Sold by Servo Systems Co. 115 Main Road, P.O. Box 97, Montville, NJ 07045-0097 Toll Free: (800) 922-1103 Phone: (973) 335-1007 Fax: (973) 335-1661 www.servosystems.com

MICRO TM 4/7

INTEGRATED MICROSTEPPING MOTOR DRIVER AND HIGH PERFORMANCE MACHINE/PROCESS CONTROLLER

FEATURES

- Integrated Driver and Controller in One Package
- Low Cost
- Ultra Small Size (2.4 x 3.5 x 2.9 inches) (60.96 x 88.9 x 73.66 mm)
- 2 Drive Output Selections:
 +12 to +48 VDC, 3A RMS 4A peak
 +24 to +75 VDC, 5A RMS 7A peak
- Single Supply Operation
- No Minimum Motor Inductance
- Microstep Resolution up to 51,200 Steps per Rev. (1.8° Motor)
- Programmable Current Settings Boost Acceleration and Allow Motor to Run Cooler
- Electronic Gearing*
- Open or Closed Loop* Control
- Motion Values Scalable to any Units
- Six +5 to +24 VDC Isolated I/O Lines (Expandable to 24)
- Programmable Digital Filtering for Inputs
- 32 Bit Floating Point Math, Logic and Conditional Functions
- Simple 2 to 5 Letter Programming Instructions Similar to Basic
- 7 Hardware and 62 Software Addresses for Multi-Drop Communications
- Isolated Independent RS-232 and RS-485 with Selectable BAUD Rate to 38.4K, Full or Half Duplex or CAN Bus†
- O to 5MHz Step Clock Rate, Selectable in 0.005Hz Increments
- 4 Pre-Defined and 1 User Defined Acceleration/Deceleration Curves
- Easy to Wire Removable Terminal Strips or Optional Pin Headers‡
- 3 Expansion Slots for Optional Accessory Modules
- Short Circuit and Over Temp Protection
- Power and Fault LED
- * Requires High-Speed Differential I/O Module † RS-232 or RS-485 Available on Port 2 with Optional Expansion Module
- ‡ I/O, Communication and Expansion Modules Only



DESCRIPTION

The MicroLYNX is a powerful machine control system integrating a bipolar microstepping driver and expandable programmable controller into a compact panel mounted assembly.

Differential I/O modules give the MicroLYNX the capability of driving two additional axes sequentially or allowing electronic gearing by following a rotary or linear axis, or outputting a second clock at an electronically controlled ratio.

The MicroLYNX provides for two fully independent communication ports. It will accept commands from either port and direct output to either as well. A system could be configured to use COMM port one to communicate to a host PC or PLC while the second communicates with an operator interface or additional MicroLYNX.

Available in two output power ranges, MicroLYNX fits a variety of motor sizes. Features such

as +5 to +24 VDC isolated I/O, multiple communication types and numerous expansion options make the MicroLYNX an effective and powerful machine control solution.

EXPANDABILITY

The MicroLYNX can be used to control systems both simple and complex. With plug-on accessory modules OEM's have the option of only purchasing the features they need for any given system design, reducing overall cost of the system. The MicroLYNX can be field upgraded. By simply removing the side cover an expansion module can be added or changed, keeping system downtime to a minimum.

UPGRADABILITY

Software for the MicroLYNX is upgradeable. Updates are posted on the IMS web site and can be downloaded and installed using the IMS Terminal/Upgrade software provided with the MicroLYNX. This allows older units to use new features and expansion modules as they become available.

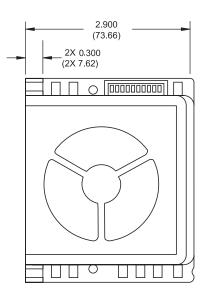
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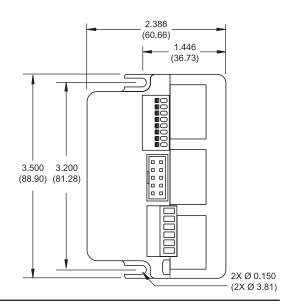
GENERAL SPECIFICATIONS

ELECTRICAL —		MOTION —	
		MUTION	
Power Supply Requirem	ents	Counters	Desirios Francisco Francisco CO Dita
Voltage ¹ -4 version	+12 to +48 VDC	Edge Rate (Max)	. Position, Encoder1, Encoder2: 32 Bits . 5 MHz
¹ Includes Motor Back EMF, Ripple a		Electronic Gearing† External Clock In	
Current2 -4 version	2 Amps typical 3 Amps typical	Range *	. 32 Bits
2Actual requirements depend on as settings.	oplication and programmable current	Resolution	. 16 Bits
RECOMMENDED SUPPLY	Y: ISP200 (-4/-7)	Velocity Range	
Motor Drive		Resolution	. U.UU5 steps/sec . 25.6 Microseconds
Motor Type Motor Current (software progiture) -4 version -7 version Resolution Number of settings	rammable) to 4 Amps peak to 7 Amps peak	Acceleration/Decelera Range	tion . ±1,530,000,000 steps/sec ²
Steps per Revolution (1.8° Motor)	400, 800, 1000, 1600, 2000,	SOFTWARE -	
	3200, 5000, 6400, 10000, 12800, 25000, 25600, 50000, 51200	User Program Space Number of User Definable Labels, Variables and Flags	. 291
General Purpose I/O		Program and Data Storage Math, Logic and Conditional	. Flash
Pull-ups	+5 to +24 VDC350 mA215Hz to 21.5kHz (programmable)7.5 kOhm individually switchable+5 VDC on-board or externally up		. 32 Bit Floating Point Math IEEE Format–Add, Subtract, Multiply, Divide, Sine, Cosine, Tangent, Arc Sine, Arc Cosine, Arc Tangent, AND, OR, XOR, NOT, Less Than, Greater Than, Equal, Square Root, Absolute, Integer Part, Fractional Part.
Isolated Ground	Inductive Clamp Common to 6 I/O	Acceleration & Deceleration	Separate Variables and Flags 4 Pre-Defined Types and 1 User Defined
COMMUNICATION	· ———	Isolated I/O Line	Dedicated or General Purpose
Asynchronous		Predefined I/O Functions Program Trip Functions	
Interface Type Number of Bits/Character	COMM 2: RS-485	User Programs	1 Velocity Trip . 2 Executed Simultaneously – 1 Foreground, 1 Background
Parity Handshake Baud Rate	none none 4.8 to 38.4kbps selectable 16 bit check sum (binary mode)	Party Mode Names	. 62 . 2 – ASCII, Binary . Backlash
CAN		ENVIRONMENTA	L ———
	•	Ambient Operating Temp Storage Temperature Humidity * Can be duty cycle dependent.	. –20 to 70° C
2 receive message frames 1 transmit frame	13. 3.6.1 2.6.5 / 1.0010	MECHANICAL —	(see Mechanical Spece)
	Common to COMM1 and COMM2	# of Expansion Modules Cooling	. up to 3 . Built-in fan . 2–#6 (or M3.5) machine screws

MECHANICAL SPECIFICATIONS

Dimensions in Inches (mm)





CONNECTORS

Power and Motor

6 position pluggable terminal block connector.

PIN	SIGNAL NAME	FUNCTION	
1	Phase A		
2	Phase /A	Motor Connections	
3	Phase B	IVIOLOI* COTTIECTIONS	
4	Phase /B		
5	+V	Input Dower	
6	Ground	Input Power	

Power and Motor Connections

Communication – Dual COMM Version

7 position pluggable terminal block connector or optional 10 pin pin-header.

PIN	CONNECTOR OPTION		
	TERMINAL BLOCK	PIN HEADER	
1	232RX	NO CONNECT	
2	232TX	232TX	
3	485RX-	232RX	
4	485RX+	NO CONNECT	
5	485TX-	C GROUND	
6	C GROUND	485RX+	
7	485TX+	485RX-	
8		485TX-	
9		485TX+	
10		C GROUND	

Asynchronous Communications Connections

SWITCHES

SWITCH	SIGNAL NAME	FUNCTION
1–6	1/0 21-26	Pull-up on/off Switches for I/O Lines 21–26
7–9	Address 2-0	Multi-drop Communication Address (also settable by software)
10	Upgrade	Firmware Upgrade

CAN Version

7 position pluggable terminal block connector or optional 10 pin pin-header.

PIN	CONNECTOR OPTION		
	TERMINAL BLOCK	PIN HEADER	
1	V– (C Ground)	NO CONNECT	
2	CAN_L	CAN_L	
3	SHIELD	V- (C Ground)	
4	CAN_H	SHIELD	
5	NC (reserved for V+)	SHIELD	
6	/CONFIG	NO CONNECT	
7	NO CONNECT	CAN_H	
8		NO CONNECT	
9		NC (reserved for V+)	
10		/CONFIG	

CAN Comm1 Communications Connections (Comm2 Available with Expansion Modules)

General Purpose I/O

8 position pluggable terminal block connector or optional 10 pin pin-header.

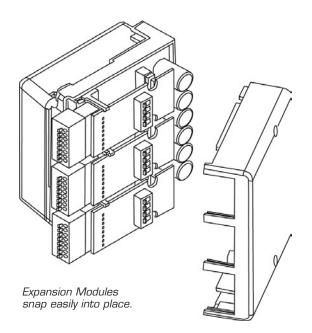
PIN	CONNECTOR OPTION		
	TERMINAL BLOCK	PIN HEADER	
1	VPULLUP	1/0 21	
2	1/0 21	1/0 22	
3	1/0 22	VPULLUP	
4	1/0 23	1/0 23	
5	1/0 24	FAULT INPUT +	
6	1/0 25	1/0 24	
7	1/0 26	FAULT INPUT -	
8	I/O GROUND	1/0 25	
9		I/O GROUND	
10		1/0 26	

General Purpose I/O Connections

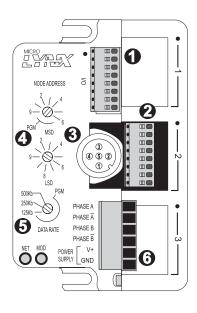
EXPANSION MODULES

Up to three expansion modules can be added. Modules can be combined to fill the three expansion slots. Module types are limited to 2 Analog Input/Joystick Modules, 2 Analog Output Modules, 1 Twelve Channel I/O Module, up to 2 High-Speed Differential I/O Modules, and up to 3 General Purpose I/O Modules per system.

By simply removing two screws on the side cover, expansion modules can be added, removed or reconfigured. No additional hardware is required. Modules snap easily into place, making even field change quick and easy.



DEVICENET MicroLYNX



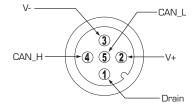
- 1/0 Connector
- 2 Encoder Connector*
- 3 DeviceNet Connector
- 4 Address Select Switches
- 6 Data Rate Select Switch
- 6 Motor/Power
 - * High Speed Differential I/O Board Optional for Encoder Functions. Board must be placed in Expansion Slot #2. Note that the High Speed Differential I/O Expansion is the ONLY Expansion Module available for the DeviceNet MicroLYNX.

The DeviceNet MicroLYNX is specifically designed to conform with ODVA Volume II, Release 2.0 Errata 3 as a Position Controller (Device Type 16).

- Node Address MSD and LSD switch-selectable on front panel.
- Data Rate switch-selectable on front panel.
- Conforms to the Predefined Master/Slave Connection Set as a group 2 Slave.
- Supports Poll IO and Explicit Messaging.
- Included GUI to aid in configuration and EDS file.
- No support for UCMM.

Communication

5 Pin DeviceNet Micro, Male



DeviceNet I/O

8 position pluggable terminal block connector or optional 10 pin pin-header.

PIN	CONNECTOR OPTION		
	TERMINAL BLOCK	PIN HEADER	
1	VPULLUP	Home Input	
2	Home Input	CW Limit Input	
3	CW Limit Input	VPULLUP	
4	CWW Limit Input	CWW Limit Input	
5	Fault Input	NC	
6	Brake Output	Fault Input	
7	General Purpose	NC	
8	I/O Ground	Brake Output	
9		I/O Ground	
10		General Purpose	

DeviceNET I/O Connections

ORDER INFORMATION

Standard Product Shown in *Bold Italics*. Longer Lead Times May Apply to Other Versions.

Note: Terminal Block Mating Connector Supplied.
Pin Header Mating Connector Not Supplied, order information at www.imshome.com/quick.html.

MICROLYNX CONTROL SYSTEMS

TYPE	DESCRIPTION	CONNECTOR TYPE		PART NUMBER	
		COMMUNICATION	I/O	4 AMP DRIVER	7 AMP DRIVER
0 10 10	[6] +5 to +24 VDC lso- lated I/O, RS-232 and RS-485 Communication, 4 or 7 Amp Motor Drive	Pin Header**	Terminal Block	MX-CS100-401	MX-CS100-701
Control System with Asynchronous		Terminal Block	Terminal Block	MX-CS101-401	MX-CS101-701
Communication		Pin Header**	Pin Header	MX-CS102-401	MX-CS102-701
Communication		Terminal Block	Pin Header	MX-CS103-401	MX-CS103-701
	[6] +5 to +24 VDC Isolated I/O, CAN	Pin Header	Terminal Block	MX-CS200-401	MX-CS200-701
Control System with		Terminal Block	Terminal Block	MX-CS201-401	MX-CS201-701
CAN Communication	Communication,	Pin Header	Pin Header	MX-CS202-401	MX-CS202-701
	4 or 7 Amp Motor Drive	Terminal Block	Pin Header	MX-CS203-401	MX-CS203-701
Control System with DeviceNet Communication	[6] +5 to +24 VDC Isolated I/O, DeviceNet Communication, 4 or 7 Amp Motor Drive		Terminal Block	MX-CS300-401	MX-CS300-701
		DeviceNet Micro,	Pin Header	MX-CS302-401	MX-CS302-701
		Male		**Communic	ation cable accessory

^{**}Communication cable accessory recommended with first order.

EXPANSION MODULES

TYPE (max # per system)	DESCRIPTION	PART NUMBER	
		TERMINAL BLOCK	PIN HEADER
Isolated Digital I/O Module (3)	[6] +5 to +24 VDC General Purpose Isolated Digital I/O	MX-DI100-000	MX-DI200-000
High-Speed Differential	[3] High-Speed Differential (or Single Ended) Lines for General Purpose I/O, Encoder Feedback, Electronic Gearing, or Driving an Additional Axis Sequentially	MX-DD100-000	MX-DD200-000
Analog Input/Joystick Module (2)	[2] Channels of O to +5 VDC 12 Bit Resolution Analog Input or Single Axis Joystick	MX-AJ100-000	MX-AJ200-000
Analog Output Module (2)	[2] Channels (Up to 4 total) of 0 to +5 VDC 12 Bit Resolution Analog Output	MX-DA100-000	MX-DA200-000
RS-232 Communication Module (1)	RS-232 Port 2 Communication Module used <i>only</i> with CAN Based Control Sytem – <i>cannot combine with RS-485 Module</i>	MX-CM102-000	MX-CM202-000
RS-485 Communication Module (1)	RS-485 Port 2 Communication Module used <i>only</i> with CAN Based Control System – <i>cannot combine with RS-232 Module</i>	MX-CM104-000	MX-CM204-000
12 Channel I/O	General Purpose I/O Module with		MX-DI400-000
Module (1)	Twelve +5 to +24 VDC Isolated Digital I/O	Not Available	PIN & RECEPTACLE MX-DI401-000†

†Refer to 12 Channel I/O page for details.

ACCESSORIES

TYPE	DESCRIPTION	PART NUMBER
Human Machine Interface (HMI)	A Programmable User Interface with 20 Character by 4 Line Display, 6 Function Keys, Numeric Keypad	LX-HI100-000
Communication Cable	10 Pin Pin-Receptacle to 9 Pin Sub D Provides Easy Connection for RS-232 Communication	MX-CC100-000
Communication Cable (For Party Line)	[2] 10 Pin Pin-Receptacle to 9 Pin Sub D (For Party Line Communication with Two MicroLYNX) Provides Easy Connection for RS-232 Communication to First MicroLYNX and RS-485 Communication from First to Second MicroLYNX	MX-CC200-000
Operating Manual	Operating Instruction Manual for MicroLYNX Systems - Paper Version*	LX-0M200-000
6 Pin Terminal Block	[6] Pin Screw-Type Terminal Block – Motor and Power	MX-CN006
7 Pin Terminal Block	[7] Pin Spring Clamp Terminal Block O.1" Center – MicroLYNX Communications	MX-CN007
8 Pin Terminal Block	[8] Pin Spring Clamp Terminal Block O.1" Center, MicroLYNX I/O and Expansion Modules	MX-CN008
CAN Dongle	Communication Cable for MicroLYNX CAN Version	MX-CC500-000
DeviceNet Programmer	Cable for use in Upgrading MicroLYNX DeviceNet Firmware	MX-CC600-000

*Manual on CD provided with system shipment.