

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Visit our website - *Click HERE*

VMC 186/40-TA

Four Axis Position and Pressure Control Module for VME Bus Applications

The VMC 186/40-TA is a high performance motion control module with both analog and magnetostrictive transducer feedback for use with VME bus applications. Each axis is independently programmed to operate in position or pressure control modes. The analog inputs may be used either for analog position transducers or for pressure signals. Drive outputs can be configured to work with hydraulic valves and servo drives.

Features

- Analog and magnetostrictive (Temposonics™) inputs in a single module
- Four axes of independent or coordinated control
- Isolated inputs and outputs
- Pressure override and control
- Pressure profiling and plotting
- Direct connection to Magnetostrictive (Temposonics™) sensing devices
- Motion profiles can be changed on the fly using dual port RAM
- Full PID loop control for position and pressure
- One millisecond control loop
- Drive outputs - ±100 mA or ±10 volts

Applications

- Particle board / hard board
- Pinch roller positioning
- Plastics molding
- Investment casting
- Hydraulic actuators
- Palletizers/Stackers
- Laser positioning
- Robotics
- Tube forging machines

Analog Inputs

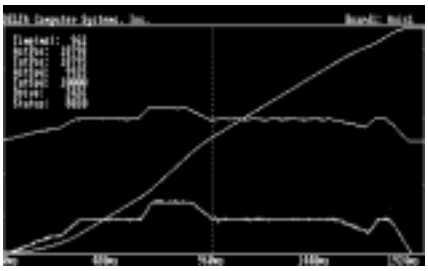
- Inputs configurable for: 4-20 mA, 0-5V, 0-10V, ±5V, and ±10V
- 750 Vdc isolation
- 12 bit resolution
- 1 ms update rate

Magnetostrictive Inputs

- Resolution to 0.0005 inches
- Direct connection to magnetostrictive transducers (Temposonics)
- 1, 2, or 4 recirculations
- Positive or negative interrogation pulses
- Maximum speeds up to 120 inches per second (0.002" resolution)
- Maximum sampling rate of 4kHz
- Transducer lengths up to 130 inches (0.002" resolution)

Diagnostic Program - DCSMON (Requires VME based PC)

- Provides graphic display of latest motion profile pressure and position information



- Provides utilities to calculate motion parameters SCALE, OFFSET & DIRECTION
- Provides access to auto tuning function
- Allows user to activate simple motion profiles
- Permits user to change control parameters
- Displays parameter and status information for multiple axes
- Saves and retrieves graphic diagnostic information to and from disk
- Provides a mode to display previously saved diagnostic graphic information using a PC

DELTA
Computer Systems, Inc.

11719 NE 95th Street, Vancouver, Washington 98682-2444 (360) 254-8688 Fax (360) 254-5435

VMC 186/40-TA

Hardware Information

Analog Inputs	Resolution	12 bits	
	Input Range*	4-20 mA	
		0-5 V	*The range on each channel is independently
		0-10 V	selected. All axes must be unipolar or bipolar.
		±5 V	
		±10 V	
	Input Isolation	750 Vdc	
Magnetostrictive Interface	Interface Type	Start/Stop digital pulse	
	Temposonics I and II	Direct connection	
	Temposonics II & RPM module	One differential driver board per axis (AMP 10)	
	Santest	Direct connection	
	Balluff	Direct connection (BTL-2-N2-XXXX-Z-S50)	
	T&R Electronics	One recirculation only (Consult Delta before using)	
	Input Isolation	2500 VAC optically isolated	
	Recirculations	Provided by module: 1, 2 or 4 (positive or negative pulse)	
	Counters	55.5 MHz	
	Position update rate	One millisecond	
	Sensor protection	4.7 and 15 ohm resistors for sensor power	
Drive Outputs	Output Isolation	2500 VAC optically isolated	
	Current Mode	±100 milliamps	
	Voltage Mode	±10 Volts	
	Resolution	12 bit	
VME Bus Interface	Memory Requirements	512 bytes - 128 allocated for each axis. Intel memory format (Little Endian) available with GE option	
	Address Modifier Support	39H - Standard non-privileged data access (24 bit) 3DH - Standard supervisory access	
	Interrupt Support	Single ROAK (Release On Acknowledge) interrupt for four axes using one of seven IRQ lines (IRQ 1 through IRQ 7)	
Power Requirements	VME Bus	+ 5 VDC @ 2.5 amps maximum	
	External Magnetostrictive sensor	±15 VDC @ 500 mA, +5 VDC @ 500 mA	
	External drive	±15 VDC @ 500 mA	
Mechanical Specifications	Size	6U	
	Connectors		
	Back plane	P1 connector only	
	Linear Sensors	DB-25S	
	Analog Sensors	DB-37S	
	Drive	DB-15S	
Environment	Operating Temperature	+32 to +140 F (0 to +60C)	
	Non-Operating Temperature	-40 to +185 F (-40 to +85C)	
	Storage Temperature	-40 to +185 F (-40 to +85C)	
	Humidity	0 to 93% non-condensing	

Programming Parameters

Hex Offset	Parameter Name	Default Value	Descriptions
00H	Command Position	Read Only	Requested Position with limits checked
02H	Target Position	Read Only	Calculated position of axis
04H	Actual Position	Read Only	Scaled position measurement
06H	Transducer Counts	Read Only	Raw transducer counts
08H	Status Word	Read Only	Axis error and status
0AH	Drive	Read Only	Output drive in raw A/D counts (12 bit)
0CH	Target Speed	Read Only	Calculated speed
0EH	Null Drive	Read Only	Current value for null drive
10H	Pressure Actual	Read Only	Scaled pressure value
12H	Pressure Counts	Read Only	Digital value from analog-to-digital converter
14H	Event Step		
16H	Events Ready		
18H	Datalog Target	Read Only	Calculated target position for one datalog interval
1AH	Datalog Actual	Read Only	Measured position for one datalog interval
1CH	Datalog Status	Read Only	Status Word for one datalog interval
1EH	Datalog Drive	Read Only	Drive value for one datalog interval
20H	Datalog Analog Target	Read Only	Calculated analog value (pressure) for one datalog interval
22H	Datalog Analog Actual	Read Only	Measure analog value (pressure) for datalog interval
24H	Datalog Index	Write Only	Index pointer into any possible datalog interval
26H-2CH	Reserved Words		
2EH	Pressure Parameter		(To be defined)
30H	Pressure Differentiator	0	Differential gain while in pressure mode
32H	Pressure Integrator	0	Integral gain while in pressure mode
34H	Pressure Gain	1000	Proportional gain for pressure control
36H	Pressure Scale	1000	Scale for conversion from analog value to pressure
38H	Pressure Offset	0	Offset pressure value from zero
3AH	Pressure Ramp	0	Change in pressure with respect to time
3CH	Pressure Low	32767	Minimum pressure set-point
3EH	Pressure Command	32767	Desired pressure to maintain
40H	Axis 1 Free Running Clock	Read Only	Free running 16 bit counter using millisecond clock
	Axis 2 Active Bit Interval	256	Active Bit toggle interval in milliseconds (Status Word axis 1)
	Axis 3 Graph Interval	2	Data capture interval (two millisecond increments)
	Axis 4 Reserved		
42H	VME Status_ID	0	VME status code returned during the ROAK interrupt cycle
44H	New Null	2048 (Write Only)	Entry for preset drive offset
46H	Estop Mask	FFFFH	Enables emergency stop on errors (Bit = 0 = Enabled)
48H	Halt Mask	0000H	Enables ramped stop on errors (Bit = 0 = Enabled)
4AH	Interrupt Mask	FFFFH	Enables VME interrupt based on Status Word (Bit = 0 = Enabled)
4CH	Feed Forward Advance	0	Time shift in milliseconds for Feed Forward term
4EH	Null Update	500	Null calculation interval in milliseconds (static integrator)
50H	Minimum Update Time (Axis one only)	1000	Minimum time in microseconds between sensor readings
52H	Dither	0	Static friction drive in percent of full drive
54H	Hysteresis	0	Deadband compensation
56H	Static Gain	50	Proportional gain at rest
58H	Extend Gain	50	Proportional gain when extending
5AH	Retract Gain	50	Proportional gain when retracting
5CH	Integral Gain	0	Integral gain while in motion
5EH	Differential Gain	0	Differential gain
60H	Extend Feed Forward	100	Feed-forward drive when extending
62H	Retract Feed Forward	100	Feed forward drive when retracting
64H	Scale	32768	Measured position conversation number
66H	Position Offset	0	Fixed position offset
68H	Direction	0	Sign of position units with respect to Transducer Counts
6AH	Maximum Position Error	250	Set point for position error indication
6CH	At Command Position	50	Window around Requested Position for status bit
6EH	Near Command Position	0	Window around Requested Position for status bit
70H	Extend Limit	Position on power-up	Maximum length allowed
72H	Retract Limit	Position on power-up	Minimum length allowed
74H	Mode	0	Function selection bits
76H	Acceleration	1000	Acceleration rate or distance
78H	Deceleration	1000	Deceleration rate or distance
7AH	Requested Speed	1000	Maximum speed during a move
7CH	Requested Position	N/A	Destination position in position units
7EH	Command	N/A	Command to be executed (F, G, H, P, O, R, S)

VMC 186/40-TA

Wiring Information

DB37P-A pigtail cable (10 feet) for analog inputs . Cable uses Alpha 6014 or equiv.

Pin #	Function	Wire Color
1	Axis 1 + input	BLACK pair 1
20	Axis 1 - input	RED pair 1
2	Axis 2 + input	BLACK pair 2
21	Axis 2 - input	WHITE pair 2
3	Axis 3 + input	BLACK pair 3
22	Axis 3 - input	GREEN pair 3
4	Axis 4 + input	BLACK pair 4
23	Axis 4 - input	BLUE pair 4
5	Analog common	BLACK pair 5
24	N.C.	YELLOW pair 5
6	N.C.	BLACK pair 6
25	Digital common*	BROWN pair 6
7	B1*	BLACK pair 7
26	B2*	ORANGE pair 7
8	B3*	RED pair 8
27	B4*	WHITE pair 8
9-19	N.C.	
28-37	N.C.	

*Digital I/O circuitry normally not used. Contact Delta for configuration options and implementation.

DB-25P to pigtail cable (6 feet) for magnetostrictive sensor inputs . Cable uses Alpha 1181/25 or equiv.

Pin	Function	Wire Color
1	+15 input	RED
2	Power supply common	BLACK
3	-15 input	WHITE
4	+5 input	GREEN
5	+12 output	ORANGE
6	Common	GRAY
7	Interrogation pulse 1	BROWN
8	+15v axis 1	PINK
9	Return pulse 1	YELLOW
10	-15v axis 1	VIOLET
11	Common	TAN
12	Interrogation pulse 2	BLUE
13	+15v axis 2	RED/BLACK
14	Return pulse 2	RED/YELLOW
15	-15v axis 2	RED/GREEN
16	Common	WHITE/BLACK
17	Interrogation pulse 3	WHITE/BLUE
18	+15v axis 3	WHITE/RED
19	Return pulse 3	WHITE/YELLOW
20	-15v axis 3	WHITE/GREEN
21	Common	WHITE/GRAY
22	Interrogation pulse 4	WHITE/BROWN
23	+15v axis 4	WHITE/ORANGE
24	Return pulse 4	WHITE/BLACK/RED
25	-15v axis 4	WHITE/VIOLET

DB-15P to pigtail cable (6 feet) for Drive outputs. Cable uses Alpha 1181/15 or equiv.

Pin	Function	Wire Color
1	+15 input	RED
2	Power Supply Common	BLACK
3	-15 input	WHITE
4	Common	GREEN
5	Drive Out 1	ORANGE
6	Common	BLUE
7	Common	BROWN
8	Drive Out 2	YELLOW
9	Common	RED/BLACK
10	Drive Out 4	RED/YELLOW
11	Common	RED/GREEN
12	Common	TAN
13	Drive Out 3	PINK
14	Common	GRAY
15	Common	VIOLET

Ordering Information

Part Number: VMC 186/40-TA. Provided with each VMC 186/40-TA: Reference manual, DB15P, DB25P 6' and DB37P 10' pigtail cable, DCSMON software and manual.

Options and Accessories

Part Number	Description
VMC 186/40-TAGE	GE 90/70 PLC compatible version
VMC 186/40-TATI	Siemens TI 575 PLC compatible version
VMC 186/40-TQ	Quadrature encoder interface
SSS/10	1 axis Servo System Simulator
AMP 10	1 axis RS 422 converter(two required)
MCCBS-01	6 ft DB-15P cable with pigtails
MCCBS-02	6 ft DB-25P cable with pigtails
MCCBS-04	10 ft DB37P-A cable with pigtails

Company Profile

Delta Computer Systems, Inc. manufactures motion controllers, color scanners and other industrial controls providing high performance automation solutions to a wide range of industries.

Temposonics is a trademark of MTS Systems, Inc.

Printed in USA 04/07/98

Delta Computer Systems, Inc., 11719 NE 95th Street, Vancouver, Washington 98682-2444 (360) 254-8688

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP