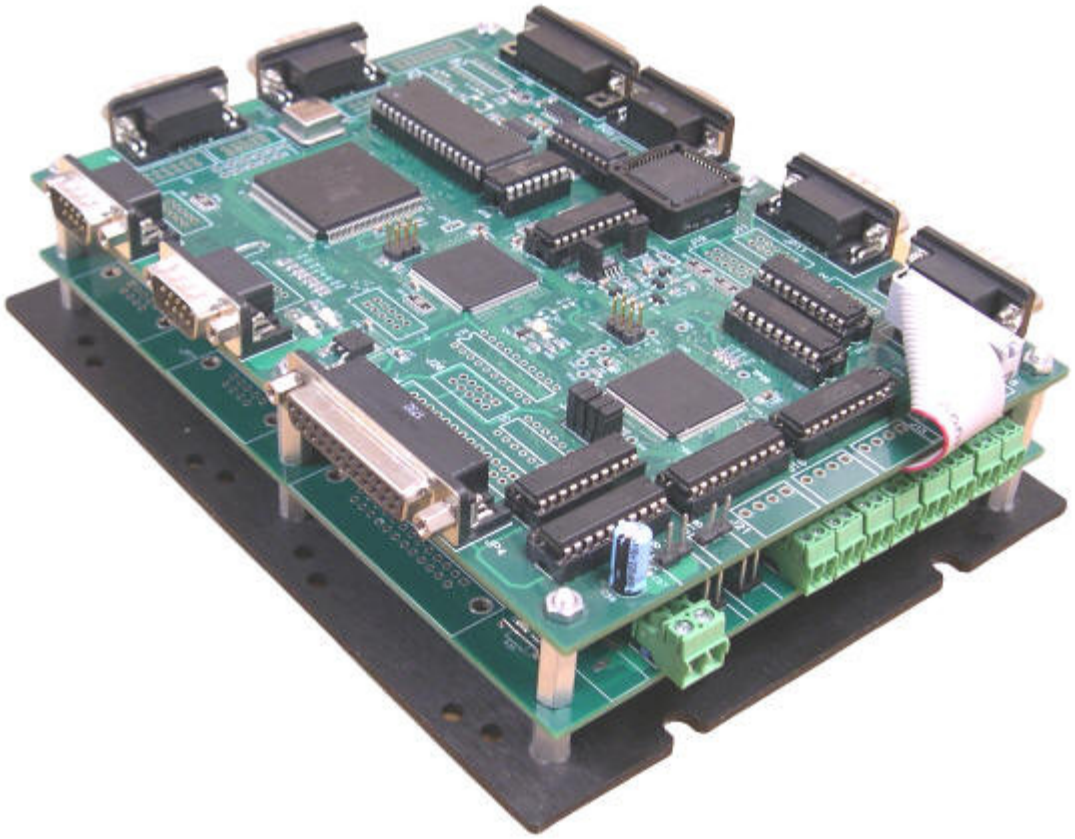
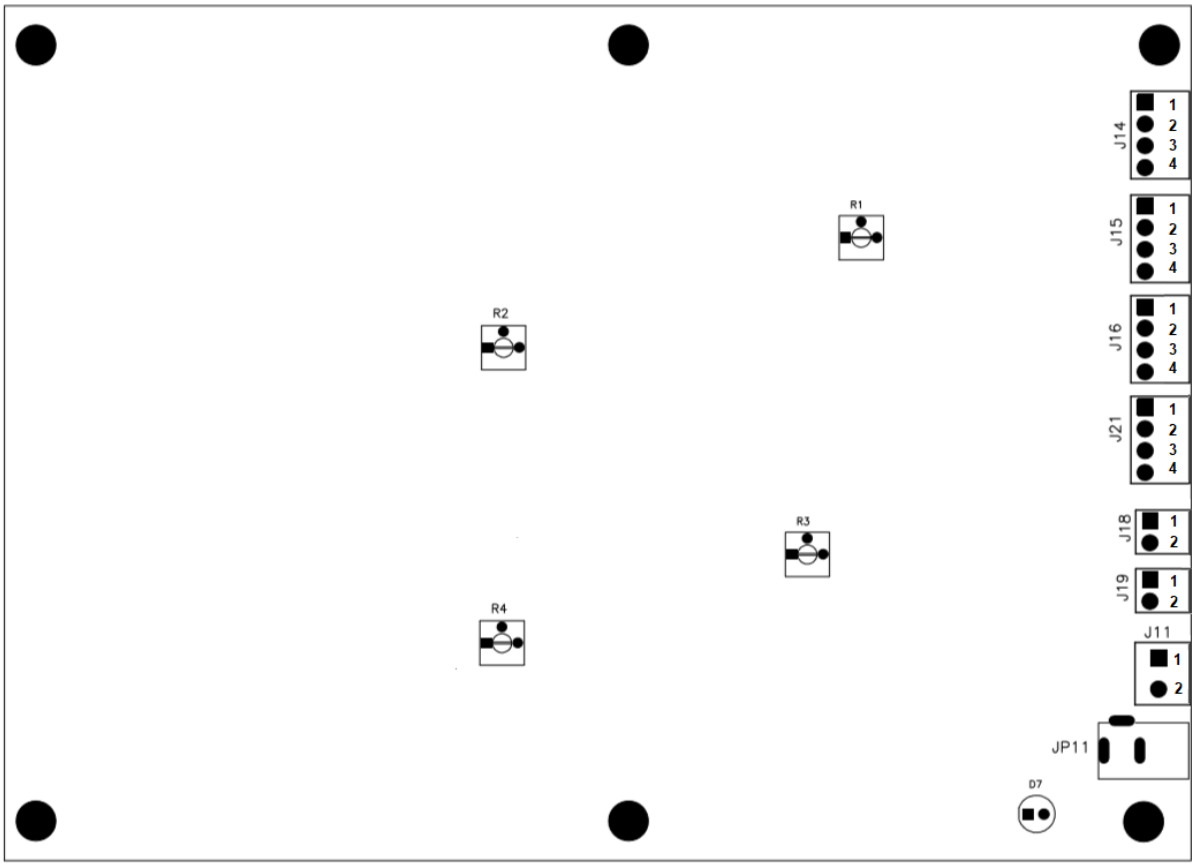
ICAD Series Hardware Reference Manual



Integrated Motion Controller and Driver

www.oesincorp.com

MOTOR DRIVER CARD



PIN ASSIGNMENT AND DESCRIPTION

J11
POWER INPUT

PIN	NAME	DESCRIPTION
1	+24 VDC	+24 VDC INPUT
2	GND	+24 VDC RETURN

JP11
POWER INPUT

Center Pin: +24 VDC
Inside Contact Diameter: 2 mm
Outside Contact Diameter: 6.4 mm
Center Pin Length: 8 mm

J19
+5 VDC OUTPUT

PIN	NAME	DESCRIPTION
1	+5 VDC	+5 VDC OUTPUT
2	GND	+5 VDC RETURN

The R1 potentiometer adjusts the X-axis stepper motor running current. The maximum current is 3.0 Amps when the R1 potentiometer is turned fully CW. The idle current is 70% of the running current.

The R2 potentiometer adjusts the Y-axis stepper motor running current. The maximum current is 3.0 Amps when the R2 potentiometer is turned fully CW. The idle current is 70% of the running current.

The R3 potentiometer adjusts the Z-axis stepper motor running current. The maximum current is 3.0 Amps when the R3 potentiometer is turned fully CW. The idle current is 70% of the running current.

The R4 potentiometer adjusts the W-axis stepper motor running current. The maximum current is 3.0 Amps when the R4 potentiometer is turned fully CW. The idle current is 70% of the running current.

The resolution of the micro-stepper driver is 10 micro-steps per step.

J14
X-MOTOR CONNECTION

The X-axis motor should be connected to this connector.

PIN	NAME	DESCRIPTION
1	PHAX+	STEPPING MOTOR Phase A+
2	PHAX-	STEPPING MOTOR PHASE A-
3	PHBX+	STEPPING MOTOR PHASE B+
4	PHBX-	STEPPING MOTOR PHASE B-

J15
Y-MOTOR CONNECTION

The Y-axis motor should be connected to this connector.

PIN	NAME	DESCRIPTION
1	PHAY+	STEPPING MOTOR PHASE A+
2	PHAY-	STEPPING MOTOR PHASE A-
3	PHBY+	STEPPING MOTOR PHASE B+
4	PHBY-	STEPPING MOTOR PHASE B-

J16
Z-MOTOR CONNECTION

The Z-axis motor should be connected to this connector.

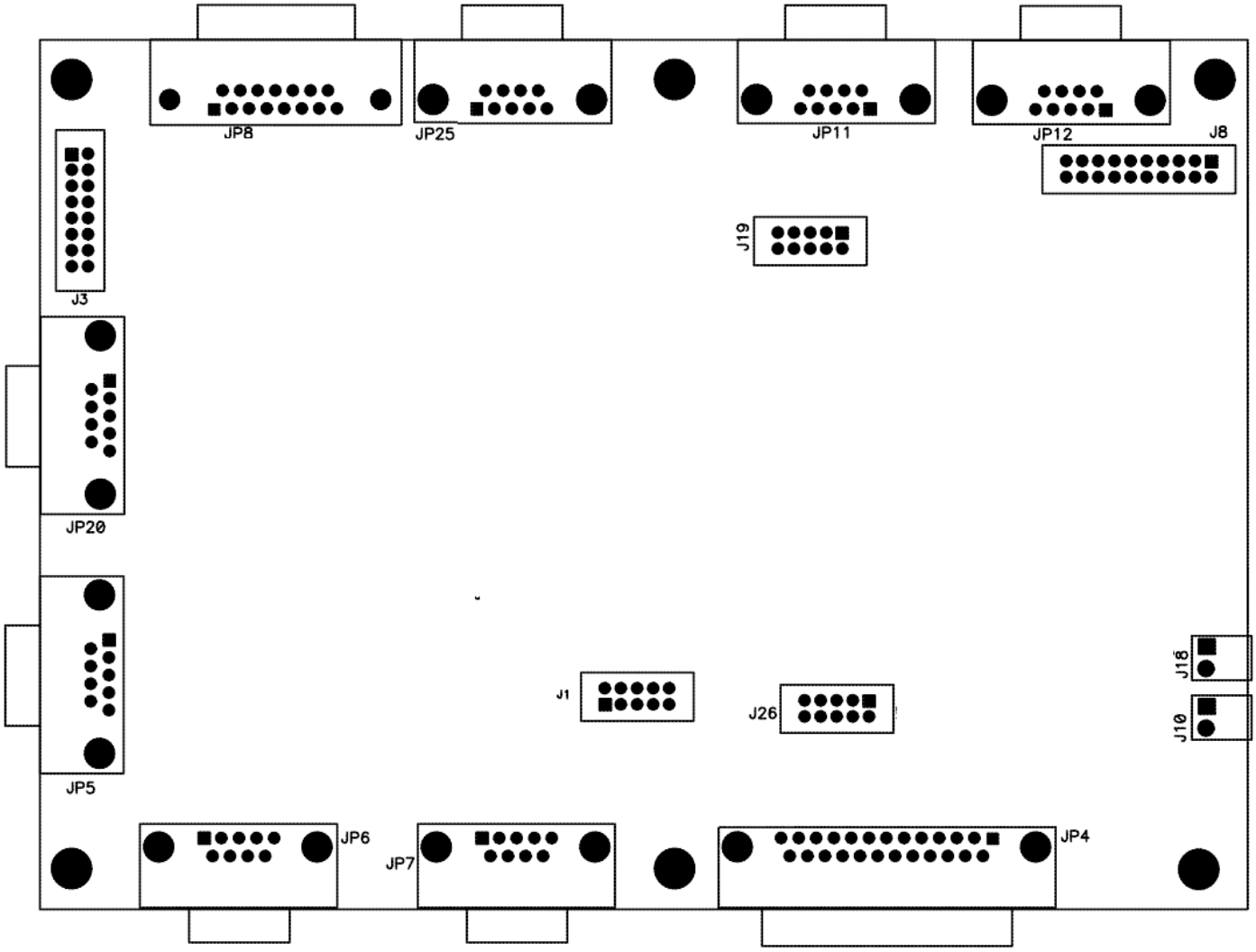
PIN	NAME	DESCRIPTION
1	**PHAZ+**	STEPPING MOTOR PHASE A+
2	**PHAZ-**	STEPPING MOTOR PHASE A-
3	**PHBZ+**	STEPPING MOTOR PHASE B+
4	**PHBZ-**	STEPPING MOTOR PHASE B-

J21
W-MOTOR CONNECTION

The W-axis motor should be connected to this connector.

PIN	NAME	STEPPING MOTOR
1	**PHAW+**	STEPPING MOTOR PHASE A+
2	**PHAW-**	STEPPING MOTOR PHASE A-
3	**PHBW+**	STEPPING MOTOR PHASE B+
4	**PHBW-**	STEPPING MOTOR PHASE B-

CONTROLLER CARD



J10
+5 VDC INPUT

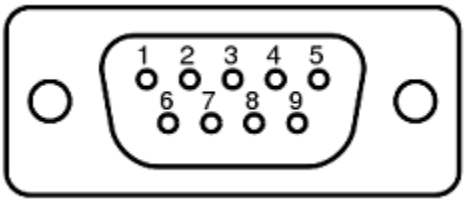
PIN	NAME	DESCRIPTION
1	+5 VDC	+5 VDC INPUT
2	GND	+5 VDC RETURN

J18
STATUS LED

PIN	NAME	DESCRIPTION
1	+5 VDC	+5 VDC INPUT
2	LED	STATUS LED

JP5
X-Axis Limits and Home Switch Connection

9-pin DB-9 Male Connector



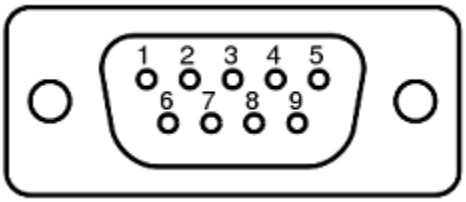
The X-axis positive, negative and home switches should be connected to this port. A normally open switch should be placed between input pins and GND if necessary.

A 10 KOHM pull-up resistor is placed between each input and +5 VDC.

PIN	NAME	DESCRIPTION
1	**POS-LIMIT-X**	X-Axis Positive Limit Switch Input
2	**GND**	System Ground
3	**+5 VDC**	+5 VDC
4	**NEG-LIMIT-X**	X-Axis Negative Limit Switch Input
5	**GND**	System Ground
6	**+5 VDC**	+5 VDC
7	**HOME-X**	Home Switch Input
8	**GND**	System Ground
9	**+5 VDC**	+5 VDC

JP6
Y-Axis Limits and Home Switch Connection

9-pin DB-9 Male Connector



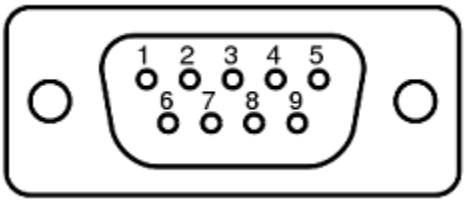
The Y-axis positive, negative and home switches should be connected to this port. A normally open switch should be placed between input pins and GND if necessary.

A 10 KOHM pull-up resistor is placed between each input and +5 VDC.

PIN	NAME	DESCRIPTION
1	**POS-LIMIT-Y**	Y-Axis Positive Limit Switch Input
2	**GND**	System Ground
3	**+5 VDC**	+5 VDC
4	**NEG-LIMIT-Y**	Y-Axis Negative Limit Switch Input
5	**GND**	System Ground
6	**+5 VDC**	+5 VDC
7	**HOME-Y**	Home Switch Input
8	**GND**	System Ground
9	**+5 VDC**	+5 VDC

JP7
Z-Axis Limits and Home Switch Connection

9-pin DB-9 Male Connector



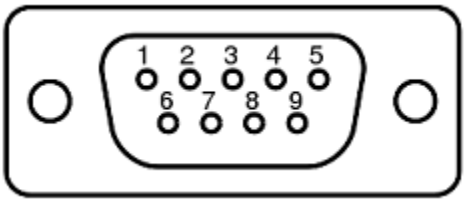
The Z-axis positive, negative and home switches should be connected to this port. A normally open switch should be placed between input pins and GND if necessary.

A 10 KOHM pull-up resistor is placed between each input and +5 VDC.

PIN	NAME	DESCRIPTION
1	**POS-LIMIT-Z**	Z-Axis Positive Limit Switch Input
2	**GND**	System Ground
3	**+5 VDC**	+5 VDC
4	**NEG-LIMIT-Z**	Z-Axis Negative Limit Switch Input
5	**GND**	System Ground
6	**+5 VDC**	+5 VDC
7	**HOME-Z**	Home Switch Input
8	**GND**	System Ground
9	**+5 VDC**	+5 VDC

JP20
W-Axis Limits and Home Switch Connection

9-pin DB-9 Male Connector



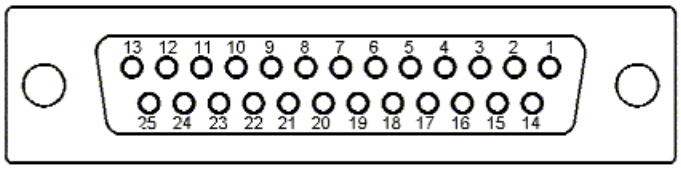
The W-axis positive, negative and home switches should be connected to this port. A normally open switch should be placed between input pins and GND if necessary.

A 10 KOHM pull-up resistor is placed between each input and +5 VDC.

PIN	NAME	DESCRIPTION
1	**POS-LIMIT-W**	W-Axis Positive Limit Switch Input
2	**GND**	System Ground
3	**+5 VDC**	+5 VDC
4	**NEG-LIMIT-W**	W-Axis Negative Limit Switch Input
5	**GND**	System Ground
6	**+5 VDC**	+5 VDC
7	**HOME-W**	Home Switch Input
8	**GND**	System Ground
9	**+5 VDC**	+5 VDC

JP4
Analog Joystick Interface (Optional)

25-pin DB-25 Female Connector



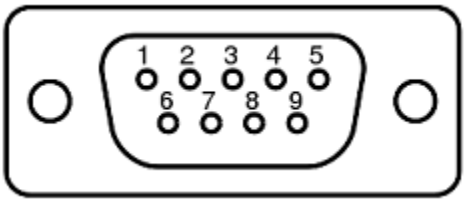
PIN	NAME	DESCRIPTION
1	ANALOG-X	Analog-X Input
2	ANALOG-Y	Analog-Y Input
3	HIGH-SPEED	High Speed Selection Input
4	MEDIUM-SPEED	Medium Speed Selection Input
5	LOW-SPEED	Low Speed Selection Input
6	W-SELECT	W-axis Selection Key
15	ANALOG-Z	Analog-Z Input
16	GND	System Ground
17	GND	System Ground
18	GND	System Ground
19	+5 VDC	+5 VDC
20	+5 VDC	+5 VDC
21	+5 VDC	+5 VDC

JP11
INPUT PORT (Optional)

This port is used to connect and read the state of a discrete signal like a sensor, reed switch or other similar devices, TTL Compatible.

The related command is IN. Please refer to Operating and Programming Reference Manual.

9-pin DB-9 Male Connector



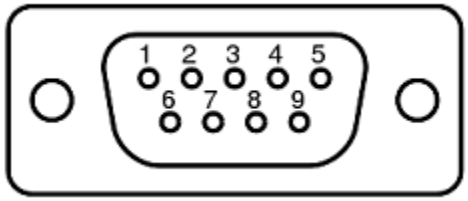
PIN	NAME	DESCRIPTION
1	INBIT0	Discrete Input 0
2	INBIT2	Discrete Input 2
3	INBIT4	Discrete Input 4
4	INBIT6	Discrete Input 6
5	GND	System Ground
6	INBIT1	Discrete Input 1
7	INBIT3	Discrete Input 3
8	INBIT5	Discrete Input 5
9	INBIT7	Discrete Input 7

JP20
OUTPUT PORT (Optional)

This port is used to connect and read the state of a discrete signal like a sensor, reed switch or other similar devices, TTL Compatible.

The related commands are OUT, SETBIT, CLRBIT. Please refer to Operating and Programming Reference Manual.

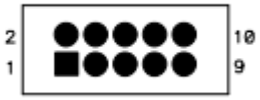
9-pin DB-9 Male Connector



PIN	NAME	DESCRIPTION
1	OUTBIT0	Discrete Output 0
2	OUTBIT2	Discrete Output 2
3	OUTBIT4	Discrete Output 4
4	OUTBIT6	Discrete Output 6
5	GND	System Ground
6	OUTBIT1	Discrete Output 1
7	OUTBIT3	Discrete Output 3
8	OUTBIT5	Discrete Output 5
9	OUTBIT7	Discrete Output 7

JP3
Quadrature Encoder Interface (Optional)

J19
COMMAND PORT

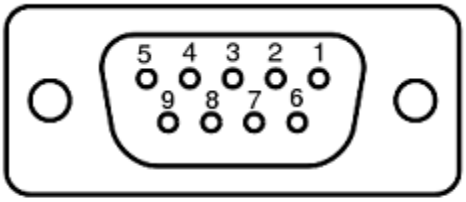


0.1” (2.54 mm) Pitch Header

PIN	NAME	DESCRIPTION
1		Reserved
2		Reserved
3		Reserved
4		Open, A normally closed switch should be used for Limits and Home Switches. Grounded, A normally open switch should be used for Limits and Home Switches.
5		Reserved
6		Reserved
7		Open, The OUTPUT port is HIGH on power up. Grounded, The OUTPUT port is LOW on power up.
8		Open, The joystick is enabled on power up. Grounded, The joystick is disabled on power up.
9	**GND**	System Ground
10	**+5 VDC**	+5 VDC

JP25
RS232 Interface

9-pin DB-9, Female Connector Using DB9-Female to IDC-10 Pin Flat Ribbon Cable (Included)



PIN	NAME	DESCRIPTION
2	**DATA-XMT**	Data Transmit to PC
3	**DATA-RCV**	Data Receive from PC
7	**RESET**	RESET Signal from PC to Controller, Should Be Set to Clear
5	**GND**	System Ground

PLEASE DO NOT CONNECT OR DISCONNECT ANY CABLES WHILE THE POWER IS ON.

Specifications are subject to change without notice.

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