIFICATIONS:

Max. Voltage:	30VDC
Max. Current:	5 Amps
Wire Capacity:	(UL/CUL) 30-16 AWG
Screw Terminals:	(CSA) 28-16 AWG
L x W x H:	3.25" x 2" x 1.094"
Testing:	100% Cirrus Signature 1000



## PIN NUMBERS & SIGNAL DESCRIPTIONS for the FCBB-K6K-2 and FCBB-K6K-3 Break-Out Boards.

Valid for KINETIX 6000™ drives.

NOTE: Terminal blocks are labeled according to connector pin numbers.

### I/O

#### I/O CONNECTOR PIN-OUT

Pin Number	Terminal Signal Description	Signal
1	Hardware Enabled 24V DC Power Supply	CUST_24V
2	Hardware Enable Input	ENABLE
3	Common	UST_COM
4	Home Switch 24V DC Power Supply	CUST_24V
5	Home Switch Input HOME	
6	Common	CUST_COM
7	Positive Overtravel 24V DC Power Supply	CUST_24V
8	Positive Overtravel Limit Switch Input	OT+
9	Common	CUST_COM
10	Negative Overtravel 24V DC Power Supply	CUST_24V
11	Negative Overtravel Limit Switch Input	OT-
12	Common	CUST_COM
13	24V Registration Power	REG_24V
14	High Speed Registration 1 Input REG1	
15	Common for Registration REG_COM	
16	24V Registration Power	REG_24V
17	High Speed Registration 2 Input REG2	
18	Common for Registration REG_COM	
19	Reserved	----
20	Reserved	----
21	Reserved	----
22	Reserved	----
23	Analog Output 0	DAC0
24	Analog Output Common	DAC_COM
25	Analog Output 1	DAC1
26	Analog Output Common	DAC_COM

### MF

#### STEGMANN HIPERFACE PIN-OUT

Pin Number	Terminal Signal Description	Signal
1	Sine Differential Input+	SINE+
2	Sine Differential Input-	SINE-
3	Cosine Differential Input+ COS+	
4	Cosine Differential Input-	COS-
5	Hiperface data channel	DATA+
6	Common	ECOMM
7	Encoder Power (+9V)	EPWR_9VM
8	Reserved	----
9	Reserved	----
10	Hiperface data channel	DATA-
11	Motor Thermal Switch (normally closed) <sup>1</sup>	TS
12	Reserved	----
13	Reserved	----
14	Encoder Power (+5V)	EPWR_5VM
15	Reserved	----

<sup>1</sup> Not applicable unless motor has integrated thermal protection.

### MF

#### TTL or Sine/Cosine w/Index Pulse and Hall Commutation

Pin Number	Terminal Signal Description	Signal
1	AM+ / Sine Differential Input+	AM+ / SINE+
2	AM- / Sine Differential Input-	AM- / SINE-
3	BM+ / Cosine Differential Input+ BM+ / COS+	
4	BM- / Cosine Differential Input-	BM- / COS-
5	Index Pulse+	IM+
6	Common	ECOMM
7	Encoder Power (+9V)	EPWR_9VM
8	Single Ended 5V Hall Effect Commutation	S3
9	Reserved	----
10	Index Pulse-	IM-
11	Motor Thermal Switch (normally closed) <sup>1</sup>	TS
12	Single Ended 5V Hall Effect Commutation	S1
13	Single Ended 5V Hall Effect Commutation	S2
14	Encoder Power (+5V)	EPWR_5VM
15	Reserved	----

<sup>1</sup> Not applicable unless motor has integrated thermal protection.

### MF

#### Resolver Transmitter TR = 0.25

Pin Number	Terminal Signal Description	Signal
1	Sine Differential Input+	SINE+
2	Sine Differential Input-	SINE-
3	Cosine Differential Input+ COS+	
4	Cosine Differential Input-	COS-
5	Resolver Excitation	R1
6	Common	ECOMM
7	Encoder Power (+9V)	EPWR_9VM
8	Reserved	----
9	Reserved	----
10	Resolver Excitation	R2
11	Motor Thermal Switch (normally closed) <sup>1</sup>	TS
12	Reserved	----
13	Reserved	----
14	Encoder Power (+5V)	EPWR_5VM
15	Reserved	----

<sup>1</sup> Not applicable unless motor has integrated thermal protection.

### AF

#### STEGMANN HIPERFACE PIN-OUT

Pin Number	Terminal Signal Description	Signal
1	Sine Differential Input+	SINE+
2	Sine Differential Input-	SINE-
3	Cosine Differential Input+ COS+	
4	Cosine Differential Input-	COS-
5	Hiperface data channel	DATA+
6	Common	ECOMM
7	Encoder Power (+9V)	EPWR_9VM
8	Reserved	----
9	Reserved	----
10	Hiperface data channel	DATA-
11	Reserved	----
12	Reserved	----
13	Reserved	----
14	Encoder Power (+5V)	EPWR_5VM
15	Reserved	----

### AF

#### TTL or Sine/Cosine w/Index Pulse

Pin Number	Terminal Signal Description	Signal
1	AM+ / Sine Differential Input+	AM+ / SINE+
2	AM- / Sine Differential Input-	AM- / SINE-
3	BM+ / Cosine Differential Input+ BM+ / COS+	
4	BM- / Cosine Differential Input-	BM- / COS-
5	Index Pulse+	I+
6	Common	ECOMM
7	Encoder Power (+9V)	EPWR_9VM
8	Reserved	----
9	Reserved	----
10	Index Pulse-	I-
11	Reserved	----
12	Reserved	----
13	Reserved	----
14	Encoder Power (+5V)	EPWR_5VM
15	Reserved	----





# FLEX-CABLE

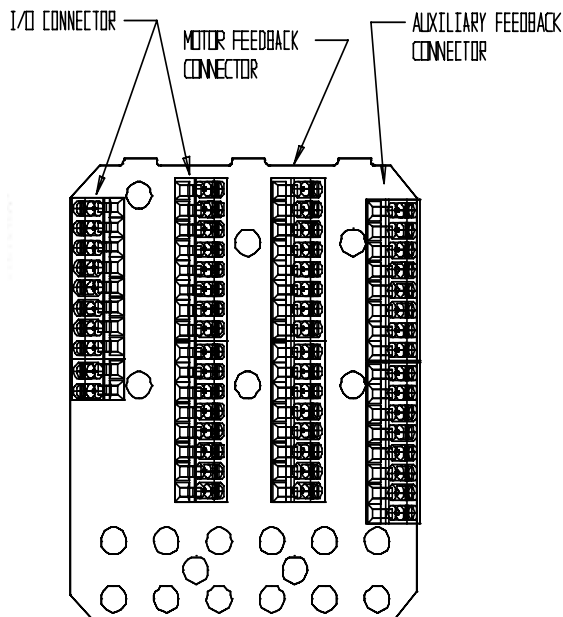
## FCBB-K6K-3 Break-out Board

For use on Kinetix 6000 drives.  
LIST PRICE: \$157.28 US Dollars

- Eliminates additional panel space and wiring terminations.
- Connects directly to :
  - I/O (IOD) Connector.
  - Motor Feedback (MF) Connector.
  - Auxiliary Feedback (AF) Connector.
- Shielded housing and protective moldings.
- Pin numbers on each screw terminal.
- High quality Phoenix terminal blocks.
- Manufactured using UL Rated materials.



**SIMPLY REMOVE TWO SCREWS AND ALL CONNECTIONS ARE ACCESSIBLE FOR EASY TROUBLESHOOTING**



### **TECHNICAL SPECIFICATIONS:**

Max. Voltage:	30VDC
Max. Current:	5 Amps
Wire Capacity:	(UL/CUL) 30-16 AWG
Screw Terminals:	(CSA) 28-16 AWG
L x W x H:	3.25" x 2.75" x 1.094"
Testing:	100% Cirrus Signature 1000

[www.flexcable.com](http://www.flexcable.com)



## PIN NUMBERS & SIGNAL DESCRIPTIONS for the FCBB-K6K-2 and FCBB-K6K-3 Break-Out Boards.

Valid for KINETIX 6000™ drives.

NOTE: Terminal blocks are labeled according to connector pin numbers.

<u>I/O</u>	<u>I/O CONNECTOR PIN-OUT</u>	
Pin Number	Terminal Signal Description	Signal
1	Hardware Enabled 24V DC Power Supply	CUST_24V
2	Hardware Enable Input	ENABLE
3	Common	UST_COM
4	Home Switch 24V DC Power Supply	CUST_24V
5	Home Switch Input HOME	
6	Common	CUST_COM
7	Positive Overtravel 24V DC Power Supply	CUST_24V
8	Positive Overtravel Limit Switch Input	OT+
9	Common	CUST_COM
10	Negative Overtravel 24V DC Power Supply	CUST_24V
11	Negative Overtravel Limit Switch Input	OT-
12	Common	CUST_COM
13	24V Registration Power	REG_24V
14	High Speed Registration 1 Input REG1	
15	Common for Registration REG_COM	
16	24V Registration Power	REG_24V
17	High Speed Registration 2 Input REG2	
18	Common for Registration REG_COM	
19	Reserved	----
20	Reserved	----
21	Reserved	----
22	Reserved	----
23	Analog Output 0	DAC0
24	Analog Output Common	DAC_COM
25	Analog Output 1	DAC1
26	Analog Output Common	DAC_COM

<u>MF</u>	<u>STEGMANN HIPERFACE PIN-OUT</u>	
Pin Number	Terminal Signal Description	Signal
1	Sine Differential Input+	SINE+
2	Sine Differential Input-	SINE-
3	Cosine Differential Input+ COS+	
4	Cosine Differential Input-	COS-
5	Hiperface data channel	DATA+
6	Common	ECOMM
7	Encoder Power (+9V)	EPWR_9VM
8	Reserved	----
9	Reserved	----
10	Hiperface data channel	DATA-
11	Motor Thermal Switch (normally closed) <sup>1</sup>	TS
12	Reserved	----
13	Reserved	----
14	Encoder Power (+5V)	EPWR_5VM
15	Reserved	----

<sup>1</sup> Not applicable unless motor has integrated thermal protection.

<u>MF</u>	<u>TTL or Sine/Cosine w/Index Pulse and Hall Commutation</u>	
Pin Number	Terminal Signal Description	Signal
1	AM+ / Sine Differential Input+	AM+ / SINE+
2	AM- / Sine Differential Input-	AM- / SINE-
3	BM+ / Cosine Differential Input+ BM+ / COS+	
4	BM- / Cosine Differential Input-	BM- / COS-
5	Index Pulse+	IM+
6	Common	ECOMM
7	Encoder Power (+9V)	EPWR_9VM
8	Single Ended 5V Hall Effect Commutation	S3
9	Reserved	----
10	Index Pulse-	IM-
11	Motor Thermal Switch (normally closed) <sup>1</sup>	TS
12	Single Ended 5V Hall Effect Commutation	S1
13	Single Ended 5V Hall Effect Commutation	S2
14	Encoder Power (+5V)	EPWR_5VM
15	Reserved	----

<sup>1</sup> Not applicable unless motor has integrated thermal protection.

<u>MF</u>	<u>Resolver Transmitter TR = 0.25</u>	
Pin Number	Terminal Signal Description	Signal
1	Sine Differential Input+	SINE+
2	Sine Differential Input-	SINE-
3	Cosine Differential Input+ COS+	
4	Cosine Differential Input-	COS-
5	Resolver Excitation	R1
6	Common	ECOMM
7	Encoder Power (+9V)	EPWR_9VM
8	Reserved	----
9	Reserved	----
10	Resolver Excitation	R2
11	Motor Thermal Switch (normally closed) <sup>1</sup>	TS
12	Reserved	----
13	Reserved	----
14	Encoder Power (+5V)	EPWR_5VM
15	Reserved	----

<sup>1</sup> Not applicable unless motor has integrated thermal protection.

<u>AF</u>	<u>STEGMANN HIPERFACE PIN-OUT</u>	
Pin Number	Terminal Signal Description	Signal
1	Sine Differential Input+	SINE+
2	Sine Differential Input-	SINE-
3	Cosine Differential Input+ COS+	
4	Cosine Differential Input-	COS-
5	Hiperface data channel	DATA+
6	Common	ECOMM
7	Encoder Power (+9V)	EPWR_9VM
8	Reserved	----
9	Reserved	----
10	Hiperface data channel	DATA-
11	Reserved	----
12	Reserved	----
13	Reserved	----
14	Encoder Power (+5V)	EPWR_5VM
15	Reserved	----

<u>AF</u>	<u>TTL or Sine/Cosine w/Index Pulse</u>	
Pin Number	Terminal Signal Description	Signal
1	AM+ / Sine Differential Input+	AM+ / SINE+
2	AM- / Sine Differential Input-	AM- / SINE-
3	BM+ / Cosine Differential Input+ BM+ / COS+	
4	BM- / Cosine Differential Input-	BM- / COS-
5	Index Pulse+	I+
6	Common	ECOMM
7	Encoder Power (+9V)	EPWR_9VM
8	Reserved	----
9	Reserved	----
10	Index Pulse-	I-
11	Reserved	----
12	Reserved	----
13	Reserved	----
14	Encoder Power (+5V)	EPWR_5VM
15	Reserved	----