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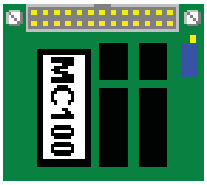
DCX Motion Control Modules

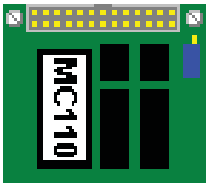


DCX-MC100 Servo Motor Control Module (to be used in conjunction with an external servo amplifier

Supported motor type: DC Brushless, Brush, Hydraulic Servo Valves, Pneumatic Servo Valves

Command output: **+/- 10 volt, 12 bit analog for use with servo amplifier**

I/O
Inputs, TTL (0 - +5V, low active), Encoder Coarse Home, Limit +, Limit -, and Amplifier Fault
Output TTL (0 - +5V, low active, 10ma max.) – Amplifier Inhibit
Feedback: Quadrature Incremental Encoder , 750 KHz maximum frequency,
Differential (A+, A-, B+, B-, Z-) or Single ended (A, B, Z-)



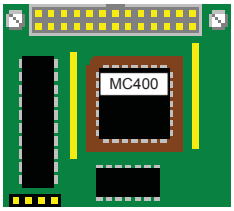
DCX-MC110 Servo Motor Control Module (for direct drive of small brush motors)

Supported motor type: Small DC Brush

Command output: **+/- 12 volt, 8 bit, 0.5A max.**

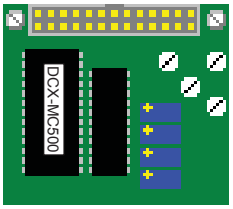
I/O
Inputs, TTL (0 - +5V, low active), Encoder Coarse Home, Limit +, Limit -, and Amplifier Fault
Output TTL (0 - +5V, low active, 10ma max.) – Amplifier Inhibit
Feedback: Quadrature Incremental Encoder, 750 KHz maximum frequency,
Differential (A+, A-, B+, B-, Z-) or Single ended (A, B, Z-)

DCX General Purpose I/O Modules



DCX-MC400 - 16 Channel Digital I/O Expansion module

Each channel is individually programmable as either an input or output
TTL level (0 – 5 volt, 2 ma sink/source)



DCX-MC500 – 4 Channel Analog I/O Expansion module

Inputs – 4 channels, 0 – 5 volts, 12 bit
Outputs – 4 channels, 0 – 5 volts and/or –10 - +10 volts, 12 bit

Ordering Options:
MC510 – 4 input channels only
MC520 – 4 output channels only

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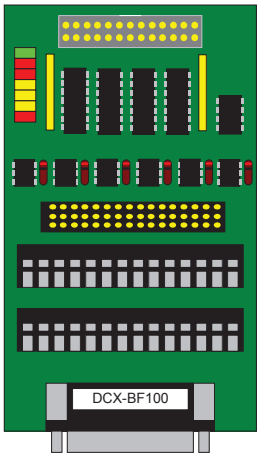
DCX Motion Control Breakout Assemblies

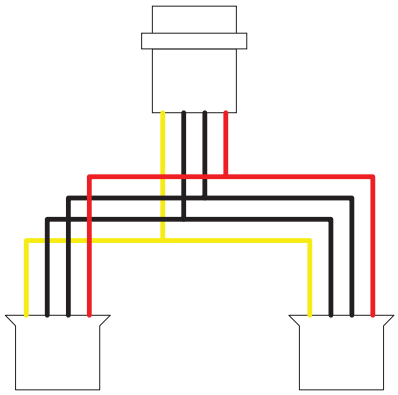


DCX-BF100 – Opto isolation and Interconnect assembly for DCX Servo Motor Control Modules (DCX-MC100, DCX-MC110)

Opto isolated inputs – Enc. Coarse Home, Limit +, Limit -, Amp Fault
Open collector output – Amplifier Enable
Differential receiver for Index +, Index –
External system connections via DB25 or two 14 contact screw terminal strip

LED indicators for:
- Amplifier enable
- Encoder Coarse Home
- Limit +
- Limit –
- Amplifier Fault

DCX Motion Control Accessories



Disk Drive Power Splitter Cable (P/N 71.060.A) – Connects PC computer +12 volts to the DCX-PCI100 motion controller

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DCX-MC100 - +/- 10 Volt Analog Servo Motor Control Module

Function	Closed Loop Servo Controller
Installation	DCX-PCI100 Motion Control Motherboard
Operating Modes	Position, Velocity
Filter Algorithm	PID
Filter Update Rate	2.932 KHz
Trajectory Generator	Trapezoidal with common Acceleration / Deceleration
Position Feedback	Incremental Encoder with Index
Position and Velocity Resolution	30 bit
Output	Analog Signal (+/- 10 vdc @ 10 ma, 12 bit)
Encoder and Index Inputs	Differential or single ended, -7 to +7 vdc max.
Encoder Count Rate	750,000 Quadrature Counts/Sec.
Encoder Supply Voltage	+5 or +12 vdc, user selectable
Axis Inputs	Limit+, Limit-, Coarse Home, Amplifier Fault (TTL level, low active)
Axis Outputs	Amplifier Inhibit (TTL compatible)
Operating Temperature range	0 degrees C to 60 degrees C

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DCX-MC110 – Direct Drive Servo Control Module

Function	Closed Loop Servo Controller
Installation	DCX-PCI100 Motion Control Motherboard
Operating Modes	Position, Velocity
Filter Algorithm	PID
Filter Update Rate	2.932 KHz
Trajectory Generator	Trapezoidal with common Acceleration / Deceleration
Position Feedback	Incremental Encoder with Index
Position and Velocity Resolution	30 bit
Output	0 - +12 volt @ 0.5A
Encoder and Index Inputs	Differential or single ended, -7 to +7 vdc max.
Encoder Count Rate	750,000 Quadrature Counts/Sec.
Encoder Supply Voltage	+5 or +12 vdc, user selectable
Axis Inputs	Limit+, Limit-, Coarse Home, Amplifier Fault (TTL level, low active
Axis Outputs	Amplifier Inhibit (TTL compatible)
Operating Temperature range	0 degrees C to 60 degrees C

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DCX-MC400 - 16 channel Digital I/O Module

Function	16 Channel Digital I/O module
Installation	DCX-PCI100 Motion Control Motherboard
Channels	16, individually programmable as inputs or outputs
Output low voltage (min)	0.0 volt
Output high voltage (min)	2.4 volt
Current sink	1 ma max.
Current source	1 ma max.
Input Low voltage	-0.3V min. to 0.8V max.
Input High voltage	2.0V min. to 5.3V max.
Input termination	4.7K ohm per channel
Relay rack interface	DCX-BF022
Operating Temperature range	0 degrees C to 60 degrees C

DCX-MC5X0 - Analog I/O Module

Function	DCX-MC500 – 4 A/D channels, 4 D/A channels DCX-MC510 – 4 A/D channels DCX-MC520 – 4 D/A channels
Installation	DCX-PCI100 Motion Control Motherboard
Input resolution	12 bit
Input voltage range	0.0V to +5.0V
Output resolution	12 bit
Output voltage range	0.0V to +5.0V (@ 5ma), -10V to +10V (@ 5ma)
Output Offset Adjustment	20 turn trim pot (+/- 10V outputs only)
Output Full Scale Adjustment	single turn trim pot (+/- 10V outputs only)
Operating Temperature range	0 degrees C to 60 degrees C

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DCX-MC500 Electrical Specifications

Parameter	Min.	Max	Unit
Input Resolution	12		Bits
Input Conversion Rate		10	KHz
Input Zero Error Using Internal Reference Using External Reference		 +/- 3 +/- 1/2	 LSB LSB
Input Full-Scale Error Using Internal Reference Using External Reference		 +/- 15 +/- 1/2	 LSB LSB
Input Zero Temp. Coefficient		0.5	ppm/C
Input Differential Nonlinearity		+/- 1	LSB
Input Total Unadjusted Error Using Internal Reference Using External Reference		 +/- 15 +/- 1	
Input Voltage Range Using Internal Reference Using External Reference	 0.0 0.0	 5.0 Vref	
Input Capacitance		8	
Input Leakage Current		100	
External Reference Voltage	4.0	6.0	

Parameter	Min.	Max	Unit
Output Resolution	12		Bits
Output Zero Code Error *			LSB
Output Full Scale Error *			LSB
Output Nonlinearity *			LSB
Output Total Unadjusted Error *			LSB
Output Voltage Range	0.0 -10.0	5.0 +10.0	V V

* These values are for 0 to +5.0 volt outputs

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