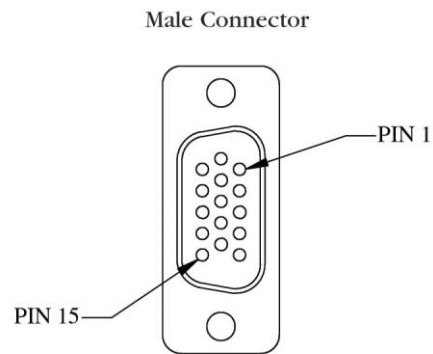


Pinouts – Standard Products

The following pinouts detail the assignment of motor and limit/encoder connector pins. Note that where applicable, two connectors are used; they are opposite polarity, so that their pin numberings are mirror images of each other. Refer to the tables and figures (26a-e) below for details.

Our linear motor driven units utilize a DA-15P connector for the motor signals and a DE-9S connector for the limit and encoder signals of each axis. This includes our SAS™, Impulse™, and AirBeam™ products

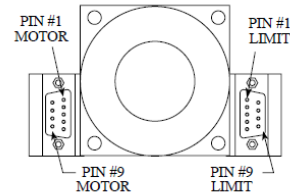
Linear Motor Units			
Pin	Motor Connector (DA-15P)	Limit/Encoder Connector (DE-9S)	Limit/Encoder Connector (HD-15P)
1	Phase 1	+5 Volts	Limit +5V
2	Phase 1	+ Limit Output ¹	Limit Out – Plus
3	Phase 3	– Limit Output	Limit Out – Minus
4	Phase 2	Index Output ²	Shield (Spare)
5	Phase 2	Ground	Limit Ground
6	Ground	Encoder Channel A	Encoder +5V
7	Hall 1	Encoder Channel B	Encoder A
8	Hall 2	Encoder Channel \bar{A}	Encoder A
9	Phase 1	Encoder Channel \bar{B}	Encoder B
10	Phase 3		Encoder B
11	Phase 3		Encoder Z
12	Phase 2		Encoder Z
13	+5 Volts		Home / Reference
14	Fault		Encoder Ground
15	Hall 3		Shield



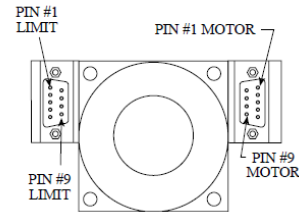
Products utilizing a 23 frame rotary motor include a DE-9P connector for each motor and a DE-9S for the limits/encoder for each axis. Note that the motor mount is inverted on the lower axis of monolithic X-Y tables (2" to 10" travel). The following pinouts apply to our XY, XYR, XYL, OFL, TM, TMS, LM, FM, XM, HM, HMS, Z-Elevator, Z-Theta, RT, and RTR Series units.

23 Frame Rotary Motor Units				
Pin	Motor Connector (DE-9P)			Limit/Encoder Connector (DE-9S)
	Stepper	Servo		
		Brushless	Brush	
1	Coil A	Motor Phase 1	Motor +V	+5 Volts
2	Coil \bar{A}	Motor phase 2	Not connected	+ Limit Output ¹
3	Not connected	Ground	Not connected	- Limit Output
4	Coil B	Hall input 1	Not connected	Index Output ²
5	Coil \bar{B}	Hall input 2	Not connected	Ground
6	Coil A, center tap	Motor phase 3	Motor -V	Encoder Channel A
7	Not connected	+5 volts	Not connected	Encoder Channel B
8	Not connected	Motor Fault Input	Not connected	Encoder Channel \bar{A}
9	Coil B, center tap	Hall input 3	Not connected	Encoder Channel \bar{B}

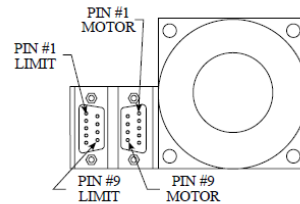
Figure 26a



SINGLE AXIS TABLES, UPPER AXIS OF X-Y TABLES WITH 2"-10" TRAVEL AND BOTH AXES FOR ALL LARGER TABLES



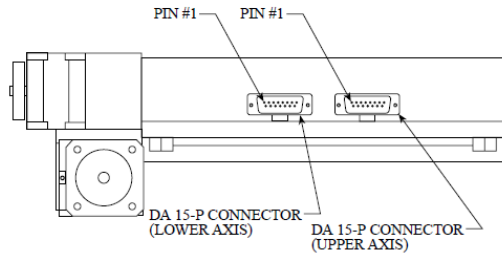
LOWER AXIS OF X-Y TABLES WITH 2"-10" TRAVEL



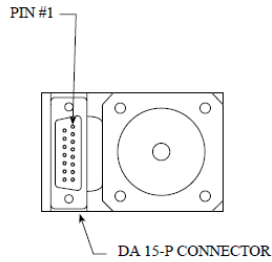
ROTARY TABLES

Figure 26b

Our XYMR, X-Theta, and OFS Series units use a single DA-15P connector for each axis.



XYMR & X-Theta Stages



OFS Series

Figure 26d

XYMR, X-Theta, & OFS Series			
Pin	Motor/Limit/Encoder Connector (DA-15P)		
	Stepper	Servo	
		Brushless	Brush
1	Coil A	Motor Phase A	Motor +V
2	Coil \bar{A}	Motor phase B	
3	Coil B, center tap	H1	
4	+5 Volts	H2	
5	+ Limit Output	+5V Lim/Enc	+5 Volts
6	Encoder Channel \bar{A}	+ Limit Output ¹	+ Limit Output ¹
7	Encoder Channel A	A	- Limit Output
8	Index Output	Z	Index Output ²
9	Coil A, center tap	Motor Phase C	Motor -V
10	Coil B	Hall Ground	Hall Ground
11	Coil \bar{B}	+5V H	Hall input 1
12	Ground	H3	Hall input 2
13	- Limit Output	Logic Ground	Logic Ground
14	Encoder Channel \bar{B}	Lim -	Encoder Channel A
15	Encoder Channel B	Encoder Channel B	Encoder Channel B

Our RM and RMS Series units utilize latching in-line connectors.

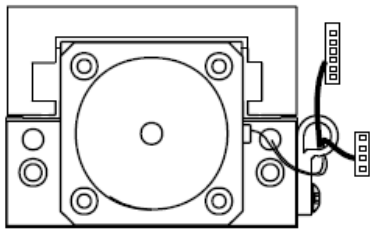


Figure 26e

RM & RMS Series		
Pin	Motor Connector	Limit Connector
1	Coil A	+5 Volts
2	Coil A, center tap	+ Limit Output ¹
3	Coil \bar{A}	- Limit Output
4	Coil B	Ground
5	Coil B, center tap	
6	Coil \bar{B}	

Products utilizing a 17 frame rotary motor with 4 leads include a DE-9P connector for each motor and a DE-9S for the limits/encoder for each axis. The following pinouts apply to our KV, URS and custom stages.

4 LEAD MOTOR / LIMIT WIRING		
PIN	MOTOR CONNECTOR	LIMIT CONNECTOR
1	COIL A	+5 VOLTS
2	N/C	+ LIMIT OUTPUT
3	N/C	- LIMIT OUTPUT
4	COIL B	INDEX OUTPUT
5	N/C	GROUND
6	COIL A BAR	ENC CHAN A
7	N/C	ENC CHAN B
8	N/C	ENC CHAN A/
9	COIL B BAR	ENC CHAN B/