

## Motion Control Development System

# TA9000



- 4 axes of servomotors with encoder feedback
- Plug-in "Personality" Modules allows interface to popular motion controllers
- Ideal for system engineers, application engineers, quality assurance testing, trainers, and instructors
- 5V/24VDC power available for user's I/O
- Eliminates the "Rat's Nest" of wires and cables
- 100-240VAC Operation - no DC power required

Trust Automation's *TA9000* is a 4-axis Motion Control Development System designed by engineers *for* engineers. Ease of connections, and a simple to understand interface, make it an excellent tool for system development, quality testing, and training environments. The TA9000 can be ordered with one or more "Personality" modules, to connect to the motion controller of your choice. All four axes of the TA9000 are servomotors; each driven by a robust amplifier operating in torque-mode. The TA9000 provides the ultimate control over your motion environment; axis I/O is user-configurable for active-High or active-Low; a built-in Home flag on each motor shaft, visible from the front of the enclosure; and super-bright

LEDs give instant status feedback to the engineer. The self-contained TA9000 sits neatly on any desktop; all motors, amplifiers and power supplies are integrated inside its enclosure, eliminating the common "rat's nest" of wires and cables. Enhance your desktop or workstation with the TA9000, and advance your motion control development environment into the next century.



## ● Switch Legend

<i>Position</i>	<i>Function</i>	<i>OFF</i>	<i>ON</i>
1	Enable	Active Low	Active High
2	Fault	Active Low	Active High
3	Home	Active Low	Active High
4	Limit+	Active Low	Active High
5	Limit-	Active Low	Active High
6	Home Source	Switch	Flag

## ● J1 Pinouts

<i>Pin</i>	
1	+5V
2	GND
3	+24V
4	GND
5	I/O IN 0
6	I/O IN 1
7	+24V
8	GND
9	I/O OUT 0
10	GND
11	I/O OUT 1
12	GND

## ● Electrical

Power Requirements	100V, 120V, 220V, or 240V from 50 to 60 Hz; 275VA maximum
Operating Temperature	0° C to 35° C
Each motor is thermally protected	

## ● Mechanical

Width	6 inches (with personality module attached)
Height	13.75 inches
Depth	8.75 inches (allow $\geq 2$ inches clearance at rear for sufficient cooling)
Weight	17.8 pounds



## I/O Map

Point	
A-0	User I/O A-0 @ J1-IN0*
A-1	User I/O A-1 @ J1-IN1*
A-2	User I/O A-2 E-Stop Read
A-3	Button A-3
A-4	Button A-4
A-5	Button A-5
A-6	Button A-6
A-7	User I/O A-7 @ Spare I/O
B-0	User I/O B-0 @ J1-OUT0*
B-1	User I/O B-1 @ J1-OUT1*
B-2	User I/O B-2 E-Stop Arm
B-3	LED B-3 (active LOW)
B-4	LED B-4 (active LOW)
B-5	LED B-5 (active LOW)
B-6	LED B-6 (active LOW)
B-7	User I/O A-7 @ Spare I/O
C-0	User I/O C-0 @ Spare I/O
C-1	User I/O C-1 @ Spare I/O
C-2	User I/O C-2 @ Spare I/O
C-3	User I/O C-3 @ Spare I/O
C-4	User I/O C-4 @ Spare I/O
C-5	User I/O C-5 @ Spare I/O
C-6	n/a
C-7	n/a

## Spare I/O Pinouts

Pin	
1	GND
2	Out 2
3	Out 0
4	Out 1
5	Clock 0
6	Gate 0
7	In Pos 3
9	In Pos 2
11	In Pos 1
13	In Pos 0
15	Analog In 7
17	Analog In 6
19	Analog In 5
21	Analog In 4
23	Analog In 3
25	Analog In 2
27	Analog In 1
29	GND
31	User I/O A-7
33	User I/O B-7
35	User I/O C-0
37	User I/O C-1
39	User I/O C-2
41	User I/O C-3
43	User I/O C-4
45	User I/O C-5
47	DSP Int
48	GND
49	PC- Int
50	GND

## P1 Map

Pin	
1	PC- Int @ Spare I/O
3	DSP Int @ Spare I/O
5	User I/O C-5 @ Spare I/O
7	User I/O C-4 @ Spare I/O
9	User I/O C-3 @ Spare I/O
11	User I/O C-2 @ Spare I/O
13	User I/O C-1 @ Spare I/O
15	User I/O C-0 @ Spare I/O
17	User I/O B-7 @ Spare I/O
19	LED B-6 (active LOW)
21	LED B-5 (active LOW)
23	LED B-4 (active LOW)
25	LED B-3 (active LOW)
27	User I/O B-2 E-Stop Arm
29	User I/O B-1 @ J1-OUT1*
31	User I/O B-0 @ J1-OUT0*
33	User I/O A-7 @ Spare I/O
35	User I/O A-6 Button
37	User I/O A-5 Button
39	User I/O A-4 Button
41	User I/O A-3 Button
43	User I/O A-2 E-Stop Read
45	User I/O A-1 @ J1-IN1*
47	User I/O A-0 @ J1-IN0*
49	5V

## P8 Map

Pin	
1	GND
2	AGND
3	Clock 0 @ Spare I/O
4	+/- 2.5VDC @ Analog 0 Pot
5	-12V
6	Analog In 1 @ Spare I/O
7	+12V
8	Analog In 2 @ Spare I/O
9	5V
10	Analog In 3 @ Spare I/O
11	Gate 0 @ Spare I/O
12	Analog In 4 @ Spare I/O
13	Out 0 @ Spare I/O
14	Analog In 5 @ Spare I/O
15	Out 1 @ Spare I/O
16	Analog In 6 @ Spare I/O
17	Out 2 @ Spare I/O
18	Analog In 7 @ Spare I/O
19	GND
20	AGND

### NOTES:

1. A port IN; B port OUT; C port (user config.)
2. Analog In 0 is connected to external potentiometer
3. \*J1 is 12-pin plugable connector on TA9000.

All other pins GND.



## I/O Map

### Point

A-0	User I/O A-0 @ J1-IN0*
A-1	User I/O A-1 @ J1-IN1*
A-2	User I/O A-2 E-Stop Read
A-3	Button A-3
A-4	Button A-4
A-5	Button A-5
A-6	n/a
A-7	n/a
B-0	User I/O B-0 @ J1-OUT0*
B-1	User I/O B-1 @ J1-OUT1*
B-2	User I/O B-2 E-Stop Arm
B-3	LED B-3 (active LOW)
B-4	LED B-4 (active LOW)
B-5	LED B-5 (active LOW)
B-6	n/a
B-7	n/a
C-0	LED C-0 (active LOW)
C-1	User I/O C-1 @ Spare I/O
C-2	User I/O C-2 @ Spare I/O
C-3	User I/O C-3 @ Spare I/O
C-4	Button C-4
C-5	User I/O C-5 @ Spare I/O
C-6	User I/O C-6 @ Spare I/O
C-7	User I/O C-7 @ Spare I/O

## Spare I/O Pinouts

### Pin

1	User I/O C-1
2	GND
3	User I/O C-2
4	GND
5	User I/O C-3
6	GND
7	User I/O C-5
9	User I/O C-6
11	User I/O C-7
13	In Pos 0
15	In Pos 1
17	In Pos 2
19	In Pos 3
21	GND
23	GND
25	GND
27	GND
29	GND
31	GND
33	GND
35	GND
37	GND
39	GND
41	GND
43	GND
45	GND
47	GND
48	GND
49	GND
50	GND

### NOTES:

A port IN; B port OUT; C port (user config.)

All other pins GND.

# Personality Module MEI XMP DSP Series

# TA9003



## I/O Map

<i>I/O Function</i>	<i>Axes 0-3</i>	<i>Axes 4-7</i>	<i>Axes 8-11</i>	<i>Axes 12-15</i>
ARM	UserIO_A0	UserIO_B2	UserIO_C0	UserO_D2
ARM Readback	UserIO_A2	UserIO_B0	UserIO_C2	UserIO_D0
I/O IN 0 @ J1*	UserIO_A3	UserIO_B3	UserIO_C3	UserIO_D3
I/O IN 1 @ J1*	Xcvr1C	Xcvr5C	Xcvr9C	Xcvr13C
I/O OUT 0 @ J1*	UserIO_A1	UserIO_B1	UserIO_C1	UserIO_B1
I/O OUT 1 @ J1*	Xcvr0C	Xcvr4C	Xcvr8C	Xcvr12C
ANALOG Pot (ANA 0/4)	Analog_IN_0	Analog_IN_4	n/a	n/a
SWITCH 1 (X1A)	Xcvr1A	Xcvr5A	Xcvr9A	Xcvr13A
SWITCH 2 (X1B)	Xcvr1B	Xcvr5B	Xcvr9B	Xcvr13B
SWITCH 3 (X2C)	Xcvr2C	Xcvr6C	Xcvr10C	Xcvr14C
SWITCH 4 (X3C)	Xcvr3C	Xcvr7C	Xcvr11C	Xcvr15C
LED 1 (X0A)	Xcvr0A	Xcvr4A	Xcvr8A	Xcvr12A
LED 2 (X0B)	Xcvr0B	Xcvr4B	Xcvr8B	Xcvr12B
LED 3 (X2A)	Xcvr2A	Xcvr6A	Xcvr10A	Xcvr14A
LED 4 (X2B)	Xcvr2B	Xcvr6B	Xcvr10B	Xcvr14B

## Spare I/O Pinouts

<i>Pin</i>	
1	Xcvr 3B-
2	GND
3	Xcvr 3B+
4	GND
5	Xcvr 3A-
6	GND
7	Xcvr3A+
9	GND
11	Encoder A+
13	Encoder A-
15	Encoder B+
17	Encoder B-
19	Encoder C+
21	Encoder C-
23	GND
25	AOUT-3
27	AOUT-2
29	AOUT-1
31	AOUT-0
33	GND
35	Analog In 3-
37	Analog In 3+
39	Analog In 2-
41	Analog In 2+
43	Analog In 1-
45	Analog In 1+
47	Reset/Analog 4+
48	Analog 4-
49	E-Stop/Analog 5+
50	Analog 5-

## Switch Settings

<i>Switch</i>	<i>Axes 0-3</i>	<i>Axes 4-15</i>
S5-1	0	1
S5-2	0	1
S5-3	0	1
S5-4	0	1
S5-5	1	0
S5-6	1	0
S6-1	1	0
S6-2	1	0
S6-3	0	1
S6-4	1	0
S6-5	1	0
S6-6	1	0

0 = OFF 1 = ON

### NOTES:

\*J1 is a 12-pin pluggable connector on TA9000.

S5 and S6 are internal to personality module.

All other pins GND.

